



PROJECT ID: HH112BLEL

THE CITY OF NEW YORK  
DEPARTMENT OF DESIGN AND CONSTRUCTION  
DIVISION OF PUBLIC BUILDINGS

30-30 THOMSON AVENUE  
LONG ISLAND CITY, NEW YORK 11101-3045  
TELEPHONE (718) 391-1000  
WEBSITE [www.nyc.gov/buildnyc](http://www.nyc.gov/buildnyc)

**LAW**

VOLUME 1 OF 3

# BID BOOKLET

FOR FURNISHING ALL LABOR AND MATERIALS  
NECESSARY AND REQUIRED FOR:

## Bellevue Men's Shelter Elevator Rehabilitation

LOCATION:  
BOROUGH:  
CITY OF NEW YORK

400 East 30th Street  
Manhattan 10016

CONTRACT NO. 1

GENERAL CONSTRUCTION WORK

Dept of Homeless Services

WSP Group



Date: January 12, 2015

5-115



Bid Tab

REVISED

Description

BELLEVUE MEN'S SHELTER ELEVATOR  
REHABILITATION - BOROUGH OF MANHATTAN

Bid Date	6/8/2015	FMS ID	HH112BLEL
Estimated Cost	\$4,588,964.00	Client Agency	Dept. of Homeless Services
Bid Security	Not less than 2% of Total Bid Price	PLA	Yes
Time Allowed	540 CCD	Contract Manager	*Melanie Sanchez
Addendum	1	Project Manager	Bubniak, John
PIN	8502015HL0002C	E-PIN	85015B0101
Selective Bidding	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Consultant	WSP Group

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Bid Rank	Vendor	Bid Amount	Security Type
1	FIVE STAR CONTRACTING COMPANIES, INC.	\$4,865,000.00	Bond
2	KUNJ CONSTRUCTION CORP	\$5,992,537.80	Bond
3	LANMARK GROUP, INC.	\$10,094,836.50	Bond

SUBCONTRACTORS:

PLBG: Mar-Sal Plumbing \$150,000.00  
HVAC: AMH Mechanical \$350,000.00  
Electrical: High Volt Elect. \$250,000.00

Recorder: Brenda Barreiro ext. 1041

Approver: *Lorraine Holley*



100-100000-100000



October 29, 2015

**CERTIFIED MAIL - RETURN RECEIPT REQUEST**  
**FIVE STAR CONTRACTING COMPANIES, INC.**  
**64 FULTON STREET, SUITE 703**  
**NEW YORK, NY 10038**

RE: FMS ID: HH112BLEL  
E-PIN: 85015B0101001  
DDC PIN: 8502015HL0002C  
BELLEVUE MEN'S SHELTER ELEVATOR  
REHABILITATION - BOROUGH OF  
MANHATTAN  
**NOTICE OF AWARD**

Dear Contractor:

You are hereby awarded the above referenced contract based upon your bid in the amount of \$4,865,000.00 submitted at the bid opening on June 08, 2015. Within ten (10) days of your receipt of this notice of award, you are required to take the actions set forth in Paragraphs (1) through (3) below. For your convenience, attached please find a copy of Schedule A of the General Conditions to the Contract, which sets forth the types and amounts of insurance coverage required for this contract.

- (1) Execute four copies of the Agreement in the Contracts Unit, 30-30 Thomson Avenue, 1<sup>st</sup> Floor, Long Island City, New York (IDCNY Building). A Commissioner of Deeds will be available to witness and notarize your signature. The Agreement must be signed by an officer of the corporation or a partner of the firm.
- (2) Submit to the Contracts Unit four properly executed performance and payment bonds. If required for this contract, copies of performance and payment bonds are attached.
- (3) Submit to the Contracts Unit the following insurance documentation: (a) original certificate of insurance for general liability in the amount required by Schedule A, and (b) original certificates of insurance or other proof of coverage for workers' compensation and disability benefits, as required by New York State Law. The insurance documentation specified in this paragraph is required for registration of the contract with the Comptroller's Office.





**Department of  
Design and  
Construction**

On or before the contract commencement date, you are required to submit all other certificates of insurance and/or policies in the types and amounts required by Schedule A. Such certificates of Insurance and/or policies must be submitted to the Agency Chief Contracting Office, Attention: Risk Manager, Fourth Floor at the above indicated department address.

Your attention is directed to the section of the Information for Bidders entitled "Failure to Execute Contract". As indicated in this section, in the event you fail to execute the contract and furnish the required bonds within the (10) days of your receipt of this notice of award, your bid security will be retained by the City and you will be liable for the difference between your bid price and the price for which the contract is subsequently awarded, less the amount of the bid security retained.

Sincerely,

*James Smith for John Goddard*  
John Goddard

**Qualification Form**

Project ID: HH112BLEL

List previous projects completed to meet the special experience requirements for this contract. Please photocopy this form for submission of all required projects.

Name of Contractor: FIVE STAR CONTRACTING COMPANIES INC.

Name of Project: WEST NEW BRIGHTON BRANCH LIBRARY

Location of Project: 976 CASTLETON AVE. STATEN ISLAND NY 10310

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: TODD ALEXANDER

Title: PROJECT MANAGER Phone Number: 718-391-1150

Brief description of work completed: ROOF AND PARAPET RESTORATION

Was the work performed as a prime or a subcontractor: PRIME CONTRACTOR

Amount of Contract: \$ 1,111,359.60

Date of Completion: 01-19-2015

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Name of Contractor: FIVE STAR CONTRACTING COMPANIES INC.

Name of Project: 2 NYPL BRANCH LIBRARIES ELEVATOR

Location of Project: 610 E.186TH STREET AND 150 W.100TH STREET, NEW YORK

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: LEONARD FERGUSON

Title: PROJECT MANAGER Phone Number: 718-391-1134

Brief description of work completed: ELEVATORS REPLACEMENT

Was the work performed as a prime or a subcontractor: PRIME CONTRACTOR

Amount of Contract: \$ 1,033,095.60

Date of Completion: 08-25-2014



**BID FORM  
THE CITY OF NEW YORK  
DEPARTMENT OF DESIGN AND CONSTRUCTION  
DIVISION OF PUBLIC BUILDINGS**

**BID FOR FURNISHING ALL LABOR AND  
MATERIAL NECESSARY AND REQUIRED FOR:**

**PROJECT ID: HH112BLEL**

**Bellevue Men's Shelter Elevator Rehabilitation  
400 East 30th Street  
Manhattan 10016**

Name of Bidder: FIVE STAR CONTRACTING COMPANIES INC.

Date of Bid Opening: 06/08/2015

Bidder is: (Check one, whichever applies) Individual ( ) Partnership ( ) Corporation (X)

Place of Business of Bidder: 64 FULTON STREET SUITE 703 ,NEW YORK NY 10038

Bidder's Telephone Number: 212-406-8900 Bidder's Fax Number: 212-406-2375

Bidder's Email Address: FIVE8900@AOL.COM

Residence of Bidder (If Individual): N.A.

If Bidder is a Partnership, fill in the following blanks:

Names of Partners

Residence of Partners

N.A.

N.A.

If Bidder is a Corporation, fill in the following blanks:

Organized under the laws of the State of NEW YORK

Name and Home Address of President: MOHAMMAD IQBAL  
113-05 JEWEL AVENUE, FOREST HILLS NY 11375

Name and Home Address of Secretary: MOHAMMAD IQBAL  
113-05 JEWEL AVENUE, FOREST HILLS NY 11375

Name and Home Address of Treasurer: MOHAMMAD IQBAL  
113-05 JEWEL AVENUE, FOREST HILLS NY 11375

## BID FORM

### FIVE STAR CONTRACTING COMPANIES INC.

The above-named Bidder affirms and declares:

1. The said bidder is of lawful age and the only one interested in this bid; and no person, firm or corporation other than hereinbefore named has any interest in this bid, or in the Contract proposed to be taken.
2. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief: (1) the prices in this bid have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor; (2) unless otherwise required by law, the prices quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and (3) no attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.
3. No councilman or other officer or employee or person whose salary is payable in whole or in part from the City Treasury is directly or indirectly interested in this bid, or in the supplies, materials, equipment, work or labor to which it relates, or in any of the profits thereof.
4. The bidder is not in arrears to the City of New York upon debt or contract or taxes, and is not a defaulter, as surety or otherwise, upon any obligation of the City of New York, and has not been declared not responsible, or disqualified, by any agency of the City of New York or State of New York, nor is there any proceeding pending relating to the responsibility or qualification of the bidder to receive public contracts except as set forth on the Affirmation included as page 17 of this Bid Booklet.

The bidder hereby affirms that is has paid all applicable City income, excise and other taxes for all years it has conducted business activities in New York City.

5. The bidder, as an individual, or as a member, partner, director or officer of the bidder, if the same be a firm, partnership or corporation, executes this document expressly warranting and representing that should this bid be accepted by the City and the Contract awarded to him, he and his subcontractors engaged in the performance:  
(1) will comply with the provisions of Section 6-108 of the Administrative Code of the City of New York and the non-discrimination provisions of Section 220a of the New York State Labor Law, as more expressly and in detail set forth in the Agreement; (2) will comply with Section 6-109 of the Administrative Code of the City of New York in relation to minimum wages and other stipulations as more expressly and in detail set forth in the Agreement; (3) have complied with the provisions of the aforesaid laws since their respective effective dates, and (4) will post notices to be furnished by the City, setting forth the requirements of the aforesaid laws in prominent and conspicuous places in each and every plant, factory, building and structure where employees engaged in the performance of the Contract can readily view it, and will continue to keep such notices posted until the supplies, materials and equipment, or work labor and services required to be furnished or rendered by the Contractor have been finally accepted by the City. In the event of any breach or violation of the foregoing, the Contractor may be subject to damages, liquidated or otherwise, cancellation of the Contract and suspension as a bidder for a period of three years. (The words, "the bidder", "he", "his", and "him" where used shall mean the individual bidder, firm, partnership or corporation executing this bid).

6. Compliance Report

The bidder, as an individual, or as a member, partner, director, or officer of the bidder, if the same be a firm, partnership, or corporation, (1) represents that his attention has been specifically drawn to Executive Order No. 50, dated April 25, 1980, on Equal Employment Compliance of the contract, and (2) warrants that he will comply with the provisions of Executive Order No. 50. The Employment Report must be submitted as part of the bid.

The bidder, as an individual, or as a member, partner, director, or officer of the bidder, if the same be a firm, partnership, or corporation, executes this document expressly warranting that he will comply with: (1) the provision of the contract on providing records, Chapter 8.

7. By submission of this bid, the bidder certifies that it now has and will continue to have the financial capability to fully perform the work required for this contract. Any award of this contract will be made in reliance upon such certification. Upon request therefor, the bidder will submit written verification of such financial capability in a form that is acceptable to the department.

8. In accordance with Section 165 of the State Finance Law, the bidder agrees that tropical hardwoods, as defined in Section 165 of the State Finance Law, shall not be utilized in the performance of this Contract, except as the same are permitted by the foregoing provision of law.

9. The bidder has visited and examined the site of the work and has carefully examined the Contract in the form approved by the Corporation Counsel, and will execute the Contract and perform all its items, covenants and conditions, and will provide, furnish and deliver all the work, materials, supplies, tools and appliances for all labor and materials necessary or required for the hereinafter named work, all in strict conformity with the Contract, for the prices set forth in the Bid Schedule:

10. **M/WBE UTILIZATION PLAN:** By signing its bid, the bidder agrees to the Vendor Certification and Required Affirmations set forth below, unless a full waiver of the Participation Goals is granted. The Vendor Certification and Required Affirmations will be deemed to satisfy the requirement to complete Section V of Part II of Schedule B: M/WBE Utilization Plan.

**Section V: Vendor Certification and Required Affirmations:**

I hereby:

- 1) acknowledge my understanding of the M/WBE participation requirements as set forth in this Contract and the pertinent provisions of Section 6-129 of the Administrative Code of the City of New York and the rules promulgated thereunder;
- 2) affirm that the information supplied in support of the M/WBE Utilization Plan is true and correct;
- 3) agree, if awarded this Contract, to comply with the M/WBE participation requirements of this Contract, the pertinent provisions of Section 6-129, and the rules promulgated thereunder, all of which shall be deemed to be material terms of this Contract;
- 4) agree and affirm that it is a material term of this Contract that the Vendor will award the total dollar value of the M/WBE Participation Goals to certified MBEs and/or WBEs, unless a full waiver is obtained or such goals are modified by the Agency; and
- 5) agree and affirm, if awarded this Contract, to make all reasonable, good faith efforts to meet the M/WBE Participation Goals, or if a partial waiver is obtained or such goals are modified by the Agency, to meet the modified Participation Goals by soliciting and obtaining the participation of certified MBE and/or WBE firms.

**BID FORM**

**PROJECT ID: HH112BLEL**

**TOTAL BID PRICE:** In the space provided below, the Bidder shall indicate the total bid price in figures.

A. **LUMP SUM PRICE** - Total price for all labor and material for all required work, excluding items (B) set forth below. Total Price shall include all costs and expenses, i.e. labor, material overhead and profit for all the Work, described and shown in the drawings and specifications.

Total Price for  
Material Sold and  
Delivered

Total Price For  
Labor

\$ 2,335,500 +

\$ 1,314,500.00

Total Price for Item A= \$ 4,850,000.00

B. **ALLOWANCE** for Incidental Asbestos Abatement  
(Section 028013 of the Specifications)

\$15,000.00

**TOTAL BID PRICE** (Add A + B)  
( a/k/a BID PROPOSAL)

\$ 4,865,000.00  
BB 6/8/15

**BIDDER'S SIGNATURE AND AFFIDAVIT**

\* **SUBCONTRACTOR IDENTIFICATION:** You **MUST** complete and submit the form entitled "Bidder's Identification of Subcontractors" (page 17) at the time you submit your bid. You must submit this form in a separate, sealed envelope (BID ENVELOPE #2). In the event an award of contract is not made to the Bidder, the Bidder hereby authorizes the Agency to shred the form entitled "Bidder's Identification of Subcontractors".  Yes  No

Bidder: FIVE STAR CONTRACTING COMPANIES INC.

By: \_\_\_\_\_



(Signature of Partner or corporate officer)

Attest:  
(Corporate Seal)



Secretary of Corporate Bidder

Affidavit on the following page should be subscribed and sworn to before a Notary Public

**BID FORM (TO BE NOTARIZED)**

\*\*\*\*\*

**AFFIDAVIT WHERE BIDDERS IS AN INDIVIDUAL**

STATE OF NEW YORK, COUNTY OF \_\_\_\_\_ ss:

\_\_\_\_\_ being duly sworn says:

I am the person described in and who executed the foregoing bid, and the several matters therein stated are in all respects true.

\_\_\_\_\_  
(Signature of the person who signed the Bid)

Subscribed and sworn to before me this  
\_\_\_\_\_ day of \_\_\_\_\_,

\_\_\_\_\_  
Notary Public

\*\*\*\*\*

**AFFIDAVIT WHERE BIDDERS IS A PARTNERSHIP**

STATE OF NEW YORK, COUNTY OF \_\_\_\_\_ ss:

\_\_\_\_\_ being duly sworn says:

I am a member of \_\_\_\_\_ the firm described in and which executed the foregoing bid. I subscribed the name of the firm thereto on behalf of the firm, and the several matters therein stated are in all respects true.

\_\_\_\_\_  
(Signature of Partner who signed the Bid)

Subscribed and sworn to before me this  
\_\_\_\_\_ day of \_\_\_\_\_,

\_\_\_\_\_  
Notary Public

\*\*\*\*\*

**AFFIDAVIT WHERE BIDDERS IS A CORPORATION**

STATE OF NEW YORK, COUNTY OF New York ss:

MOHAMMAD TABAL

\_\_\_\_\_ being duly sworn says:

I am the President of the above named corporation whose name is subscribed to and which executed the foregoing bid. I reside at 113-05 Jewel Ave, Forest Hills NY 11375. I have knowledge of the several matters therein stated, and they are in all respects true.

Mohammad Tabal  
(Signature of Corporate Officer who signed the Bid)

Subscribed and sworn to before me this  
20th day of April, 2015

Tarun Patel  
\_\_\_\_\_  
Notary Public, State of New York  
No. 01PA6214266  
Qualified in Nassau County  
Commission Expires December 7, 2017



12/11/19



**AFFIRMATION**

The undersigned bidder affirms and declares that said bidder is not in arrears to the City of New York upon debt, contract or taxes and is not a defaulter, as surety or otherwise, upon obligation to the City of New York, and has not been declared not responsible, or disqualified, by any agency of the City of New York, nor is there any proceeding pending relating to the responsibility or qualification of the bidder to receive public contracts except None

(If none, the bidder shall insert the word "None" in the space provided above.)

Full Name of Bidder: FIVE STAR CONTRACTING COMPANIES INC.  
Address: 64 FULTON STREET SUITE 703  
City: NEW YORK State: NY Zip Code: 10038

**CHECK ONE BOX AND INCLUDE APPROPRIATE NUMBER:**

A - Individual or Sole Proprietorship \*  
SOCIAL SECURITY NUMBER  
N.A.

B - Partnership, Joint Venture or other unincorporated organization  
EMPLOYER IDENTIFICATION NUMBER  
N.A.

C - Corporation  
EMPLOYER IDENTIFICATION NUMBER  
13-3983478

By: [Signature]  
Signature:

Title: Secretary

If a corporation, place seal here

This affirmation must be signed by an officer or duly authorized representative.  
\* Under the Federal Privacy Act the furnishing of Social Security Numbers by bidders on City contracts is voluntary. Failure to provide a Social Security Number will not result in a bidder's disqualification. Social Security Numbers will be used to identify bidders, proposers or vendors to ensure their compliance with laws, to assist the City in enforcement of laws, as well as to provide the City a means of identifying of businesses which seek City contracts.



NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

Project: Bellevue Men's Shelter Elevator Rehabilitation  
Location: 400 East 30th Street, New York NY 10016

Bidder: FIVE STAR CONTRACTING COMPANIES INC.

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material (\$)	Total Cost of Material (\$)	Unit Cost of Labor (\$)	Total Cost of Labor (\$)	Total Cost: Materials and Labor (\$)
<b>CONTRACT 1 - GENERAL CONSTRUCTION WORK</b>								
<b>Division 1</b>								
<b>GENERAL REQUIREMENTS</b>								
01000	Mobilization	1	ls	175,000	175,000	75,000	75,000	250,000
	Security Guard/ Fire Guard	1	ls	3,500	3,500	1,500	1,500	5,000
	Subtotal							255,000
<b>Division 2</b>								
<b>EXISTING CONDITIONS</b>								
02200	Excavation, Filling and Grading (Included w/ 220002)							
024191	Selective Demolition, Removals, and Salvage	5	days	1,200	6,000	800	4,000	10,000
	Hoisting requirements							
	Scaffold	57600	sf	0.60	20736.00	2.40	138240	345600
	Penthouse Facades (including probes and repairs) Masonry & Columns:							
	Shore & Brace, remove brick & terra cotta	175	sf	60	10,500	40	7,000	17,500
	Facade-							
	Remove masonry facade as required for structural repairs	500	sf	48	24,000	32	16,000	40,000
	Parapet-							
	Remove parapet copings	80	lf	60	4,800	40	3,200	8,000
	Remove brick parapet	100	sf	90	9,000	60	6,000	15,000
	Limestone-							
	Removals							
	Remove terra cotta cornice							
	Remove terra cotta cornice	175	sf	120	21,000	80	14,000	35,000
	Remove mechanical equipment & raised equipment pad	2000	sf	9	18,000	6	12,000	30,000
	Remove wall at basement transformer room, incl door & finishes	50	lf	60	3,000	40	2,000	5,000
	Misc demolition & removals	1	ls	6,000	6,000	4,000	4,000	10,000
	Subtotal							516,100





NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

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CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - General Construction

DDC ID: HH112BLEL  
Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material (\$)	Total Cost of Material (\$)	Unit Cost of Labor (\$)	Total Cost of Labor (\$)	Total Cost: Materials and Labor (\$)
028213	Asbestos Abatement	1	ls	63,000	63,000	42,000	42,000	105,000
	Asbestos Abatement							105,000
	Subtotal							
<b>Division 3</b>	<b>CONCRETE</b>							
033000	Cast-in-Place Concrete and Cement Work							
	Roof top pad for HVAC equip.	50	sf	30	1,500	20	1,000	2,500
	Patch at removed slabs	2,000	sf	15	30,000	10	20,000	50,000
	Patch and level floor at remainder of Penthouse	1,500	sf	15	22,500	10	15,000	37,500
	Fill in slab openings							
	Concrete slab	80	sf	30	2,400	20	1,600	4,000
	New sump pits at sub basement	2	ea	3,000	6,000	2,000	4,000	10,000
	Trench infills at basement	4	loc	3,000	12,000	2,000	8,000	20,000
	New trench to accommodate re-routed piping	240	sf	30	7,200	20	4,800	12,000
	Flash Patch and Seal concrete floors	500	sf	15	7,500	10	5,000	12,500
	Subtotal							148,500
034900	Glass Fiber Reinforced Concrete							
	Provide new GFRC cornice elements	450	sf	60	27,000	40	18,000	45,000
	Subtotal							45,000
<b>Division 4</b>	<b>MASONRY</b>							
040513.91	Masonry Restoration Mortaring							
	Repoint masonry façade to remain	1,600	sf	15	15,000	10	10,000	25,000
	Subtotal							25,000
042113	Brick Masonry							
	Penthouse Facades:							
	Columns-							
	Reinstall masonry façade	500	sf	75	37,500	50	25,000	62,500
	Replace masonry façade with new	800	sf	90	72,000	60	48,000	120,000



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CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material (\$)	Total Cost of Material (\$)	Unit Cost of Labor (\$)	Total Cost of Labor (\$)	Total Cost: Materials and Labor (\$)
	Facade-							
	Reinstall masonry facade	6	sf	90	540	60	360	900
	Parapet-							
	Reset extg parapet copings	80	lf	600	48,000	400	32,000	80,000
	Rebuild brick parapet	100	sf	90	9,000	60	6,000	15,000
	Subtotal							278,400
042129	Terra Cotta Masonry							
	Reinstall extg terra cotta	175	sf	150	26,250	100	17,500	43,750
	Replace unusable terra cotta with new GFRC	20	sf	1,800	36,000	1,200	24,000	60,000
	Replace damaged terra cotta entablature course below cornice with GFRC	20	sf	1,800	36,000	1,200	24,000	60,000
	Interior Terra Cotta wall repairs	1	ls	12,000	12,000	8,000	8,000	20,000
	Subtotal							183,750
042200	Concrete Unit Masonry							
	Elevator shaft repairs	3	ea	6,000	18,000	4,000	12,000	30,000
	Infill existing trench openings where piping previously entered elev. Pit with CMU	4	loc	1,500	6,000	1,000	4,000	10,000
	Subtotal							40,000
044113	Stone Masonry							
	Repair limestone	10	sf	600	6,000	400	4,000	10,000
	Remove & replace 100% steel armatures supporting cornice	1	ls	7,200	7,200	4,800	4,800	12,000
	Subtotal							22,000
Division 5	METALS							
051000	Structural Steel							
	Penitence Facades:							
	Columns-							
	Structural repairs / cleaning	1	ls	12,000	12,000	8,000	8,000	20,000
	New structural steel	0.5	ton	36,000	18,000	24,000	12,000	30,000



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CSI Number	Description	Quantity	Unit	Unit Cost of Material (\$)	Total Cost of Material (\$)	Unit Cost of Labor (\$)	Total Cost of Labor (\$)	Total Cost: Materials and Labor (\$)
	Thermal spray coat steel at corners	1	LS	9,000	9,000	6,000	6,000	15,000
	Facade-							
	Structural remediation / cleaning	1	ls	6,000	6,000	4,000	4,000	10,000
	Limestone-							
	Structural repairs	1	ls	3,000	3,000	2,000	2,000	5,000
	Fill in slab openings-							
	Structural steel	1	ls	3,000	3,000	2,000	2,000	5,000
	Misc. openings, etc.	1	ls	3,000	3,000	2,000	2,000	5,000
	Subtotal							40,000
053000	Metal Decking (Included w/ 051000)							
055000	Metal Fabrication							
	Remove non-compliant ladders & replace with appr. Steel ladders w/ handrails	1	LS	3,600	3,600	2,400	2,400	6,000
	Remove non-compliant railings & replace w/ OSHA & code compliant barriers	1	LS	1,800	1,800	1,200	1,200	3,000
	Subtotal							9,000
055213	Pipe and Tube Railings (Included w/ 055000)							
Division 7	<b>THERMAL AND MOISTURE PROTECTION</b>							
071326	Self-Adhering Sheet Waterproofing							
	Columns:							
	Waterproofing membrane	270	sf	60	16,200	40	10,800	27,000
	Limestone:							
	Waterproofing membrane	270	sf	60	16,200	40	10,800	27,000
	Subtotal							54,000



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DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material (\$)	Total Cost of Material (\$)	Unit Cost of Labor (\$)	Total Cost of Labor (\$)	Total Cost: Materials and Labor (\$)
072100	Insulation (Included w/ 053000, 089199, & 092900)							
075216	Modified Bituminous Membrane Roofing							
	East Penthouse Hipped Roof:							
	Cut & patch existing roofing to maintain warranty (assumed 10%)	200	sf	48	9,600	32	6,400	16,000
	Modify membrane for built-in sheet metal gutter lining	300	sf	30	9,000	20	6,000	15,000
	Remove & replace built-in sheet metal gutter lining	175	lf	30	5,250	20	3,500	8,750
	New membrane roofing at terraces - bitumen system	350	sf	30	10,500	20	7,000	17,500
	Replace roof drains and cover, and associated piping	2	ea	1,500	3,000	1,000	2,000	5,000
	New scuppers	4	ea	150	600	100	400	1,000
	Subtotal							
076200	Sheet Metal Flashing and Trim (Included w/ 075216)							
077100	Roof Specialties (Included w/ 075216)							
078100	Applied Fireproofing							
	East Penthouse Façade:							
	Columns:	6	cols	600	3,600	400	2,400	6,000
	Fireproof steel							6,000
	Subtotal							
079200	Joint Sealants (Included w/ 034900, 0765216, & 089119)							



NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

Project: Bellevue Men's Shelter Elevator Rehabilitation

Location: 400 East 30th Street, New York NY 10016

Bidder: FIVE STAR CONTRACTING COMPANIES, I.N.C.

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material (\$)	Total Cost of Material (\$)	Unit Cost of Labor (\$)	Total Cost of Labor (\$)	Total Cost: Materials and Labor (\$)
<b>Division 8</b>	<b>OPENINGS</b>							
081113	Hollow Metal Doors and Frames	7	ea	3,000	21,000	2,000	14,000	35,000
	New exterior door	200	sf	30	8,400	20	5,600	14,000
	Basement transformer room partitions	1	ea	3,000	3,000	2,000	2,000	5,000
	Doors							
	Doors - Sgl							
	Doors - Dbl							
	Subtotal							54,000
<b>085113</b>	<b>Aluminum Windows</b>							
	Remove galv. Steel window & replace with alum. Window	3	ea	3,000	9,000	2,000	6,000	15,000
	Copper Louvers & Aluminum Screens / Windows:							
	New windows	520	sf	120	62,400	80	41,600	104,000
	Subtotal							119,000
<b>085200</b>	<b>Metal Clad Wood Window Restoration (Included w/ 085113)</b>							
<b>087100</b>	<b>Door Hardware (Included w/ 081113)</b>							
<b>089119</b>	<b>Fixed Louvers</b>							
	Copper Louvers & Aluminum Screens / Windows:							
	Remove & replace damaged louvers & screens	50	sf	60	3,000	40	2,000	5,000
	New louvers	200	sf	210	42,000	140	28,000	70,000
	New louver at West elevation	200	sf	210	42,000	140	28,000	70,000
	Subtotal							145,000
<b>Division 9</b>	<b>FINISHES</b>							
092100	Gypsum Plaster (Included w/ 092900)							



NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

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CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material (\$)	Total Cost of Material (\$)	Unit Cost of Labor (\$)	Total Cost of Labor (\$)	Total Cost: Materials and Labor (\$)
092216	Non-Structural Metal Framing (Included w/ 092900)							
092900	Gypsum Board							
	9th floor and attic probes - New partition to enclose pipes:							
	New 2hr rated drywall fire wall	1000	sf	30	30,000	20	20,000	50,000
	New 1hr rated drywall fire wall	500	sf	12	6,000	8	4,000	10,000
	New 1hr rated drywall soffit	500	sf	18	9,000	12	6,000	15,000
	Wall repairs at 1st through 9th elevator lobby's	10	floors	3,000	30,000	2,000	20,000	50,000
	Misc. Rough carpentry, Blocking & Protection	1	ls	7,620	7,620	5,080	5,080	12,700
	Fire-rated fuel oil chases / soffits	500	sf	30	15,000	20	10,000	25,000
	Subtotal							162,700
099113	Exterior Painting (Included w/ 042113, 042129, 042200, 044113)							
099600	High Performance Coatings							
	Wall finish repairs at 1st through 9th elevator lobby's	1	floors	24,000	24,000	16,000	16,000	40,000
	Terrazzo floor repairs	1	ls	9,000	9,000	6,000	6,000	15,000
	Subtotal							55,000
099900	Paint and Coatings Removal (Included w/ 042113, 042129, 042200, 044113)							



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CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material (\$)	Total Cost of Material (\$)	Unit Cost of Labor (\$)	Total Cost of Labor (\$)	Total Cost: Materials and Labor (\$)
<b>Division 14</b>	<b>CONVEYING EQUIPMENT</b>							
142100	Traction Elevators							
	Extg elevator selective removals	3	ea	30,000	90,000	20,000	60,000	150,000
	Upgrade passenger elevator #43	1	ea	264,000	264,000	176,000	176,000	440,000
	Upgrade passenger elevator #44	1	ea	264,000	264,000	176,000	176,000	440,000
	Upgrade service elevator #45	1	ea	240,000	240,000	160,000	160,000	400,000
	Signage	666	ls	30	19,980	20	1,320	3,300
	Subtotal							1,433,300
<b>Division 22</b>	<b>PLUMBING</b>							
220002	Plumbing Special Conditions (Included w/ 220003)	1	LS	96,000	96,000	64,000	64,000	160,000
220003	Plumbing Scope of Work							
	Demolition /remedial work:							
	Disconnect & remove existing sanitary piping		lf					
	Disconnect & remove existing domestic water piping		lf					
	Disconnect & remove existing domestic water piping 6" dia - riser		ea					
	Disconnect & remove existing roof drain		ea					
	Tie-out piping		ea					
	Charts / painting /identification		ls					
	Clean, flush & test		ls					
	Chopping / patching / fire sealing		ls					
	Subtotal							
220517	Sleeves and Sleeve Seals for Plumbing Piping (Included w/ 220003)							
220518	Escutcheons for Plumbing Piping (Included w/ 220003)							



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CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material (\$)	Total Cost of Material (\$)	Unit Cost of Labor (\$)	Total Cost of Labor (\$)	Total Cost: Materials and Labor (\$)
220529	Hangers, Supports, Anchors, and Guides (Included w/ 220003)							
220553	Identification of Plumbing Piping and Equipment (Included w/ 220003)							
220580	Access Doors in General Construction (Included w/ 092900)							
220590	Testing (Included w/ 220003)							
221316	Sanitary Waste and Vent Piping and Fitting Materials Storm, Sanitary Waste and Vent & Pump discharge Piping / supports 4" dia 2" Galvanized iron pump discharge piping Drain piping / supports - C.I. (Allow) Tie-in piping Floor drains 4" dia with related piping Seamless drain pans Misc. valving and specialties		lf lf ea ea ea ls					
	<b>Subtotal</b>							
221319	Sanitary Waste Piping Specialties (Included w/ 221316)							
221429	Sump Pumps Elevator sump pump - oil - minder - simplex, controls, alarms, remote panel, local piping / valving - power cord - control tie		units					
	<b>Subtotal</b>							





NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

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CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material (\$)	Total Cost of Material (\$)	Unit Cost of Labor (\$)	Total Cost of Labor (\$)	Total Cost: Materials and Labor (\$)
Division 23	HVAC	1	LS	288,000	288,000	192,000	192,000	480,000
230002	HVAC Special Conditions (Included w/ 230003)							
230003	HVAC Scope of Work							
	Disconnect & remove existing duct with related accessories		lbs					
	Outdoor air fan and exhaust fan - remove / dispose		fans					
	Laboratory fan - remove /dispose		set					
	Remove existing louvers		ea					
	Disconnect & remove fin tube radiator with assoc. Piping		ea					
	Cut & cap ductwork 48"x48"		ea					
	Trench piping & steel plate cover		lf					
	Remove existing housekeeping pad		ea					
	Slab penetration		loc					
	Fire seal of ductwork		oprgs					
	Housekeeping pad 4"x2'		ea					
	Trench		lf					
	Charts / painting /identification		ls					
	Hoisting / handling / setting of equipment and ductwork		ls					
	Chopping / patching / fire sealing		ls					
	Temporary Heat		ls					
	<b>Subtotal</b>							
230005	HVAC Access Doors in General Construction (Included w/ 092900)							
230200	Firestopping (Included w/ 230003)							
230513	Electric Motors (Included w/ 230003)							



NEW YORK CITY DEPARTMENT OF  
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CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material (\$)	Total Cost of Material (\$)	Unit Cost of Labor (\$)	Total Cost of Labor (\$)	Total Cost: Materials and Labor (\$)
230529	Hangers, Anchors, and Supports Blank-off existing opening - 16 ga. Insulated		loc					
	Subtotal							
230548	Vibration Isolation (Included w/ 230003)							
230553	HVAC System Identification (Included w/ 230003)							
230593	HVAC Testing, Adjusting and Balancing (Included w/ 230003)							
230700	Insulation Insulation (existing steam piping)		lf					
	Subtotal							
231113	Sheetmetal Fire seal of ductwork Galvanized iron ductwork Air Distribution (Ref. Drawings M-202.00): Galvanized iron ductwork (including plenum) Grille / register Volume damper Gravity damper Motorized automatic louver Flexible duct connector Install smoke detector and access door		opngs lbs lbs ea ea ea ea lf ea					
	Subtotal							



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CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CONTRACTOR'S BID BREAKDOWN FORM

CSI Number	Description	Quantity	Unit	Unit Cost of Material (\$)	Total Cost of Material (\$)	Unit Cost of Labor (\$)	Total Cost of Labor (\$)	Total Cost: Materials and Labor (\$)
232500	Pipe Cleaning and Chemical Water Treatment (Included w/ 230003)							
233313	Dampers		ea					
	Gravity Dampers		ea					
	Motorized damper with access door		loc					
	Wire mesh screen opening							
	Subtotal							
233600	Air Terminal Units (Included w/ 230003)							
233610	Air Outlets and Inlets		ea					
	Blank - off, motor operated damper - 700 cfm							
	Subtotal							
235210	Piping and Accessories							
	Steam piping / insulation		lf					
	Tie-out piping		ea					
	Cut & cap piping		ea					
	Fire seal of piping @ radiators		opngs					
	Miscellaneous Piping Reroute:							
	Steam piping / insulation (in trench in slab)		lf					
	Tie-in piping		lf					
	Condensate piping /insulation		lf					
	Subtotal							



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CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - General Construction

Project: Bellevue Men's Shelter Elevator Rehabilitation

Location: 400 East 30th Street, New York NY 10016

Bidder: FIVE STAR CONTRACTING COMPANIES INC.

DDC ID: HH12BLEL

Sponsor Agency: Dept of Homeless Services

CST Number	Description	Quantity	Unit	Unit Cost of Material (\$)	Total Cost of Material (\$)	Unit Cost of Labor (\$)	Total Cost of Labor (\$)	Total Cost: Materials and Labor (\$)
236210	Air Cooled Air Conditioning Units		unit					
	Unitary controls		lift					
	Hoisting / setting AC unit		fan					
	Room thermostat / M.O.D. / ATC / BMS		ls					
	Drain pan for refrigeration piping		ea					
	Air conditioning split system - local panel							
	<b>Subtotal</b>							
236220	Rooftop Packaged Cooling Units							
	Air conditioning split system, access panels:							
	2.0 Tons refrigeration, 3800 cfm with ductless fan coil unit-		unit					
	Unitary controls - R 410a		unit					
	Refrigeration 5/8" dia with insulation		lf					
	Refrigeration - 3/8" dia with insulation		ea					
	Condensate pump		ea					
	Electric unit heater 400 cfm, 17.1 mbh, 5 kw		ea					
	Electric unit heater 400 cfm, 11.2 mbh, 3.3 kw		ea					
	Automatic Controls:							
	Packaged AC unit - local panel		ahu					
	Fire smoke damper		fsd					
	Smoke control - 3 rooms and elev. Vents		area					
	Terminal boxes		ea					
	Galv. Steel drain pan		ea					
	<b>Subtotal</b>							
237305	Fans (Included w/ 230003)							
238440	Space Heating Units (Included w/ 230003)							



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CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material (\$)	Total Cost of Material (\$)	Unit Cost of Labor (\$)	Total Cost of Labor (\$)	Total Cost: Materials and Labor (\$)
238500	Variable Frequency Controllers VAV variable air volume box 200 cfm - 400 cfm		ea					
	Subtotal							
238600	Electric Motor Controllers (Included w/ 230003)							
Division 26	<b>ELECTRICAL</b>							
260002	Electrical Special Conditions (Included w/ 260003)	1	LS	138,000	138,000	92,000	92,000	230,000
260003	Electrical Scope of Work Demolition (Disconnect and Make Safe) Cutting/Patching Temporary Electric		ls ls ls					
	Subtotal							
260005	Electrical Access Doors in General Construction (Included w/ 092900)							
260250	Electrical Systems Identification (Included w/ 260003)							
260265	Electrical Testing, Adjusting and Balancing (Included w/ 260003)							
260280	Equipment Connections and Coordination 30 Amp NEMA 3R 30 Amp NEMA 1 Motorized Damper		ea ea ea					



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CONTRACTORS BID BREAKDOWN FORM

CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material (\$)	Total Cost of Material (\$)	Unit Cost of Labor (\$)	Total Cost of Labor (\$)	Total Cost: Materials and Labor (\$)
	VAV Box		ea					
	Electric Unit Heater		ea					
	ACC Unit		ea					
	AC Unit		ea					
	Condensate Pump		ea					
	Fan		ea					
	Elevator Sump Pump		ea					
	Elevator 20 HP		ea					
	Elevator 50HP		ea					
	<b>Subtotal</b>							
260290	Ceiling, Floor and Wall Electrical Penetration Fire Seals		ls					
	Sleeves/Firestopping							
	<b>Subtotal</b>							
260519	600 Volt Wire and Cable (Included w/ 260003)							
260526	Grounding System (Included w/ 260003)							
260533	Raceways and Boxes							
	4" RGS		lf					
	2 1/2" RGS		lf					
	2 1/2" Conduit		lf					
	1 1/4" Conduit		lf					
	1" Conduit		lf					
	3/4" Conduit		lf					
	600 MCM		lf					
	250 MCM		lf					
	# 3/0 Wire		lf					



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CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - General Construction

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CSI Number	Description	Quantity	Unit	Unit Cost of Material (\$)	Total Cost of Material (\$)	Unit Cost of Labor (\$)	Total Cost of Labor (\$)	Total Cost: Materials and Labor (\$)
	# 1 Wire		lf					
	# 2 Wire		lf					
	# 6 Wire		lf					
	# 8 Wire		lf					
	# 10 Wire		lf					
	3/4" Conduit - Lighting		lf					
	# 12 Wire - Lighting		lf					
	3/4" Conduit - Branch		lf					
	# 12 Wire - Branch		lf					
	2" Conduit - Mech. Equip.		lf					
	1" Conduit - Mech. Equip.		lf					
	3/4" Conduit - Mech. Equip.		lf					
	# 3/0 Wire - Mech. Equip.		lf					
	# 4 Wire - Mech. Equip.		lf					
	# 10 Wire - Mech. Equip.		lf					
	# 12 Wire - Mech. Equip.		lf					
	3/4" Conduit - F.A.		lf					
	# 12 Wire - F.A.		lf					
	Subtotal							
260548	Vibration Isolation and Seismic Restraints (Included w/ 260003)							
262213	Dry Type Transformers (Included w/ 260003)							
262416	Panelboards							
	Power Distribution:							
	1200 Amp Service Switch		ea					
	600 Amp Panel		ea					
	400 Amp Panel		ea					



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CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - General Construction

DDC ID: HH112BLEL

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CSI Number	Description	Quantity	Unit	Unit Cost of Material (\$)	Total Cost of Material (\$)	Unit Cost of Labor (\$)	Total Cost of Labor (\$)	Total Cost: Materials and Labor (\$)
	100 Amp Panel		ea					
	300 KVA Transformer		ea					
	30 KVA Transformer		ea					
	15 KVA Transformer		ea					
	Panel Mounting Assembly		ea					
	Transformer Mounting Assembly		ea					
	Tap to Existing Service		ls					
	Pull Box		ea					
	<b>Subtotal</b>							
262726	Wiring Devices							
	Branch Circuitry:							
	Duplex Receptacle		ea					
	GFI Duplex Receptacle		ea					
	GFI Duplex Receptacle, WP		ea					
	Single Pole Light Switch		ea					
	Single Pole Light Switch, WP		ea					
	<b>Subtotal</b>							
262813	Fuses (600 V and Less) (Included w/ 260003)							
262816	Disconnect Switches (Included w/ 260003)							
262919	Switchboards (Included w/ 260003)							





NEW YORK CITY DEPARTMENT OF  
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CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material (\$)	Total Cost of Material (\$)	Unit Cost of Labor (\$)	Total Cost of Labor (\$)	Total Cost: Materials and Labor (\$)
264001	Fire Alarm and Detection System	1	LS	72,000	72,000	48,000	48,000	120,000
	Combination Speaker/Strobe		ea					
	Smoke Detector		ea					
	Smoke Detector, Elevator Recall		ea					
	Smoke Detector, Duct Mounted		ea					
	Warden Station		ea					
	Fire Smoke Dampel		ea					
	Tie-in to Existing System/Reprogramming/Testing/Engineering		ls					
	<b>Subtotal</b>							
265000	Luminaires and Accessories		ea					
	Lighting Fixture Type "FK-A"		ea					
	Lighting Fixture Type "FK-A", em		ea					
	Lighting Fixture Type "FK-B"		ea					
	<b>Subtotal</b>							
Division 28	<b>SECURITY</b>							
280000	Security General System Requirements (Included w/ 282313)	1	LS	30,000	30,000	20,000	20,000	50,000
282313	Video Surveillance Control and Management Systems							
	Empty conduit for TX		lf					
	<b>Subtotal</b>							
282629	Video Surveillance Remote Devices and Sensors (Included w/ 282313)							



NEW YORK CITY DEPARTMENT OF  
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**CONTRACTOR'S BID BREAKDOWN FORM**

CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material \$	Total Cost of Material \$	Unit Cost of Labor \$	Total Cost of Labor \$	Total Cost: Materials and Labor \$
285100	Security Communication System (Included w/ 282313)							
287200	Video Management (Included w/ 282313)							
	<b>TOTAL CONTRACT 1 - GENERAL CONSTRUCTION WORK</b>			4842,633. <sup>60</sup>	2,335,500. <sup>00</sup>		1,314,500. <sup>00</sup>	4,850,000. <sup>00</sup>

**BID BOND 1  
FORM OF BID BOND**

**KNOW ALL MEN BY THESE PRESENTS.** That we, \_\_\_\_\_

Five Star Contracting Companies Inc.

120 Fulton Street, 3rd Floor, New York, NY 10038

hereinafter referred to as the "Principal", and \_\_\_\_\_

Endurance American Insurance Company

750 Third Avenue, 2nd Floor, New York, NY 10017

hereinafter referred to as the "Surety" are held and firmly bound to **THE CITY OF NEW YORK**, hereinafter referred to as the "CITY", or to its successors and assigns in the penal sum of

Ten Percent of Amount Bid

(\$ 10% ), Dollars lawful money of the United States, for the payment of which said sum of money well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Whereas, the Principal is about to submit (or has submitted) to the City the accompanying proposal, hereby made a part hereof, to enter into a contract in writing for Proj.# HH112BLEL, Bellevue Men's Shelter

Elevator Rehabilitation, 400 East 30th Street, NY, NY 10016

**NOW, THEREFORE**, the conditions of this obligation are such that if the Principal shall not withdraw said Proposal without the consent of the City for a period of forty-five (45) days after the opening of bids and in the event of acceptance of the Principal's Proposal by the City, if the Principal shall:

(a) Within ten (10) days after notification by the City, execute in quadruplicate and deliver to the City all the executed counterparts of the Contract in the form set forth in the Contract Documents, in accordance with the proposal as accepted, and

(b) Furnish a performance bond and separate payment bond, as may be required by the City, for the faithful performance and proper fulfillment of such Contract, which bonds shall be satisfactory in all respects to the City and shall be executed by good and sufficient sureties, and

(c) In all respects perform the agreement created by the acceptance of said Proposal as provided in the Information for Bidders, bound herewith and made a part hereof, or if the City shall reject the aforesaid Proposal, then this obligation shall be null and void; otherwise to remain in full force and effect.



BID BOND 2

In the event that the Proposal of the Principal shall be accepted and the Contract be awarded to him the Surety hereunder agrees subject only to the payment by the Principal of the premium therefore, if requested by the City, to write the aforementioned performance and payment bonds in the form set forth in the Contract Documents.

It is expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

There shall be no liability under this bond if, in the event of the acceptance of the Principal's Proposal by the City, either a performance bond or payment bond, or both, shall not be required by the City on or before the 30th day after the date on which the City signs the Contract.

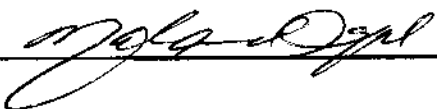
The surety, for the value received, hereby stipulates and agrees that the obligations of the Surety and its bond shall in no way be impaired or affected by any postponements of the date upon which the City will receive or open bids, or by any extensions of time within which the City may accept the Principal's Proposal, or by any waiver by the City of any of the requirements of the Information for Bidders, and the Surety hereby waives notice of any such postponements, extensions, or waivers.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers the 16th day of April, 2015.

(Seal)

Five Star Contracting Companies Inc. \_\_\_\_\_ (L.S.)  
Principal

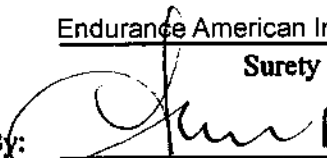
By:



(Seal)

Endurance American Insurance Company \_\_\_\_\_  
Surety

By:

  
Fern Perry Attorney-in-Fact



BID BOND 3

ACKNOWLEDGEMENT OF PRINCIPAL, IF A CORPORATION

State of New York County of NASSAU ss:  
On this 16<sup>th</sup> day of April, 2015, before me personally came Mohammad Isbat to me known, who, being by me duly sworn, did depose and say that he resides at 64 Fulton Street, Suite 703, New York, NY 10038 that he is the President of Five Star Contracting Companies Inc. the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation, and that he signed his name thereto by like order.

TRUPTI S. PATEL  
Notary Public, State of New York  
No. 01PA6214266  
Qualified in Nassau County  
Commission Expires December 7, 2017

Trupti Patel  
Notary Public

ACKNOWLEDGEMENT OF PRINCIPAL, IF A PARTNERSHIP

State of \_\_\_\_\_ County of \_\_\_\_\_ ss:  
On this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, before me personally appeared \_\_\_\_\_ to me known and known to me to be one of the members of the firm of \_\_\_\_\_ described in and who executed the foregoing instrument, and he acknowledged to me that he executed the same as and for the act and deed of said firm.

\_\_\_\_\_  
Notary Public

ACKNOWLEDGEMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of \_\_\_\_\_ County of \_\_\_\_\_ ss:  
On this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, before me personally appeared \_\_\_\_\_ to me known and known to me to be the person described in and who executed the foregoing instrument and acknowledged that he executed the same.

\_\_\_\_\_  
Notary Public

AFFIX ACKNOWLEDGEMENTS AND JUSTIFICATION OF SURETIES



1. The first part of the document  
 2. discusses the general principles  
 3. of the proposed system.  
 4. It is intended to provide a  
 5. clear and concise overview  
 6. of the key components and  
 7. objectives of the project.  
 8. The second part of the document  
 9. details the specific implementation  
 10. of the system, including the  
 11. hardware and software requirements.  
 12. This section also covers the  
 13. testing and evaluation process,  
 14. as well as the expected results  
 15. and conclusions of the study.  
 16. Finally, the third part of the  
 17. document provides a summary of  
 18. the findings and recommendations  
 19. for future work. It also  
 20. includes a list of references  
 21. and an appendix containing  
 22. additional data and figures.  
 23. The document is intended to  
 24. serve as a comprehensive  
 25. reference for anyone interested  
 26. in the development and  
 27. implementation of this system.  
 28. It is hoped that this document  
 29. will provide valuable insights  
 30. and information to the research  
 31. community and practitioners  
 32. alike.



## ACKNOWLEDGMENT OF SURETY

STATE OF NEW YORK }  
COUNTY OF NASSAU } ss:

On April 16, 2015 before me personally came Fern Perry to me known who, being by me duly sworn, did depose and say that he/she resides at 255 Executive Drive, Plainview, New York 11803, that he/she is the Attorney-In-Fact of Endurance American Insurance Company the corporation described in and which executed the foregoing instrument; and that he/she signed his/her name thereto by order of the Board of Directors of said corporation.



---

**Notary Public**  
Peter Henry  
Notary Public State of NY  
No. 01HE4784829  
Qualified in Nassau County  
Commission Expires January 31, 2018



POWER OF ATTORNEY

Now all Men by these Presents, that ENDURANCE AMERICAN INSURANCE COMPANY, a Delaware corporation (the "Corporation"), with offices at 750 Third Avenue, New York, New York 10017, has made, constituted and appointed and by these presents, does make, constitute and appoint

ROBERT FINNELL, FERN PERRY, DEBORAH L. SEVERIN, JANICE R. FISCINA, JENNIFER LAURA JOHNSTON-OGEKA, ROSANNE CALLAHAN, PETER HENRY

its true and lawful Attorney(s)-in-fact, at PLAINVIEW in the State of NY and each of them to have full power to act without the other or others, to make, execute, seal and deliver for and on its behalf bonds, undertakings or obligations in surety or co-surety with others, also to execute and deliver on its behalf renewals, extensions, agreements, waivers, consents or stipulations relating to such aforesaid bonds, undertakings or obligations provided, however, that no single bond or undertaking so made, executed and delivered shall obligate the Corporation for any portion of the penal sum thereof in excess of the sum of SEVEN MILLION FIVE HUNDRED THOUSAND Dollars (\$7,500,000.00).

Such bonds and undertakings for said purposes, when duly executed by said attorney(s)-in-fact, shall be binding upon the Corporation as fully and to the same extent as if signed by the President of the Corporation under its corporate seal attested by its Corporate Secretary.233

This appointment is made under and by authority of certain resolutions adopted by the Board of Directors of the Corporation by unanimous written consent on the 21<sup>st</sup> day of July, 2011, a copy of which appears below under the heading entitled "Certificate".

233

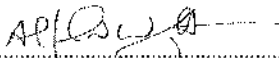
This Power of Attorney is signed and sealed by facsimile under and by authority of the following resolution adopted by the Board of Directors of the Corporation by unanimous written consent on the 21<sup>st</sup> day of July, 2011 and said resolution has not since been revoked, amended or repealed:


RESOLVED, that in granting powers of attorney pursuant to certain resolutions adopted by the Board of Directors of the Corporation by unanimous written consent on the 21<sup>st</sup> day of July, 2011, the signature of such directors and officers and the seal of the Corporation may be affixed to any such power of attorney or any certificate relating thereto by facsimile, and any such power of attorney or certificate bearing such facsimile signature or seal shall be valid and binding upon the Corporation in the future with respect to any bond or undertaking to which it is attached.

This Power of Attorney shall expire and all authority hereunder shall terminate without notice at 12:01 a.m. (Standard Timer where said attorney(s)-in-fact is authorized to act.)  
JANUARY 11TH, 2016

IN WITNESS WHEREOF, the Corporation has caused these presents to be duly signed and its corporate seal to be hereunto affixed and attested this 12TH day of JANUARY, 2015 at New York, New York.  
(Corporate Seal)

ENDURANCE AMERICAN INSURANCE COMPANY

ATTEST   
Alfred N. Wright, Senior Vice President

By   
Ronald Diggs, Vice President

STATE OF NEW YORK ss: MANHATTAN  
COUNTY OF NEW YORK

On the 12TH day of JANUARY, 2015 before me personally came RONALD DIGGS to me known, who being by me duly sworn, did depose and say that (s)he resides in HELLERTOWN, PENNSYLVANIA that (s)he is a VICE PRESIDENT of ENDURANCE AMERICAN INSURANCE COMPANY, the corporation described in and which executed the above instrument; that (s)he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that (s)he signed his (her) name thereto by like order.  
(Notarial Seal)

  
Anie Licari, Notary Public - My Commission Expires: October 29, 2015

CERTIFICATE

STATE OF NEW YORK ss: MANHATTAN  
COUNTY OF NEW YORK

I, Doug Worman, the Chief Executive Officer of ENDURANCE AMERICAN INSURANCE COMPANY, a Delaware Corporation (the "Corporation"), hereby certify:

- 1. That the original power of attorney of which the foregoing is a copy was duly executed on behalf of the Corporation and has not since been revoked, amended or modified; that the undersigned has compared the foregoing copy thereof with the original power of attorney, and that the same is a true and correct copy of the original power of attorney and of the whole thereof;
- 2. The following are resolutions which were adopted by the Board of Directors of the Corporation by unanimous written consent on the 21<sup>st</sup> day of July, 2011 and said resolutions have not since been revoked, amended or modified:

"RESOLVED, that each of the individuals named below is authorized to make, execute, seal and deliver for and on behalf of the Corporation any and all bonds, undertakings or obligations in surety or co-surety with others and to execute and deliver for and on behalf of the Corporation renewals, extensions, agreements, waivers, consents or stipulations relating to such aforesaid bonds, undertakings or obligations:

ALFRED N. WRIGHT, RONALD DIGGS

And

RESOLVED FURTHER, that each of the individuals named above is authorized to appoint attorneys-in-fact for the purpose of making, executing, sealing and delivering bonds, undertakings or obligations in surety or co-surety for and on behalf of the Corporation.

- 3. The undersigned further certifies that the above resolutions are true and correct copies of the resolutions as so recorded and of the whole thereof.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the corporate seal this 16<sup>th</sup> day of April, 2015.

  
Doug Worman, Chief Executive Officer of U.S. Insurance



**ENDURANCE AMERICAN INSURANCE COMPANY**  
**Balance Sheet - Statutory - Basis**  
**December 31, 2014**

<b>Assets:</b>	
Bonds	\$ 300,479,343
Common stocks	90,259,052
Cash	28,823,471
Receivable for securities	7,034,443
Total cash and invested assets	<u>426,596,309</u>
Agents' balances or uncollected premiums	611,326,868
Reinsurance recoverable on loss and loss adjustment expense payments	188,836,551
Funds held by or deposited with reinsures companies	12,577,282
Current federal and foreign income tax recoverable	222,552
Investment income due and accrued	1,380,223
Receivables from parent, subsidiaries and affiliates	2,916,663
Total admitted assets	<u>\$ 1,243,856,448</u>
<b>Liabilities:</b>	
Loss and loss adjustment expenses	\$ 204,125,794
Reinsurance payable on paid loss and loss adjustment expenses	330,820,037
Unearned premiums	78,904,134
Ceded reinsurance premiums payable	357,992,680
Provision for reinsurance	1,037,000
Payable to parent, subsidiaries and affiliates	6,457,166
Payable for securities	14,792,578
Other liabilities	8,525,697
Total liabilities	<u>1,002,655,086</u>
<b>Capital and surplus:</b>	
Common capital stock	6,000,000
Gross paid in and contributed surplus	531,153,297
Unassigned funds (surplus)	<u>(295,951,935)</u>
Total capital and surplus	241,201,362
Total liabilities and capital and surplus	<u>\$ 1,243,856,448</u>

I, Stan Osofsky, Treasurer of Endurance American Insurance Company (the "Company") do hereby certify that to the best of my knowledge and belief, the foregoing is a full and true Statutory Statement of Admitted Assets, Liabilities, Capital and Surplus of the Company as of December 31, 2014 prepared in conformity with accounting practices prescribed or permitted by the State of Delaware Department of Insurance. The foregoing statement should not be taken as a complete statement of financial condition of the Company. Such a statement is available upon request at the Company's office located at 4 Manhattanville Road, 3rd Floor, Purchase, NY 10577.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of the Company at New York, New York.

  
 Stan Osofsky, Treasurer

Subscribed and sworn to before me this 12<sup>th</sup> day of March, 2015



**ROSE CHARLES**  
 Notary Public, State of New York  
 No. 02CH8172844  
 Qualified in New York County  
 My Commission Expires Aug 13, 2015



Tax ID #: 13-3983478

APT E-  
PIN#: 85015B0101

Contract # 1 - General Construction Work

### SCHEDULE B - M/WBE Utilization Plan

#### Part I: M/WBE Participation Goals

Part I to be completed by contracting agency

#### Contract Overview

APT E-Pin # 85015B0101 FMS Project ID#: HH112BLEL

Project Title/Agency Bellevue Men's Shelter Elevator Rehabilitation

PIN # 8502015HL0002C

Bid/Proposal

Response Date: APRIL 30, 2015

Contracting Agency Department of Design and Construction

Agency Address 30-30 Thomson Avenue City Long Island City State NY Zip Code 11101

Contact Person Norma Negron Title M/WBE Liaison & Compliance Analyst

Telephone # (718) 391-1502 Email negronn@ddc.nyc.gov

This Project consists of the rehabilitation and modernization of three passenger elevators located in the building and associated upgrades to bring the elevator system up to local code. The three elevators have been inactive for many years and desperately need to be renovated. In general the scope of work with this project includes:

- Removal of existing equipment and appurtenances associated with the existing elevators.
- Minor relocation of existing building system piping routed through the elevator shafts.
- Elevator cabs will remain, new interior cabs, associated controls and motors will be replaced.
- Hoist way venting and smoke detection to comply with local codes.
- HVAC cooling of the elevator machine rooms and basement electrical room.
- Electrical work to facilitate the installation of upgraded elevator equipment, including fire alarm tie-ins.
- New elevator pit sum pits and pumps tied into existing plumbing systems.
- Architectural rehabilitation to the east penthouse elevator machine room (i.e. façade, cornice, roof, louvers, windows, doors, etc.)
- Structural improvements that relate to the architectural, elevator and HVAC scope of work.

#### M/WBE Participation Goals for Services

For this procurement, individual ethnicity and gender goals are not specified. The Total Participation Goals are 5% for African Americans in this contract.

Prime Contract Industry: Construction

Group	Percentage
<u>Unspecified*</u>	<u>5 %</u>
OR	
<u>Black American</u>	<u>Unspecified %</u>
<u>Hispanic American</u>	<u>Unspecified %</u>
<u>Asian American</u>	<u>Unspecified %</u>
<u>Women</u>	<u>Unspecified %</u>
<b>Total Participation Goals</b>	<b>5 %</b>

Line 1

\* Note: For this procurement, individual ethnicity and gender goals are not specified. The Total Participation Goals for construction contracts may be met by using Black American, Hispanic American, Asian American or Women certified firms or any combination of such firms.





Tax ID #: 13-3983478

**SCHEDULE B - Part II: M/WBE Participation Plan**

Part II to be completed by the bidder/proposer:

Please note: For Non-M/WBE Prime Contractors who will NOT subcontract any services and will self-perform the entire contract, you must obtain a FULL waiver by completing the Waiver Application on pages 9 and 9a and timely submitting it to the contracting agency pursuant to the Notice to Prospective Contractors. Once a FULL WAIVER is granted, it must be included with your bid or proposal and you do not have to complete or submit this form with your bid or proposal.

**Section I: Prime Contractor Contact Information**

Tax ID # 13-3983478 FMS Vendor ID # 0000-591178  
 Business Name FIVE STAR CONTRACTING CO. INC. Contact Person MOHAMMAD IQBAL  
 Address 64 FULTON STREET SUITE 703, NEW YORK NY 10038  
 Telephone # 212-406-8900 Email FIVE8900@AOL.COM

**Section II: M/WBE Utilization Goal Calculation: Check the applicable box and complete subsection.**

**PRIME CONTRACTOR ADOPTING AGENCY M/WBE PARTICIPATION GOALS**

<input checked="" type="checkbox"/> For Prime Contractors (including Qualified Joint Ventures and M/WBE firms) adopting Agency M/WBE Participation Goals.	Total Bid/Proposal Value	Agency Total Participation Goals (Line 1, Page 6)		Calculated M/WBE Participation Amount
Calculate the total dollar value of your total bid that you agree will be awarded to M/WBE subcontractors for services and/or credited to an M/WBE prime contractor or Qualified Joint Venture.  Please review the Notice to Prospective Contractors for more information on how to obtain credit for M/WBE participation.	\$4,850,000.00	5%	=	\$242,500.00 \$ Line 2

**PRIME CONTRACTOR OBTAINED PARTIAL WAIVER APPROVAL: ADOPTING MODIFIED M/WBE PARTICIPATION GOALS**

<input type="checkbox"/> For Prime Contractors (including Qualified Joint Ventures and M/WBE firms) adopting Modified M/WBE Participation Goals.	Total Bid/Proposal Value	Adjusted Participation Goal (From Partial Waiver)		Calculated M/WBE Participation Amount
Calculate the total dollar value of your total bid that you agree will be awarded to M/WBE subcontractors for services and/or credited to an M/WBE prime contractor or Qualified Joint Venture.  Please review the Notice to Prospective Contractors for more information on how to obtain credit for M/WBE participation.	\$	X	=	\$ Line 3



**Section III: M/WBE Utilization Plan: How Proposer/Bidder Will Fulfill M/WBE Participation Goals. Please review the Notice to Prospective Contractors for more information on how to obtain credit for M/WBE participation. Check applicable box. The Proposer or Bidder will fulfill the M/WBE Participation Goals:**

As an M/WBE Prime Contractor that will self-perform and/or subcontract to other M/WBE firms a portion of the contract the value of which is at least the amount located on Lines 2 or 3 above, as applicable. The value of any work subcontracted to non-M/WBE firms will not be credited towards fulfillment of M/WBE Participation Goals. Please check all that apply to Prime Contractor:

MBE  WBE

As a Qualified Joint Venture with an M/WBE partner, in which the value of the M/WBE partner's participation and/or the value of any work subcontracted to other M/WBE firms is at least the amount located on Lines 2 or 3 above, as applicable. The value of any work subcontracted to non M/WBE firms will not be credited towards fulfillment of M/WBE Participation Goals.

As a non M/WBE Prime Contractor that will enter into subcontracts with M/WBE firms the value of which is at least the amount located on Lines 2 or 3 above, as applicable.

**Section IV: General Contract Information**

What is the expected percentage of the total contract dollar value that you expect to award in subcontracts for services, regardless of M/WBE status? % 5

1. ELECTRICAL WORK

2. HVAC WORK

3. PLUMBING WORK

4.

5.

6.

7.

8.

9.

10.

11.

12.

13.

14.

15.

16.

17.

18.

✓ **Scopes of Subcontract Work**

**Section V: Vendor Certification and Required Affirmations**

I hereby

- 1) acknowledge my understanding of the M/WBE participation requirements as set forth herein and the pertinent provisions of Section 6-129 of the Administrative Code of the City of New York (Section 6-129), and the rules promulgated thereunder;
- 2) affirm that the information supplied in support of the M/WBE Utilization Plan is true and correct;
- 3) agree, if awarded this Contract, to comply with the M/WBE participation requirements of this Contract, the pertinent provisions of Section 6-129, and the rules promulgated thereunder, all of which shall be deemed to be incorporated into this Contract;
- 4) agree and affirm that it is a material term of this Contract that the Vendor will award the total dollar value of the M/WBE Participation Goals to certified MBEs and/or WBEs, unless a full waiver is obtained or such goals are modified by the Agency; and
- 5) agree and affirm, if awarded this Contract, to make all reasonable, good faith efforts to meet the M/WBE Participation Goals, or if a partial waiver is obtained or such goals are modified by the Agency, to meet the modified Participation Goals by soliciting and obtaining the participation of certified MBEs and/or WBE firms.

Signature Mohammad Iqbal  
Print Name MOHAMMAD IQBAL

Date 4/20/15  
Title PRESIDENT



**SCHEDULE B – PART III – REQUEST FOR WAIVER OF M/WBE PARTICIPATION REQUIREMENT**

**Contract Overview**

Tax ID # 13-3983478 FMS Vendor ID # 0000-591178  
 Business Name FIVE STAR CONTRACTING COMPANIES INC.  
 Contact Name MOHAMMAD IQBAL Telephone # 212-406-8900 Email FIVE8900@AOL.COM  
 Type of Procurement  Competitive Sealed Bids  Other Bid/Response Due Date \_\_\_\_\_

APR 15, 2014

**M/WBE Participation Goal**

\_\_\_\_\_ % Agency M/WBE Participation Goal

**Proposed M/WBE Participation Goal**

\_\_\_\_\_ % of the total contract value anticipated in good faith by the bidder/proposer to be subcontracted for services and/or credited to an M/WBE Prime Contractor or Qualified Joint Venture.

**Basis for Waiver Request: Check appropriate box & explain in detail below (attach additional pages if needed)**

- Vendor does not subcontract services, and has the capacity and good faith intention to perform all such work itself with its own employees.
- Vendor subcontracts some of this type of work but at a lower % than bid/solicitation describes, and has the capacity and good faith intention to do so on this contract. (Attach subcontracting plan outlining services that the vendor will self-perform and subcontract to other vendors or consultants.)
- Vendor has other legitimate business reasons for proposing the M/WBE Participation Goal above. Explain under separate cover.

**References**

\_\_\_\_\_

CONTRACT NO.	AGENCY	DATE COMPLETED
Total Contract Amount \$ _____	Total Amount Subcontracted \$ _____	_____
Item of Work Subcontracted and Value of subcontract _____	Item of Work Subcontracted and Value of subcontract _____	Item of Work Subcontracted and Value of subcontract _____
CONTRACT NO.	AGENCY	DATE COMPLETED
Total Contract Amount \$ _____	Total Amount Subcontracted \$ _____	_____
Item of Work Subcontracted and Value of subcontract _____	Item of Work Subcontracted and Value of subcontract _____	Item of Work Subcontracted and Value of subcontract _____
CONTRACT NO.	AGENCY	DATE COMPLETED
Total Contract Amount \$ _____	Total Amount Subcontracted \$ _____	_____
Item of Work Subcontracted and Value of subcontract _____	Item of Work Subcontracted and Value of subcontract _____	Item of Work Subcontracted and Value of subcontract _____

List 3 most recent contracts performed for other entities. Include information for each contract awarded in performance of such contracts. Add more pages if necessary.  
 (Complete ONLY if vendor has performed fewer than 3 New York City contracts.)

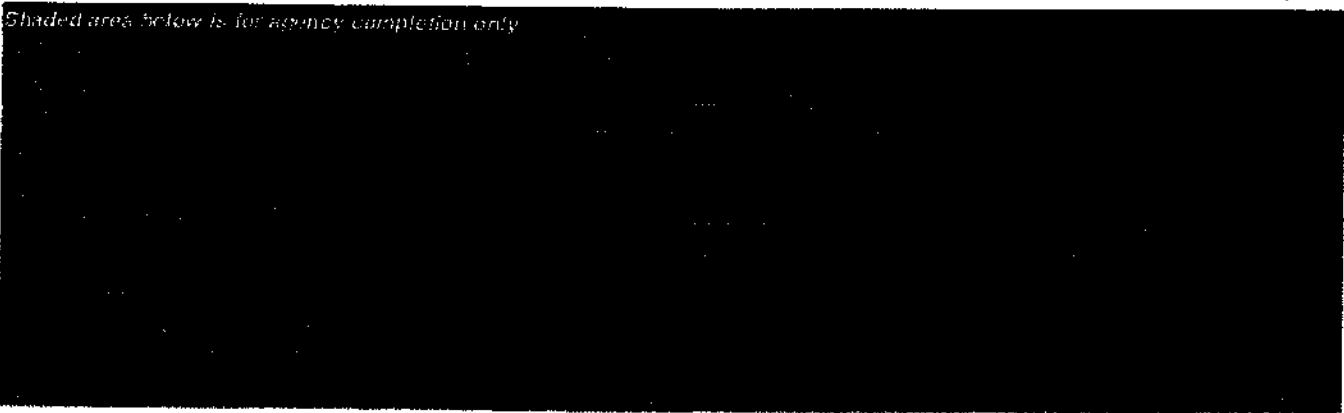
<b>TYPE OF Contract</b> _____	<b>ENTITY</b> _____	<b>DATE COMPLETED</b> _____
Manager at entity that hired vendor (Name/Phone No./Email) _____		
<b>Total Contract Amount</b> \$ _____	<b>Total Amount Subcontracted</b> \$ _____	
<b>Type of Work Subcontracted</b> _____	_____	_____

<b>TYPE OF Contract</b> _____	<b>AGENCY/ENTITY</b> _____	<b>DATE COMPLETED</b> _____
Manager at agency/entity that hired vendor (Name/Phone No./Email) _____		
<b>Total Contract Amount</b> \$ _____	<b>Total Amount Subcontracted</b> \$ _____	
<b>Item of Work Subcontracted and Value of subcontract</b> _____	<b>Item of Work Subcontracted and Value of subcontract</b> _____	<b>Item of Work Subcontracted and Value of subcontract</b> _____

<b>TYPE OF Contract</b> _____	<b>AGENCY/ENTITY</b> _____	<b>DATE COMPLETED</b> _____
Manager at entity that hired vendor (Name/Phone No./Email) _____		
<b>Total Contract Amount</b> \$ _____	<b>Total Amount Subcontracted</b> \$ _____	
<b>Item of Work Subcontracted and Value of subcontract</b> _____	<b>Item of Work Subcontracted and Value of subcontract</b> _____	<b>Item of Work Subcontracted and Value of subcontract</b> _____

**VENDOR CERTIFICATION:** *Thereby affirm that the information supplied in support of this proposal is true and correct, and that the work will be done in good faith.*

Signature: *Mohammad Iqbal* Date: 4/20/15  
 Print Name: MOHAMMAD IQBAL Title: PRESIDENT





**BIDDER'S IDENTIFICATION OF SUBCONTRACTORS**

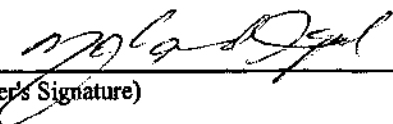
Project ID: HH112BLEL

**SUBMISSION:** In addition to its Bid (Bid Envelope # 1), the Bidder must, at the time of the bid, complete and submit this form in a separate, sealed envelope (Bid Envelope # 2). To complete this form, the Bidder must identify the subcontractors it intends to use for the work listed below, as well as the dollar amount to be paid to each subcontractor. Failure to complete this form and submit it in a separate, sealed envelope will result in the disqualification of the bid as non-responsive.

The Bidder intends to use the following subcontractors. If the Bidder intends to do any of the work referenced below with its own forces, the Bidder should complete this form using its own name. If multiple subcontractors for any trade are proposed, Bidder may submit multiple copies of this form.

- |  |   |
|--|---|
| <p>1. <b>PLUMBING CONTRACTOR:</b></p> <p><u>MARSAL PLUMBING</u><br/>(Print Name)</p> <p>Agreed amount to be paid Subcontractor: <u>\$ 150,000</u></p>      | <p>Description of Plumbing Work:</p> <p><u>SUMP PUMP AND RELATED</u><br/><u>PLUMBING</u></p>                              |
| <p>2. <b>HVAC CONTRACTOR:</b></p> <p><u>AMH MECHANICAL</u><br/>(Print Name)</p> <p>Agreed amount to be paid Subcontractor: <u>\$ 350,000</u></p>           | <p>Description of HVAC Work:</p> <p><u>NEW AIR CONDITIONING</u><br/><u>SYSTEM IN ELEVATOR MACHINE</u><br/><u>ROOM</u></p> |
| <p>3. <b>ELECTRICAL CONTRACTOR:</b></p> <p><u>HIGH VOLT ELECTRIC</u><br/>(Print Name)</p> <p>Agreed amount to be paid Subcontractor: <u>\$ 250,000</u></p> | <p>Description of Electrical Work:</p> <p><u>ELECTRIC WIRING</u><br/><u>REPLACEMENT</u></p>                               |

**BIDDER'S SIGNATURE:** The Bidder must sign and complete this form in the spaces provided below:

 MOHAMMAD IQBAL  
(Bidder's Signature) (Print Name)

64 Fulton Street, Suite 703, NYC 10038  
(Address)

President 212 406-8900 212-406-2375 4/20/15  
(Title) (Phone #) (Fax#) (Date)



## SAFETY QUESTIONNAIRE

The bidder must include, with its bid, all information requested on this Safety Questionnaire. Failure to provide a completed and signed Safety Questionnaire at the time of bid opening may result in disqualification of the bid as non-responsive.

### 1. Bidder Information:

Company Name: FIVE STAR CONTRACTING COMPANIES INC.

DDC Project Number: HH112BLEL

Company Size:            Ten (10) employees or less  
  X   Greater than ten (10) employees

Company has previously worked for DDC   X   YES            NO

### 2. Type(s) of Construction Work

TYPE OF WORK	LAST 3 YEARS	THIS PROJECT
General Building Construction	<u>  X  </u>	<u>  X  </u>
Residential Building Construction	<u>          </u>	<u>          </u>
Nonresidential Building Construction	<u>  X  </u>	<u>          </u>
Heavy Construction, except building	<u>          </u>	<u>          </u>
Highway and Street Construction	<u>          </u>	<u>          </u>
Heavy Construction, except highways	<u>          </u>	<u>          </u>
Plumbing, Heating, HVAC	<u>  X  </u>	<u>  X  </u>
Painting and Paper Hanging	<u>  X  </u>	<u>  X  </u>
Electrical Work	<u>  X  </u>	<u>  X  </u>
Masonry, Stonework and Plastering	<u>  X  </u>	<u>  X  </u>
Carpentry and Floor Work	<u>  X  </u>	<u>          </u>
Roofing, Siding, and Sheet Metal	<u>  X  </u>	<u>  X  </u>
Concrete Work	<u>  X  </u>	<u>  X  </u>
Specialty Trade Contracting	<u>          </u>	<u>  X  </u>
Asbestos Abatement	<u>  X  </u>	<u>  X  </u>
Other (specify)	<u>          </u>	<u>          </u>

### 3. Experience Modification Rate:

The Experience Modification Rate (EMR) is a rating generated by the National Council of Compensation Insurance (NCCI). This rating is used to determine the contractor's premium for worker's compensation insurance. The contractor may obtain its EMR by contacting its insurance broker or the NCCI. If the contractor cannot obtain its EMR, it must submit a written explanation as to why.

The Contractor must indicate its Intrastate and Interstate EMR for the past three years. [Note: For contractors with less than three years of experience, the EMR will be considered to be 1.00].

YEAR	INTRASTATE RATE	INTERSTATE RATE
2014	N.A.	0.95
2013	N.A.	0.96
2012	N.A.	0.97

If the Intrastate and/or Interstate EMR for any of the past three years is greater than 1.00, the contractor must attach, to this questionnaire, a written explanation for the rating and identify what corrective action was taken to correct the situation resulting in that rating.

**4. OSHA Information:**

YES     NO    Contractor has received a willful violation issued by OSHA or New York City Department of Buildings (NYCDOB) within the last three years.

YES     NO    Contractor has had an incident requiring OSHA notification within 8 hours (i.e., fatality, or hospitalization of three or more employees).

The Occupational Safety and Health Act (OSHA) of 1970 requires employers with ten or more employees, on a yearly basis to complete and maintain on file the form entitled "Log of Work-related Injuries and Illnesses". This form is commonly referred to as the OSHA 300 Log (OSHA 200 Log for 2001 and earlier).

The OSHA 300 Log must be submitted for the last three years for contractors with more than ten employees.

The Contractor must indicate the total number of hours worked by its employees, as reflected in payroll records for the past three years.

The contractor must submit the Incident Rate for Lost Time Injuries (the Incident Rate) for the past three years. The Incident Rate is calculated in accordance with the formula set forth below. For each given year, the total number of incidents is the total number of non-fatal injuries and illnesses reported on the OSHA 300 Log. The 200,000 hours represents the equivalent of 100 employees working forty hours a week, fifty weeks per year.

$$\text{Incident Rate} = \frac{\text{Total Number of Incidents} \times 200,000}{\text{Total Number of Hours Worked by Employees}}$$



YEAR	TOTAL NUMBERS OF HOURS WORKED BY EMPLOYEES	INCIDENT RATE
2014	6.800	0
2013	6.600	0
2012	6.800	0

If the contractor's Incident Rate for any of the past three years is one point higher than the Incident Rate for the type of construction it performs (listed below), the contractor must attach, to this questionnaire, a written explanation for the relatively high rate.


General Building Construction	8.5
Residential Building Construction	7.0
Nonresidential Building Construction	10.2
Heavy Construction, except building	8.7
Highway and Street Construction	9.7
Heavy Construction, except highways	8.3
Plumbing, Heating, HVAC	11.3
Painting and Paper Hanging	6.9
Electrical Work	9.5
Masonry, Stonework and Plastering	10.5
Carpentry and Floor Work	12.2
Roofing, Siding, and Sheet Metal	10.3
Concrete Work	8.6
Specialty Trade Contracting	8.6

**5. Safety Performance on Previous DDC Project(s)**

YES  NO Contractor previously audited by the DDC Office of Site Safety.  
 DDC Project Number(s): \_\_\_\_\_

YES  NO Accident on previous DDC Project(s).  
 DDC Project Number(s): \_\_\_\_\_

YES  NO Fatality or Life-altering Injury on DDC Project(s) within the last three years.  
 [Examples of a life-altering injury include loss of limb, loss of a sense (e.g., sight, hearing), or loss of neurological function].  
 DDC Project Number(s): \_\_\_\_\_

Date: 4/20/15 By:   
 (Signature of Owner, Partner, Corporate Officer)  
 Title: PRESIDENT



# OSHA's Form 300A (Rev. 01/2004)

## Summary of Work-Related Injuries and Illnesses

All establishments covered by Part 1904 must complete this Summary page, even if no injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete. Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you've added the entries from every page of the Log. If you had no cases write "0."

Employers, former employees, and their representatives have the right to review the OSHA Form 300A for its entirety. They also have limited access to the OSHA Form 307 or its equivalent. See 29 CFR 1904.35, in OSHA's Recordkeeping rule, for further details on the access provisions for these forms.

### Number of Cases

Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases
0 (G)	0 (H)	0 (I)	0 (J)

### Number of Days

Total number of days away from work	Total number of days of job transfer or restriction
0 (K)	0 (L)

### Injury and Illness Types

Total number of... (M)	(1) Injury	0	(4) Poisoning	0
(2) Skin Disorder	0	(5) Hearing Loss	0	
(3) Respiratory Condition	0	(6) All Other Illnesses	0	

Post this Summary page from February 1 to April 30 of the year following the year covered by the form

Public reporting burden for this collection of information is estimated to average 50 minutes per response, including time to review the instruction, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any aspects of this data collection, contact: US Department of Labor, OSHA, Office of Statistics, Room N-3844, 200 Constitution Ave. NW, Washington, DC 20210. Do not send the completed form to this office.



Year 2012

U.S. Department of Labor  
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

### Establishment Information

Your establishment name FIVE STAR CONTRACTING COMPANIES INC.  
 Street 120 FULTON STREET, 3RD FLOOR  
 City NEW YORK State NY Zip 10038  
 Industry description (e.g., Manufacture of motor truck trailers)  
GENERAL CONSTRUCTION  
 Standard Industrial Classification (SIC), if known (e.g., SIC 3715)  
2 3 6 2 2 0  
 OR North American Industrial Classification (NAICS), if known (e.g., 336212)

### Employment Information

Annual average number of employees 28  
 Total hours worked by all employees last year 5200

### Sign here

Knowledge falsifying this document may result in a fine.

I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and complete.

MOHAMMAD IQBAL Company executive  
PRESIDENT Title  
212-406-0600 Phone  
3/12/13 Date









# OSHA's Form 300A (Rev. 01/2004)

## Summary of Work-Related Injuries and Illnesses

All establishments covered by Part 1904 must complete this Summary page, even if no injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete.

Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you've added the entries from every page of the log. If you had no cases write "0."

Employees former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 301 or its equivalent. See 29 CFR 1904.35, in OSHA's Recordkeeping rule, for further details on the access provisions for these forms.

### Number of Cases

Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases
0	0	0	0
(G)	(H)	(I)	(J)

### Number of Days

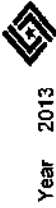
Total number of days away from work	Total number of days of job transfer or restriction
0	0
(K)	(L)

### Injury and Illness Types

Total number of... (M)	(1) Injury	(4) Poisoning	(2) Skin Disorder	(5) Hearing Loss	(3) Respiratory Condition	(6) All Other Illnesses
0	0	0	0	0	0	0

Post this Summary page from February 1 to April 30 of the year following the year covered by the form.

Public reporting burden for this collection of information is estimated to average 68 minutes per response, including time to review the instruction, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about this estimate or any aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistics, Room 14-3614, 200 Constitution Ave. NW, Washington, DC 20210. Do not send the completed forms to this office.



Year 2013

U.S. Department of Labor  
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

### Establishment information

Your establishment name FIVE STAR CONTRACTING COMPANIES INC.

Street 120 FULTON STREET, 3RD FLOOR

City NEW YORK State NY Zip 10038

Industry description (e.g., Manufacture of motor truck trailers)  
GENERAL CONSTRUCTION

Standard Industrial Classification (SIC), if known (e.g., SIC 3715)

OR North American Industrial Classification (NAICS), if known (e.g., 336212)

2 3 6 2 2 0

### Employment information

Annual average number of employees 28

Total hours worked by all employees last year 5200

### Sign here

Knowingly falsifying this document may result in a fine.

I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and complete.

MOHAMMAD IQBAL Company executive Title PRESIDENT

212-496-9800 Phone Date 2/10/2014



# Log of Work-Related Injuries and Illnesses

You must record information about every work-related injury or illness that involves loss of consciousness, restricted work activity or job transfer, days away from work, or medical treatment beyond first aid. You must also record significant work-related injuries and illnesses that are diagnosed by a physician or licensed health care professional. You must also record work-related injuries and illnesses that meet any of the specific recording criteria listed in 29 CFR 1904.8 through 1904.12. Feel free to use two lines for a single case if you need to. You must complete an injury and illness incident report (OSHA Form 301) or equivalent form for each injury or illness recorded on this form. If you're not sure whether a case is recordable, call your local OSHA office for help.

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.



Year **2013**

**U.S. Department of Labor**  
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

Establishment name **FIVE STAR CONTRACTING COMPANIES INC.**

City **NEW YORK** State **NEW YORK**

**Identify the person**

(A) Case No.	(B) Employee's Name	(C) Job Title (e.g., Welder)	(D) Date of injury or onset of illness (mo./day)	(E) Where the event occurred (e.g. Loading dock north end)	(F) Describe injury or illness, parts of body affected, and object/substance that directly injured or made person ill (e.g. Second degree burns on right forearm from acetylene torch)

Page totals

Be sure to transfer these totals to the Summary page (Form 300A) before you post it.

Public reporting burden for this collection of information is estimated to average 14 minutes per response, including time to review the instruction, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistics, Room H-3664, 200 Constitution Ave, NW, Washington, DC 20210. Do not send the completed forms to this office.

**Classify the case**

CHECK ONLY ONE box for each case based on the most serious outcome for that case:

(G) Death	Days away from work		Remained at work		Enter the number of days the injured or ill worker was:			(M) Injury	Check the "injury" column or choose one type of illness:					
	(H) 	(I) Job transfer or restriction	(J) 	(K) Other recordable cases	(L) Away From Work (days)	(N) On job transfer or restriction (days)								
							(1) 		(2) Skin Disorder	(3) Respiratory Condition	(4) Poisoning	(5) Hearing Loss	(6) All other illnesses	
								(1)	(2)	(3)	(4)	(5)	(6)	



# Log of Work-Related Injuries and Illnesses

You must record information about every work-related injury or illness that involves loss of consciousness, restricted work activity or job transfer, days away from work, or medical treatment beyond first aid. You must also record significant work-related injuries and illnesses that are diagnosed by a physician or licensed health care professional. You must also record work-related injuries and illnesses that meet any of the specific recording criteria listed in 29 CFR 1904.8 through 1904.12. Feel free to use two lines for a single case if you need to. You must complete an injury and illness incident report (OSHA Form 301) or equivalent form for each injury or illness recorded on this form. If you're not sure whether a case is recordable, call your local OSHA office for help.

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

Establishment name **FIVE STAR CONTRACTING COMPANIES INC.**

City **NEW YORK**

State **NEW YORK**

### Identify the person

### Describe the case

### Classify the case

(A) Case No.	(B) Employee's Name	(C) Job Title (e.g., Welder)	(D) Date of injury or onset of illness (mo./day)	(E) Where the event occurred (e.g. Loading dock north end)	(F) Describe injury or illness, parts of body affected, and object/substance that directly injured or made person ill (e.g. Second degree burns on right forearm from acetylene torch)	Enter the number of days the injured or ill worker was:					Check the "injury" column or choose one type of illness:							
						Death	Days away from work	Job transfer or restriction	Remained at work	Away From Work (days)	On job transfer or restriction (days)	(M) Injury	Skin Disorder	Respiratory Condition	Poisoning	Hearing Loss	All other illnesses	
						(G)	(H)	(I)	(J)	(K)	(L)	(1)	(2)	(3)	(4)	(5)	(6)	
						0	0	0	0	0	0	0	0	0	0	0	0	0
						0	0	0	0	0	0	0	0	0	0	0	0	0
						0	0	0	0	0	0	0	0	0	0	0	0	0
						0	0	0	0	0	0	0	0	0	0	0	0	0
						0	0	0	0	0	0	0	0	0	0	0	0	0
						0	0	0	0	0	0	0	0	0	0	0	0	0
						0	0	0	0	0	0	0	0	0	0	0	0	0
						0	0	0	0	0	0	0	0	0	0	0	0	0
						0	0	0	0	0	0	0	0	0	0	0	0	0
						0	0	0	0	0	0	0	0	0	0	0	0	0
						0	0	0	0	0	0	0	0	0	0	0	0	0
						0	0	0	0	0	0	0	0	0	0	0	0	0
						0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Page totals</b>						0	0	0	0	0	0	0	0	0	0	0	0	0

Be sure to transfer these totals to the Summary page (Form 300A) before you post it.

Public reporting burden for this collection of information is estimated to average 14 minutes per response, including time to review the instruction, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistics, Room N-3644, 200 Constitution Ave. NW, Washington, DC 20210. Do not send the completed forms to this office.

# OSHA's Form 300A (Rev. 01/2004) Summary of Work-Related Injuries and Illnesses

All establishments covered by Part 1904 must complete this Summary page, even if no injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete. Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you've added the entries from every page of the log. If you had no cases write "0."

Employees former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 301 or its equivalent. See 29 CFR 1904.35, in OSHA's Recordkeeping rule, for further details on the access provisions for these forms.

## Number of Cases

Total number of deaths 0 (G) Total number of cases with days away from work 0 (H) Total number of cases with job transfer or restriction 0 (I) Total number of other recordable cases 0 (J)

## Number of Days

Total number of days away from work 0 (K) Total number of days of job transfer or restriction 0 (L)

## Injury and Illness Types

Total number of... (M)  
 (1) Injury 0 (4) Poisoning 0  
 (2) Skin Disorder 0 (5) Hearing Loss 0  
 (3) Respiratory Condition 0 (6) All Other Illnesses 0

Post this Summary page from February 1 to April 30 of the year following the year covered by the form

Public reporting burden for this collection of information is estimated to average 58 minutes per response, including time to review the instruction, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistics, Room N-3644, 200 Constitution Ave. NW, Washington, DC 20210. Do not send the completed forms to this office.

## Establishment information

Your establishment name FIVE STAR CONTRACTING COMPANIES INC.  
 Street 64 FULTON STREET, SUITE 703  
 City NEW YORK State NY Zip 10038  
 Industry description (e.g., Manufacture of motor truck trailers)  
GENERAL CONSTRUCTION  
 Standard Industrial Classification (SIC), if known (e.g., SIC 3715)  
2 3 6 2 2 2 0  
 OR North American Industrial Classification (NAICS), if known (e.g., 336212)

## Employment information

Annual average number of employees 28  
 Total hours worked by all employees last year 5200

## Sign here

Knowingly falsifying this document may result in a fine.

I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and complete.

MOHAMMAD IQBAL Company executive  
PRESIDENT Title  
212-406-0600 Phone  
6/17/2015 Date

**A. PROJECT REFERENCES - SIMILAR CONTRACTS COMPLETED BY THE BIDDER**

List all contracts substantially completed within the last 4 years similar to the contract being awarded, up to a maximum of 10, in descending order of date of substantial completion.

Project & Location	Contract Type	Contract Amount (\$000)	Date Completed	Owner Reference & Tel. No.	Architect/Engineer Reference & Tel. No. if different from owner
LANGSTON HUGHES LIBRARIES WATER PROOFING (QUEENS, NY)	G.C.	\$ 201,575	2015	NYC DEPT. OF DESIGN & CONSTR.	-
SPUYTEN DUYN LIBRARY (BRONX, NY)	G.C.	\$ 108,948	2015	NYC DEPT. OF DESIGN & CONSTR.	-
WEST BRIGHTON BRANCH LIBRARY (STATEN ISLAND, NY)	G.C.	\$ 721,591	2015	NYC DEPT. OF DESIGN & CONSTR.	-
2 NYPL BRANCH LIBRARIES ELEVATOR (BRONX MANHATTAN, NY)	G.C.	\$ 756,760	2014	NYC DEPT. OF DESIGN & CONSTR.	-
HOLLIS LIBRARY (QUEENS, NY)	G.C.	\$ 516,618	2014	NYC DEPT. OF DESIGN & CONSTR.	-
FORT HAMILTON LIBRARY (BROOKLYN, NY)	G.C.	\$ 476,219	2014	NYC DEPT. OF DESIGN & CONSTR.	-
AURDUNDALE LIBRARY (QUEENS, NY)	G.C.	\$ 337,696	2013	NYC DEPT. OF DESIGN & CONSTR.	-





**B. PROJECT REFERENCES – CONTRACTS CURRENTLY UNDER CONSTRUCTION BY THE BIDDER**

List all contracts currently under construction even if they are not similar to the contract being awarded.

Project & Location	Contract Type	Contract Amount (\$000)	Subcontracted to Others (\$000)	Uncompleted Portion (\$000)	Date Scheduled to Complete	Owner Reference & Tel. No.	Architect/Engineer Reference & Tel. No. if different from owner
SOUNDVIEW LIBRARY (BRONX, NY)	G.C.	\$ 332,658			2015	NYC Dept of Design & Constr	-
SAINT GEORGE LIBRARY - ELEVATOR (STATEN ISLAND, NY)	G.C.	\$ 473,621			2015	NYC Dept of Design & Constr	-
EPIPHANY LIBRARY ELEVATOR REPL. (MANHATTAN, NY)	G.C.	\$ 493,261			2015	NYC Dept of Design & Constr	-
RIVERSIDE LIBRARY (MANHATTAN, NY)	G.C.	\$ 132,437			2015	NYC Dept of Design & Constr	-



**C. PROJECT REFERENCES – PENDING CONTRACTS NOT YET STARTED BY THE BIDDER**

List all contracts awarded to or won by the bidder but not yet started.

Project & Location	Contract Type	Contract Amount (\$000)	Date Scheduled to Start	Owner Reference & Tel. No.	Architect/Engineer Reference & Tel. No. if different from owner



**VENDEX COMPLIANCE**

(A) **Vendex Fees:** Pursuant to Procurement Policy Board Rule 2-08(f)(2), the contractor will be charged a fee for the administration of the VENDEX system, including the Vendor Name Check process, if a Vendor Name Check review is required to be conducted by the Department of Investigation. The contractor shall also be required to pay the applicable required fees for any of its subcontractors for which Vendor Name Check reviews are required. The fee(s) will be deducted from payments made to the contractor under the contract. For contracts with an estimated value of less than or equal to \$1,000,000, the fee will be \$175 per Vendor Name Check review. For contracts with an estimated value of greater than \$1,000,000, the fee will be \$350 per Vendor Name Check review.

(B) **Confirmation of Vendex Compliance:** The Bidder shall submit this Confirmation of Vendex Compliance to the Department of Design and Construction, Contracts Section, 30-30 Thomson Avenue – First Floor, Long Island City, NY 11101.

**Bid Information:** The Bidder shall complete the bid information set forth below.

Name of Bidder: FIVE STAR CONTRACTING COMPANIES INC.  
Bidder's Address: 64 FULTON STREET SUITE 703 NEW YORK, NY 10038  
Bidder's Telephone Number: 212-406-8900  
Bidder's Fax Number: 212-406-2375  
Date of Bid Opening: 06-08-15  
Project ID: HH112BLEL

**Vendex Compliance:** To demonstrate compliance with Vendex requirements, the Bidder shall complete either Section (1) or Section (2) below, whichever applies.

(1) **Submission of Vendex Questionnaires to MOCS:** By signing in the space provided below, the Bidder certifies that as of the date specified below, the Bidder has submitted Vendex Questionnaires to the Mayor's Office of Contract Services, Attn: VENDEX, 253 Broadway, 9<sup>th</sup> Floor, New York, New York 10007.

Date of Submission: \_\_\_\_\_

By: \_\_\_\_\_  
(Signature of Partner or corporate officer)

Print Name: \_\_\_\_\_

(2) **Submission of Certification of No Change to DDC:** By signing in the space provided below, the Bidder certifies that it has read the instructions in a "Vendor's Guide to Vendex" and that such instructions do not require the Bidder to submit Vendex Questionnaires. The Bidder has completed **TWO ORIGINALS** of the Certification of No Change set forth on the next page of this Bid Booklet.

By: For [Signature]  
(Signature of Partner or corporate officer)

Print Name: MOHAMMAD IQBAL

# Certificate of No Change Form



- Please submit two completed forms. Copies will not be accepted.
- Please send both copies to the agency that requested it, unless you are advised to send it directly to the Mayor's Office of Contract Services (MOCS).
- A materially false statement willfully or fraudulently made in connection with this certification, and/or the failure to conduct appropriate due diligence in verifying the information that is the subject of this certification, may result in rendering the submitting entity non-responsible for the purpose of contract award.
- A materially false statement willfully or fraudulently made in connection with this certification may subject the person making the false statement to criminal charges

I, MOHAMMAD IQBAL, being duly sworn, state that I have read  
*Enter Your Name*

and understand all the items contained in the vendor questionnaire and any submission of change as identified on page one of this form and certify that as of this date, these items have not changed. I further certify that, to the best of my knowledge, information and belief, those answers are full, complete, and accurate; and that, to the best of my knowledge, information, and belief, those answers continue to be full, complete, and accurate.

In addition, I further certify on behalf of the submitting vendor that the information contained in the principal questionnaire(s) and any submission of change identified on page two of this form have not changed and have been verified and continue, to the best of my knowledge, to be full, complete and accurate.

I understand that the City of New York will rely on the information supplied in this certification as additional inducement to enter into a contract with the submitting entity.

## Vendor Questionnaire *This section is required.*

*This refers to the vendor questionnaire(s) submitted for the vendor doing business with the City.*

Name of Submitting Entity: FIVE STAR CONTRACTING COMPANIES INC.

Vendor's Address: 64 FULTON STREET, SUITE 703 NEW YORK, NY 10038

Vendor's EIN or TIN: 13-3983478 Requesting Agency: NYC DDC

Are you submitting this Certification as a parent? (Please circle one) Yes  No

Signature date on the last full vendor questionnaire signed for the submitting vendor: 03/27/14

Signature date on change submission for the submitting vendor: 05/15/15





# Principal Questionnaire

This section refers to the most recent principal questionnaire submissions.



	Principal Name	Date of signature on last full Principal Questionnaire	Date(s) of signature on submission of change
1	MOHAMMAD IQBAL	05/09/13	N.A.
2			
3			
4			
5			
6			

Check if additional changes were submitted and attach a document with the date of additional submissions.

# Certification *This section is required.*

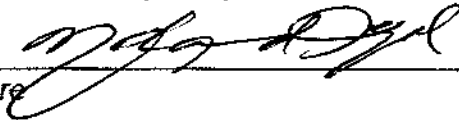
*This form must be signed and notarized. Please complete this twice. Copies will not be accepted.*

**Certified By:**

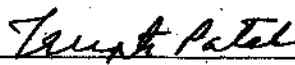
MOHAMMAD IQBAL  
Name (Print)

PRESIDENT  
Title

FIVE STAR CONTRACTING COMPANIES INC.  
Name of Submitting Entity

  
Signature 10-9-15  
Date

**Notarized By:**

  
Notary Public TRUPTI S. PATEL  
Notary Public, State of New York  
No. 01PA6214266  
Qualified in Nassau County  
Commission Expires December 7, 2017  
County License Issued License Number

Sworn to before me on: October 9<sup>th</sup>, 2015  
Date

1950

1950

**IRAN DIVESTMENT ACT COMPLIANCE RIDER  
FOR NEW YORK CITY CONTRACTORS**

The Iran Divestment Act of 2012, effective as of April 12, 2012, is codified at State Finance Law ("SFL") §165-a and General Municipal Law ("GML") §103-g. The Iran Divestment Act, with certain exceptions, prohibits municipalities, including the City, from entering into contracts with persons engaged in investment activities in the energy sector of Iran. Pursuant to the terms set forth in SFL §165-a and GML §103-g, a person engages in investment activities in the energy sector of Iran if:

- (a) The person provides goods or services of twenty million dollars or more in the energy sector of Iran, including a person that provides oil or liquefied natural gas tankers, or products used to construct or maintain pipelines used to transport oil or liquefied natural gas, for the energy sector of Iran; or
- (b) The person is a financial institution that extends twenty million dollars or more in credit to another person, for forty-five days or more, if that person will use the credit to provide goods or services in the energy sector in Iran and is identified on a list created pursuant to paragraph (b) of subdivision three of Section 165-a of the State Finance Law and maintained by the Commissioner of the Office of General Services.

A bid or proposal shall not be considered for award nor shall any award be made where the bidder or proposer fails to submit a signed and verified bidder's certification.

Each bidder or proposer must certify that it is not on the list of entities engaged in investment activities in Iran created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the State Finance Law. In any case where the bidder or proposer cannot certify that they are not on such list, the bidder or proposer shall so state and shall furnish with the bid or proposal a signed statement which sets forth in detail the reasons why such statement cannot be made. The City of New York may award a bid to a bidder who cannot make the certification on a case by case basis if:

- (1) The investment activities in Iran were made before the effective date of this section (i.e., April 12, 2012), the investment activities in Iran have not been expanded or renewed after the effective date of this section and the person has adopted, publicized and is implementing a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran: or
- (2) The City makes a determination that the goods or services are necessary for the City to perform its functions and that, absent such an exemption, the City would be unable to obtain the goods or services for which the contract is offered. Such determination shall be made in writing and shall be a public document.

**BIDDER'S CERTIFICATION OF COMPLIANCE WITH  
IRAN DIVESTMENT ACT**


Pursuant to General Municipal Law §103-g, which generally prohibits the City from entering into contracts with persons engaged in investment activities in the energy sector of Iran, the bidder/proposer submits the following certification:

[Please Check One]

**BIDDER'S CERTIFICATION**

- By submission of this bid or proposal, each bidder/proposer and each person signing on behalf of any bidder/proposer certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief, that each bidder/proposer is not on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the State Finance Law.
- I am unable to certify that my name and the name of the bidder/proposer does not appear on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the State Finance Law. I have attached a signed statement setting forth in detail why I cannot so certify.

Dated: New York, New York  
4-20, 2015

  
\_\_\_\_\_  
SIGNATURE  
  
\_\_\_\_\_  
MOHAMMAD IQBAL  
PRINTED NAME  
  
\_\_\_\_\_  
PRESIDENT  
TITLE

Sworn to before me this  
20th day of April, 2015



Notary Public: **TRUPTI S. PATEL**  
Notary Public, State of New York  
No. 01PA6214266  
Qualified in Nassau County  
Dated: Commission Expires December 7, 2017

Handwritten notes, possibly including the word "Handwritten" and other illegible scribbles.



Small Business  
Services

Maria Torres-Springer  
Commissioner

#215CY239

BID RM RECEIVED  
20 JUL 15 AM11:34

July 13, 2015

Mohammad Iqbal  
Five Star Contracting Companies Inc.  
64 Fulton Street, Suite 703  
New York, NY 10038

RE: **NYC Department of Design & Construction Contract (DDC);** PIN No. #8502015HL0002C; Contract No. HH112BLEL; Bellevue Men's shelter elevator rehabilitation; Borough of Manhattan; Contract Value: \$4,865,000.00; **Certificate of Approval.**

Dear Mr. Iqbal:

The Department of Small Business Services/Division of Labor Services (DLS) has concluded that Five Star Contracting Companies Inc. meets the equal employment opportunity requirements of the City of New York, as stated in Executive Order No. 50 (1980) as amended (E.O. 50), its implementing Rules (Rules), and Chapter 56 of the City Charter (Chapter 56). Consequently, DLS has notified (**DDC**) of this determination.

Contingent upon Five Star Contracting Companies Inc.'s ongoing compliance with E.O. 50 and Chapter 56, this approval shall be effective for the three (3) year period commencing on July 13, 2015 and terminating July 12, 2018. **This determination for a three-year approval only exempts contractors from completing the policy and procedure section of the Employment Report on future contracts within this three-year period.** However, a Construction Employment Report must be submitted for each new project. In addition, Five Star Contracting Companies Inc. must regularly to DLS the Monthly Workforce Utilization Table and Monthly Payroll Records as explained during the pre-award conference on July 13, 2015.

It is important that Five Star Contracting Companies Inc. as a New York City contractor provide equal employment opportunity for all employees and applicants for employment.

110 William Street, New York, NY 10038  
Tel 212.513.6300 \*Fax 212.618.8991\*TDD 212.513.6306  
[WWW.nyc.gov/sbs](http://WWW.nyc.gov/sbs)

**PAGE TWO**  
**July 13, 2015**

Please direct all correspondence to Mr. Jacques St.Cloud, Project Manager.  
Should you have any questions regarding this letter, you may call Mr. St.Cloud at (212) 513-9233 or e-mail him at [JSt.Cloud@sbs.nyc.gov](mailto:JSt.Cloud@sbs.nyc.gov).

Very truly yours,



Helen Wilson  
Assistant Commissioner  
Division of Labor Services

cc: Lorraine Holley (DDC)  
Jacques St. Cloud  
File

**CITY OF NEW YORK**

**DIVISION OF LABOR SERVICES**

**CONSTRUCTION EMPLOYMENT REPORT**



The City of New York Department of Small Business Services  
Division of Labor Services Contract Compliance Unit  
110 William Street, New York, New York 10038  
Phone: (212) 513 - 6323  
Fax: (212) 618-8879

**CONSTRUCTION EMPLOYMENT REPORT**

**GENERAL INFORMATION**

1. Your contractual relationship in this contract is: Prime contractor  Subcontractor
- 1a. Are M/WBE goals attached to this project? Yes  No
2. Please check one of the following if your firm would like information on how to certify with the City of New York as a:
- Minority Owned Business Enterprise  Locally Based Business Enterprise  
 Women Owned Business Enterprise  Emerging Business Enterprise  
 Disadvantaged Business Enterprise
- 2a. If you are certified as an **MBE, WBE, LBE, EBE** or **DBE**, what city/state agency are you certified with? NYC SMALL BUSINESS SERV Are you DBE certified? Yes  No
3. Please indicate if you would like assistance from SBS in identifying certified M/WBEs for contracting opportunities: Yes  No
4. Is this project subject to a project labor agreement? Yes  No
5. Are you a Union contractor? Yes  No  If yes, please list which local(s) you affiliated with \_\_\_\_\_
6. Are you a Veteran owned company? Yes  No

**PART I: CONTRACTOR/SUBCONTRACTOR INFORMATION**

7. 13-3983478 FIVE8900@AOL.COM  
Employer Identification Number or Federal Tax I.D. Email Address
8. FIVE STAR CONTRACTING COMPANIES INC.  
Company Name
9. 64 FULTON STREET SUITE 703 NEW YORK, NY 10038  
Company Address and Zip Code
10. MOHAMMAD IQBAL 212-406-8900  
Chief Operating Officer Telephone Number
11. SAME  
Designated Equal Opportunity Compliance Officer Telephone Number  
(If same as Item #10, write "same")
12. SAME  
Name of Prime Contractor and Contact Person  
(If same as Item #8, write "same")



13. Number of employees in your company: 12

14. Contract information:

(a) DEPT. OF DESIGN AND CONSTRUCTION (b) \$ 5,000,000.00  
Contracting Agency (City Agency) Contract Amount

(c) 85011B0013001R001 (d) 20141421526  
Procurement Identification Number (PIN) Contract Registration Number (CT#)

(e) 02/22/2011 (f) 02/21/2016  
Projected Commencement Date Projected Completion Date

(g) Description and location of proposed contract:

JOB ORDER CONTRACT - GENERAL CONSTRUCTION  
WORK FOR LIBRARIES UNIT

15. Has your firm been reviewed by the Division of Labor Services (DLS) within the past 36 months and issued a Certificate of Approval? Yes \_\_\_ No X

If yes, attach a copy of certificate.

16. Has DLS within the past month reviewed an Employment Report submission for your company and issued a Conditional Certificate of Approval? Yes \_\_\_ No X

If yes, attach a copy of certificate.

**NOTE: DLS WILL NOT ISSUE A CONTINUED CERTIFICATE OF APPROVAL IN CONNECTION WITH THIS CONTRACT UNLESS THE REQUIRED CORRECTIVE ACTIONS IN PRIOR CONDITIONAL CERTIFICATES OF APPROVAL HAVE BEEN TAKEN.**

17. Has an Employment Report already been submitted for a different contract (not covered by this Employment Report) for which you have not yet received compliance certificate? Yes \_\_\_ No X If yes,

Date submitted: \_\_\_\_\_  
Agency to which submitted: \_\_\_\_\_  
Name of Agency Person: \_\_\_\_\_  
Contract No: \_\_\_\_\_  
Telephone: \_\_\_\_\_

18. Has your company in the past 36 months been audited by the United States Department of Labor, Office of Federal Contract Compliance Programs (OFCCP)? Yes \_\_\_ No X

If yes,



(a) Name and address of OFCCP office.

N.A.

(b) Was a Certificate of Equal Employment Compliance issued within the past 36 months?

Yes\_\_\_ No\_\_\_

If yes, attach a copy of such certificate.

(c) Were any corrective actions required or agreed to? Yes\_\_\_ No\_\_\_

If yes, attach a copy of such requirements or agreements.

(d) Were any deficiencies found? Yes\_\_\_ No\_\_\_

If yes, attach a copy of such findings.

19. Is your company or its affiliates a member or members of an employers' trade association which is responsible for negotiating collective bargaining agreements (CBA) which affect construction site hiring? Yes\_\_\_ No X

If yes, attach a list of such associations and all applicable CBA's.

## PART II: DOCUMENTS REQUIRED

20. For the following policies or practices, attach the relevant documents (e.g., printed booklets, brochures, manuals, memoranda, etc.). If the policy(ies) are unwritten, attach a full explanation of the practices. See instructions.

(a) Health benefit coverage/description(s) for all management, nonunion and union employees (whether company or union administered)

(b) Disability, life, other insurance coverage/description

(c) Employee Policy/Handbook

(d) Personnel Policy/Manual

(e) Supervisor's Policy/Manual

(f) Pension plan or 401k coverage/description for all management, nonunion and union employees, whether company or union administered

(g) Collective bargaining agreement(s).

(h) Employment Application(s)

(i) Employee evaluation policy/form(s).

(j) Does your firm have medical and/or non-medical (i.e. education, military, personal, pregnancy, child care) leave policy?



21. To comply with the Immigration Reform and Control Act of 1986 when and of whom does your firm require the completion of an I-9 Form?

- |  |              |             |
|--|--------------|-------------|
| (a) Prior to job offer                     | Yes <u>X</u> | No ___      |
| (b) After a conditional job offer          | Yes <u>X</u> | No ___      |
| (c) After a job offer                      | Yes <u>X</u> | No ___      |
| (d) Within the first three days on the job | Yes ___      | No <u>X</u> |
| (e) To some applicants                     | Yes ___      | No <u>X</u> |
| (f) To all applicants                      | Yes <u>X</u> | No ___      |
| (g) To some employees                      | Yes ___      | No <u>X</u> |
| (h) To all employees                       | Yes <u>X</u> | No ___      |

22. Explain where and how completed I-9 Forms, with their supportive documentation, are maintained and made accessible.

MAINTAINED IN EMPLOYEE'S FOLDER

23. Does your firm or any of its collective bargaining agreements require job applicants to take a medical examination? Yes \_\_\_ No X

If yes, is the medical examination given:

- |                                   |         |        |
|-----------------------------------|---------|--------|
| (a) Prior to a job offer          | Yes ___ | No ___ |
| (b) After a conditional job offer | Yes ___ | No ___ |
| (c) After a job offer             | Yes ___ | No ___ |
| (d) To all applicants             | Yes ___ | No ___ |
| (e) Only to some applicants       | Yes ___ | No ___ |

If yes, list for which applicants below and attach copies of all medical examination or questionnaire forms and instructions utilized for these examinations.

N. A.

24. Do you have a written equal employment opportunity (EEO) policy? Yes \_\_\_ No X

If yes, list the document(s) and page number(s) where these written policies are located.

N. A.

25. Does the company have a current affirmative action plan(s) (AAP) NO

- \_\_\_ Minorities and Women  
\_\_\_ Individuals with handicaps  
\_\_\_ Other. Please specify \_\_\_\_\_

26. Does your firm or collective bargaining agreement(s) have an internal grievance procedure with respect to EEO complaints? Yes \_\_\_ No X

If yes, please attach a copy of this policy.

If no, attach a report detailing your firm's unwritten procedure for handling EEO complaints. ACCORDING TO EEO POLICIES.





27. Has any employee, within the past three years, filed a complaint pursuant to an internal grievance procedure or with any official of your firm with respect to equal employment opportunity? Yes\_\_\_ No X

If yes, attach an internal complaint log. See instructions.

28. Has your firm, within the past three years, been named as a defendant (or respondent) in any administrative or judicial action where the complainant (plaintiff) alleged violation of any anti-discrimination or affirmative action laws? Yes\_\_\_ No X

If yes, attach a log. See instructions.

29. Are there any jobs for which there are physical qualifications? Yes\_\_\_ No X

If yes, list the job(s), submit a job description and state the reason(s) for the qualification(s).  
N.A.

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30. Are there any jobs for which there are age, race, color, national origin, sex, creed, disability, marital status, sexual orientation, or citizenship qualifications? Yes\_\_\_ No X

If yes, list the job(s), submit a job description and state the reason(s) for the qualification(s).  
N.A.

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SIGNATURE PAGE

I, (print name of authorized official signing) MOHAMMAD IQBAL hereby certify that the information submitted herewith is true and complete to the best of my knowledge and belief and submitted with the understanding that compliance with New York City's equal employment requirements, as contained in Chapter 56 of the City Charter, Executive Order No. 50 (1980), as amended, and the implementing Rules and Regulations, is a contractual obligation. I also agree on behalf of the company to submit a certified copy of payroll records to the Division of Labor Services on a monthly basis.

FIVE STAR CONTRACTING COMPANIES INC.

Contractor's Name

MOHAMMAD IQBAL

PRESIDENT

Name of person who prepared this Employment Report

Title

MOHAMMAD IQBAL

PRESIDENT

Name of official authorized to sign on behalf of the contractor

Title

212-406-8900

Telephone Number

Signature of authorized official

Date

If contractors are found to be underutilizing minorities and females in any given trade based on Chapter 56 Section 3H, the Division of Labor Services reserves the right to request the contractor's workforce data and to implement an employment program.

Contractors who fail to comply with the above mentioned requirements or are found to be in noncompliance may be subject to the withholding of final payment.

Willful or fraudulent falsifications of any data or information submitted herewith may result in the termination of the contract between the City and the bidder or contractor and in disapproval of future contracts for a period of up to five years. Further, such falsification may result in civil and/or criminal prosecution.

To the extent permitted by law and consistent with the proper discharge of DLS' responsibilities under Charter Chapter 56 of the City Charter and Executive Order No. 50 (1980) and the implementing Rules and Regulations, all information provided by a contractor to DLS shall be confidential.

Only original signatures accepted.

Sworn to before me this 20th day of April 20 15

TRUPTI S. PATEL  
Notary Public, State of New York  
No. 01PA6214266  
Qualified in Nassau County

Notary Public Expires December 7, 2017 Authorized Signature

Date



1000

1000

1000



**FORM A. CONTRACT BID INFORMATION: USE OF SUBCONTRACTORS/TRADES**

1. Do you plan to subcontractor work on this contract? Yes  No
2. If yes, complete the chart below.

**NOTE: All proposed subcontractors with a subcontract in excess of \$750,000 must complete an Employment Report for review and approval before the contract may be awarded and work commences.**

SUBCONTRACTOR'S NAME*	OWNERSHIP (ENTER APPROPRIATE CODE LETTERS BELOW)	WORK TO BE PERFORMED BY SUBCONTRACTOR	TRADE PROJECTED FOR USE BY SUBCONTRACTOR	PROJECTED DOLLAR VALUE OF SUBCONTRACT
TBD	TBD	ELECTRICAL	ELECTRICAL	TBD
TBD	TBD	ACM	ACM	TBD
TBD	TBD	PLUMBING	PLUMBING	TBD
TBD	TBD	HVAC	HVAC	TBD

\*If subcontractor is presently unknown, please enter the trade (craft name).

**OWNERSHIP CODES**

- W: White
- B: Black
- H: Hispanic
- A: Asian
- N: Native American
- F: Female



**FORM B: PROJECTED WORKFORCE**

**TRADE CLASSIFICATION CODES**

(J) Journeylevel Workers  
 (H) Helper  
 (TOT) Total by Column

For each trade to be engaged by your company for this project, enter the projected workforce for Males and Females by trade classification on the charts below.

Trade:	MALES						FEMALES															
	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		(10)			
	White Non Hisp.	White Non Hisp.	Black Non Hisp.	Black Non Hisp.	Hisp.	Asian	Native Amer.	White Non Hisp.	White Non Hisp.	Black Non Hisp.	Black Non Hisp.	Hisp.	Asian	Native Amer.	White Non Hisp.	White Non Hisp.	Black Non Hisp.	Black Non Hisp.	Hisp.	Asian	Native Amer.	
MASONRY	2	-	1	-	2	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Union Affiliation, if applicable																						
N. A.																						
Total (Col. #1-10):	11																					
Total Minority, Male & Female (Col. #2,3,4,5,7,8,9, & 10):	9																					
Total Female (Col. #6 - 10):	0																					

What are the recruitment sources for you projected hires (i.e., unions, government employment office, job tap center, community outreach)?

Community Outreach





**FORM B: PROJECTED WORKFORCE**

Trade: LABORER

Union Affiliation, if applicable  
N.A.

Total (Col. #1-10):  
10

Total Minority, Male & Female  
(Col. #2,3,4,5,7,8,9, & 10):  
9

Total Female  
(Col. #6 - 10):  
0

	MALES					FEMALES				
	(1) White Non Hisp.	(2) Black Non Hisp.	(3) Hisp.	(4) Asian	(5) Native Amer.	(6) White Non Hisp.	(7) Black Non Hisp.	(8) Hisp.	(9) Asian	(10) Native Amer.
J	1	1	2	6	-					
H	-	-	-	-	-					
A	-	-	-	-	-					
TRN	-	-	-	-	-					
TOT	1	1	2	6	-					

What are the recruitment sources for you projected hires (i.e., unions, government employment office, job tap center, community outreach)?

Community Outreach



**FORM C: CURRENT WORKFORCE**

**TRADE CLASSIFICATION CODES**

For each trade currently engaged by your company for all work performed in New York City, enter the current workforce for Males and Females by trade classification on the charts below.

(J) Journeylevel Workers  
 (H) Helper  
 (TOT) Total by Column

(A) Apprentice  
 (TRN) Trainee

Trade: Concrete

Union Affiliation, if applicable  
N.A.

Total (Col. #1-10): 6

Total Minority, Male & Female  
 (Col. #2,3,4,5,7,8,9, & 10): 6

Total Female  
 (Col. #6 - 10): 0

	MALES					FEMALES				
	(1) White Non Hisp.	(2) Black Non Hisp.	(3) Hisp.	(4) Asian	(5) Native Amer.	(6) White Non Hisp.	(7) Black Non Hisp.	(8) Hisp.	(9) Asian	(10) Native Amer.
J	-	-	-	6	-	-	-	-	-	-
H	-	-	-	-	-	-	-	-	-	-
A	-	-	-	-	-	-	-	-	-	-
TRN	-	-	-	-	-	-	-	-	-	-
TOT	-	-	-	6	-	-	-	-	-	-

What are the recruitment sources for you projected hires (i.e., unions, government employment office, job tap center, community outreach)?

Community Outreach



**FORM C: CURRENT WORKFORCE**

Trade: Painting

Union Affiliation, if applicable  
N.A.

Total (Col. #1-10):  
4

Total Minority, Male & Female  
(Col. #2,3,4,5,7,8,9, & 10):  
4

Total Female  
(Col. #6 - 10):  
0

	MALES					FEMALES				
	(1) White Non Hisp.	(2) Black Non Hisp.	(3) Hisp.	(4) Asian	(5) Native Amer.	(6) White Non Hisp.	(7) Black Non Hisp.	(8) Hisp.	(9) Asian	(10) Native Amer.
J	-	-	-	4	-					
H	-	-	-	-	-					
A	-	-	-	-	-					
TRN	-	-	-	-	-					
TOT	-	-	-	4	-					

What are the recruitment sources for you projected hires (i.e., unions, government employment office, job tap center, community outreach)?

Community Outreach





NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

DR. FENIOSKY PEÑA-MORA  
Commissioner

JOHN GODDARD  
Agency Chief  
Contracting Officer

**NOTICE TO BIDDERS**  
**POSTPONEMENT OF BID OPENING**

DATE: April 17, 2015

TO: ALL CONTRACTORS

FROM: LORRAINE HOLLEY, Deputy ACCO

TEL. NO.: 718-391-3170

FAX. NO.: 718-391-2615

NO. OF PAGES: 2 (INCLUDING COVER SHEET)

**SUBJECT: POSTPONEMENT MEMO FOR PROJECT (HH112BLEL):**  
**BELLEVUE MEN'S SHELTER ELEVATOR REHABILITATION - BOROUGH**  
**OF MANHATTAN**

**MESSAGE: PLEASE CONFIRM ACKNOWLEDGEMENT OF NOTICE.**

**RECEIPT MUST BE FAXED BACK TO THE NUMBER LISTED ABOVE.**





**NOTICE TO BIDDERS**

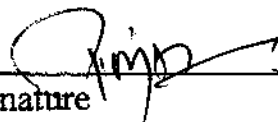
**PROJECT #/DESCRIPTION: POSTPONEMENT MEMO FOR PROJECT (HH112BLEL): BELLEVUE MEN'S SHELTER ELEVATOR REHABILITATION - BOROUGH OF MANHATTAN**

**THE BID OPENING FOR THE ABOVE MENTIONED PROJECT SCHEDULED FOR MONDAY, APRIL 20<sup>TH</sup>, 2015 AT 2:00 P.M. HAS BEEN POSTPONED UNTIL FURTHER NOTICE.**

**PLEASE MAKE NOTE OF THIS POSTPONEMENT.**

**AN ADDEDUM WILL FOLLOW.**

Company Name: FIVE STAR CONTRACTING CO INC

Company Officer:   
Signature

**Please fax this acknowledgement receipt to 718-391-2615. If you have any questions, please call Emmanuel Charles at 718-391-3170 or Yamina Youb at 718-391-1016.**







**DDC PROJECT #: HH112BLEL**

**PROJECT NAME: Bellevue Men's Shelter Elevator Modernization**

**ATTACHMENT A – REVISIONS TO VOLUME 2**

Reference PROJECT LABOR AGREEMENT:

Delete Volume 2 document *PROJECT LABOR AGREEMENT COVERING SPECIFIED RENOVATION & REHABILITATION OF CITY OWNED BUILDINGS AND STRUCTURES* and replace with revised document *PROJECT LABOR AGREEMENT COVERING SPECIFIED RENOVATION & REHABILITATION OF CITY OWNED BUILDINGS AND STRUCTURES 2015-2018*, Included with this addendum.

THE CITY OF NEW YORK  
DEPARTMENT OF DESIGN AND CONSTRUCTION  
DIVISION OF PUBLIC BUILDINGS

June 1, 2015

**ADDENDUM No. # 1**

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

**HH112BLEL**

**Bellevue Men's Shelter Elevator Modernization**

---

This addendum is issued for the purpose of amending the requirements of the Bid and Contract Documents and is hereby made a part of said Bid and Contract Documents to the same extent as though it were originally included therein.

---

The bidder is advised that the items listed below apply to the project:

**1. Revised Bid Opening Date:**

The Bid Opening for the Contract described below scheduled for April 20th, 2015 at 2:00pm is rescheduled to June 8th, 2015 at 2:00pm.

Contract #1 – General Construction Work


**2. Revisions to Volume 2:**

See Attachment A

---

**THIS ADDENDUM MUST BE SIGNED BY ALL BIDDERS AND ATTACHED TO THEIR BIDS.**

If additional information is required, please contact the Department of Design and Construction, Contract Section at (718) 391-3170, (718) 391-1016, or by fax at (718) 391-2615.

  
Rebecca Clough  
Assistant Commissioner  
Courts/ Correctional Institutions/  
Health Facilities

FIVE STAR CONTRACTING COMPANIES

Name of Bidder

INC.

By: POOJA GUPTA.

Project Labor Agreement -- Letter of Assent

Dear: Five star contracting Companies, Inc.

The undersigned party confirms that it agrees to be a party to and be bound by the New York Agency, Project Labor Agreement as such Agreement may, from time to time, be amended by the parties or interpreted pursuant to its terms. The terms of the Project Labor Agreement, its Schedules, Addenda and Exhibits are hereby incorporated by reference herein.

The undersigned, as a Contractor or Subcontractor (hereinafter Contractor) on the Project known as BELLEVUE SHELFET and located at Manhattan NY (hereinafter PROJECT), for and in consideration of the award to it of a contract to perform work on said PROJECT, and in further consideration of the mutual promises made in the Project Labor Agreement, a copy of which was received and is acknowledged, hereby:

- (1) Accepts and agrees to be bound by the terms and conditions of the Agreement, together with any and all schedules; amendments and supplements now existing or which are later made thereto:
- (2) Agrees to be bound by the legally established collective bargaining agreements and local trust agreements as set forth in the Project Labor Agreement and this Agreement but only to the extent of Program Work and as required by the PLA.
- (3) Authorizes the parties to such local trust agreements to appoint trustees and successor trustees to administer the trust funds and hereby ratifies and accepts the trustees so appointed as if made by the Contractor but only to the extent of Program Work as required by the PLA.
- (4) Certifies that it has no commitments or agreements that would preclude its full and complete compliance with the terms and conditions of said Agreement. The Contractor agrees to employ labor that can work in harmony with all other labor on the Project and shall require labor harmony from every lower tier subcontractor it has engaged or may engage to work on the Project. Labor harmony disputes/issues shall be subject to the Labor Management Committee provisions.
- (5) Agrees to secure from any Contractor(s) (as defined in said Agreement) which is or becomes a Subcontractor (of any tier), to it, a duly executed Agreement to be Bound in from identical to this document.

Dated: 6/15/15  
FIVE STAR CONTRACTING (Name of Contractor or subcontractor)  
Mol and Patel (President) (Authorized Officer & Title)  
 (Name of CM; GC; Contractor or Higher Level Subcontractor)  
64 Fulton St, Suite 703, New York 10038 (Address)  
P. 212-406-8900 (Phone) (Fax)  
FAX 212-406-2375  
 Contractor's State License # \_\_\_\_\_

Sworn to before me this 2015  
15th day of JUNE, 2009  
Trupti Patel  
 Notary Public

TRUPTI S. PATEL  
 Notary Public, State of New York  
 No. 01PA6214266  
 Qualified in Nassau County  
 Commission Expires December 7, 20 17

NEW YORK CITY BUILDING AND CONSTRUCTION TRADES COUNCIL



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## **NOTICE TO BIDDERS:**

- **PROJECT LABOR AGREEMENT:** This contract is subject to a Project Labor Agreement (“PLA”) entered into between the City and the Building and Construction Trades Council of Greater New York (“BCTC”) affiliated Local Unions. By submitting a bid, the Contractor agrees that the PLA is binding on the Contractor and all subcontractors of all tiers. The bidder to be awarded the contract will be required to execute a “Letter of Assent” prior to award.

The Bidder is advised to review the following: (1) Notice regarding the PLA, (2) the PLA, and (3) the Letter of Assent, all of which are set forth at the beginning of Volume 2 of the Contract Documents.

- **SINGLE CONTRACT:** As stated above, this contract is subject to a PLA. The requirements of the Wicks Law for separate prime contractors DO NOT APPLY to any project that is covered by a PLA. Accordingly, the requirements of the Wicks Law for separate prime contractors do not apply to this Project. The Project consists of a single contract, the Contract for General Construction Work.

The Bidder is advised to review the Notice set forth at the beginning of Volume 2 of the Contract Documents. The Notice specifies revisions to the Contract Documents to provide that the Project consists of a single contract and to delete any and all references to separate prime contractors.

## **SPECIAL NOTICE TO BIDDERS**

**The New York City Department of Small Business Services (SBS), in conjunction with the New York Business Development Corporation (NYBDC), have established a NYC Construction Loan pilot program to provide prime contractors and subcontractors financing for mobilization costs on certain City construction projects.**

**Under this initiative, loans are available for early stage mobilization needs such as insurance, labor, supplies and equipment. Bidders are strongly encouraged to visit "Growing Your Business" at [www.nyc.gov/nycbusiness](http://www.nyc.gov/nycbusiness) to learn more about the loan or contact [constructionloan@sbs.nyc.gov](mailto:constructionloan@sbs.nyc.gov) / (212) 513-6444 to obtain details and to determine preliminary eligibility.**

**A successful loan applicant will be required to make an assignment of its contract (or subcontract) payments to the lender NYBDC until the loan is repaid. If the loan is to a subcontractor, a prime contractor must honor the terms of such an assignment.**

**A prime contractor may not discriminate against a subcontractor or potential subcontractor by reason of the subcontractor's participation, or nonparticipation, in the NYC Construction Loan program.**

**BID BOOKLET  
PART A**



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PROJECT ID: HH112BLEL

CITY OF NEW YORK  
DEPARTMENT OF DESIGN AND CONSTRUCTION  
DIVISION OF PUBLIC BUILDINGS

BID BOOKLET

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**CITY OF NEW YORK  
DEPARTMENT OF DESIGN AND CONSTRUCTION  
DIVISION OF PUBLIC BUILDINGS**

**SPECIAL NOTICE TO BIDDERS**

**BID SUBMISSION REQUIREMENTS**

**THE BID SHALL CONSIST OF TWO (2) SEPARATE, SEALED ENVELOPES. THE DOCUMENTS THAT MUST BE COMPLETED AND INCLUDED IN EACH SEPARATE ENVELOPE ARE LISTED BELOW.**

**BID ENVELOPE #1:** Bid Envelope #1 shall contain the following items:

- Bid Form, including Affirmation
- Bid Security (if required, see page 22)
- Schedule B: M/WBE Utilization Plan (if participation goals have been established)

**BID ENVELOPE #2:** Bid Envelope #2 shall contain **ONLY** the following item:

- Bidder's Identification of Subcontractors (see pages 16 & 17)

**FAILURE TO SUBMIT THE FOUR ITEMS LISTED ABOVE  
WILL RESULT IN THE DISQUALIFICATION OF THE BID**

**BID ENVELOPE #1:** In addition to the items listed above, Bid Envelope #1 shall also contain the following items: **DO NOT** include the items listed below in Bid Envelope #2.

- Bid Breakdown (if required, see page 21)
- Safety Questionnaire
- Construction Employment Report (if bid is \$1,000,000 or more)
- Contract Certificate (if bid is less than \$1,000,000)
- Confirmation of Vendex Compliance
- Bidder's Certification of Compliance with Iran Divestment Act
- Special Experience Requirements Qualification Form (if required, see pages 3, 4)
- Any Addenda issued prior to the receipt of bids

**FAILURE TO SUBMIT THE EIGHT ITEMS LISTED ABOVE  
MAY RESULT IN THE DISQUALIFICATION OF THE BID.**

- NOTES:**
- (1) All of the above referred to blank forms to be completed and submitted with the bid are included in the BID BOOKLET.
  - (2) If the bidder has any questions or requires additional information, please contact the Department of Design and Construction by phone (718-391-2601) or by fax (718-391-2615).
  - (3) **VENDEX QUESTIONNAIRES:** Vendex Questionnaires, as well as detailed instructions, may be obtained at [www.nyc.gov/vendex](http://www.nyc.gov/vendex). The bidder may also obtain Vendex forms and instructions by contacting the Agency Chief Contracting Officer or the contact person for this contract.
  - (4) **SPECIAL EXPERIENCE REQUIREMENTS:** The Bidder is advised that Special Experience Requirements may apply to this contract. Such requirements are set forth on pages 3 and 4 of this Bid Booklet.
  - (5) **SPECIAL EXPERIENCE REQUIREMENTS FOR ASBESTOS:** The Bidder is advised that this contract contains strict requirements regarding the prior experience and licensing of the subcontractor who will perform any required asbestos abatement work. These special experience requirements are set forth in the section of the specifications which describes any required asbestos abatement work.

## SPECIAL EXPERIENCE REQUIREMENTS

Special Experience Requirements apply as indicated below.

Bidder:	General Construction	<u>  X  </u>	YES	<u>      </u>	NO
Specific Areas of Work:	General Construction	<u>  X  </u>	YES	<u>      </u>	NO

(A) **EXPERIENCE REQUIREMENTS FOR THE BIDDER:** The special experience requirements set forth below apply to the bidder(s) indicated above. Compliance with such special experience requirements will be determined solely by the City prior to an award of contract. Failure to comply with the special experience requirements will result in the rejection of the bid as non-responsive.

- The bidder must, within the last five (5) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least three (3) projects similar in scope and type to the required work.

(B) **QUALIFICATION FORM:** For each project submitted to demonstrate compliance with the special experience requirements, the bidder(s) indicated above must complete the Qualification Form included in the Bid Booklet. The City will only evaluate a project if the following criteria are met: (1) the project is described on the Qualification Form, and (2) all information on the Qualification Form is provided. The City will not evaluate any project which does not comply with the criteria set forth herein, including any project which is referred to only on the resume of an individual.

(C) **CONDITIONS:** The City may, in determining compliance with the special experience requirements set forth above, consider prior projects completed by principal(s) or other employees of the bidder while affiliated with another entity, subject to the conditions set forth below.

- Any principal or other employee on whose prior experience the bidder is relying to demonstrate compliance with this special experience requirement must have held the following: (a) a significant management role in the prior entity with which he/she was affiliated, and (b) a significant management role in the entity submitting the bid for a period of six months or from the inception of the bidding entity. If the bidder is relying on the prior experience of a principal or employee, it must submit documentation confirming the position held by such principal or employee in the prior entity, as well as in the bidding entity.
- The bidder may not rely on the experience of its principals or other employees to demonstrate compliance with any other requirements, including without limitation, financial requirements or requirements for a specified minimum amount of annual gross revenues.

(D) **JOINT VENTURES:** In the event the bidder is a joint venture, at least one firm in the joint venture must meet the above described experience requirements.

(E) **EXPERIENCE REQUIREMENTS FOR SPECIFIC AREAS OF WORK:** The special experience requirements set forth below apply to the contractor or subcontractor that will perform specific areas of work. Compliance with such experience requirements will be evaluated after an award of contract. Within two (2) weeks of such award, the contractor will be required to submit the qualifications of the contractor or subcontractor that will perform these specific areas of work. If the bidder intends to perform these specific areas of work with its own forces, it must demonstrate compliance with the special experience requirements. If the bidder intends to subcontract these specific areas of work, its proposed subcontractor(s) must demonstrate compliance with the special experience requirements. Once approved, no substitution will be permitted, unless the qualifications of the proposed replacement have been approved in writing in advance by the City. The bidder is advised to carefully review these special experience requirements prior to submitting its bid, as such experience requirements will be strictly enforced.

- (1) Special experience requirements apply to the contractor or subcontractor that will perform specific areas of work specified in the section(s) set forth below.

General Construction

- Section 07 52 16: Modified Bituminous Membrane Roofing
- Section 08 52 00: Metal Clad Wood Window Restoration

- (2) Special experience requirements applicable to the contractor or subcontractor that will perform specific areas of work are summarized below. Such experience requirements are set forth in full in the Addendum to the General Conditions.
- The contractor or subcontractor performing the work of this section must, within the last five (5) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least three (3) projects similar in scope and type to the required work. In addition, for roofing work, the contractor or subcontractor must be licensed or approved by the manufacturer of the roofing system.
- (3) For each project submitted to demonstrate compliance with the special experience requirements for specific areas of work, the contractor or proposed subcontractor will be required to complete the Qualification Form included in the Bid Booklet. The City will only evaluate a project if the following criteria are met: (1) the project is described on the Qualification Form, and (2) all information on the Qualification Form is provided. The City will not evaluate any project which does not comply with the criteria set forth herein, including any project which is referred to only on the resume of an individual.

**Qualification Form**

Project ID: HH112BLEL

List previous projects completed to meet the special experience requirements for this contract. Please photocopy this form for submission of all required projects.

Name of Contractor: \_\_\_\_\_

Name of Project: \_\_\_\_\_

Location of Project: \_\_\_\_\_

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: \_\_\_\_\_

Title: \_\_\_\_\_ Phone Number: \_\_\_\_\_

Brief description of work completed: \_\_\_\_\_

\_\_\_\_\_

Was the work performed as a prime or a subcontractor: \_\_\_\_\_

Amount of Contract: \_\_\_\_\_

Date of Completion: \_\_\_\_\_

\*\*\*\*\*

Name of Contractor: \_\_\_\_\_

Name of Project: \_\_\_\_\_

Location of Project: \_\_\_\_\_

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: \_\_\_\_\_

Title: \_\_\_\_\_ Phone Number: \_\_\_\_\_

Brief description of work completed: \_\_\_\_\_

\_\_\_\_\_

Was the work performed as a prime or a subcontractor: \_\_\_\_\_

Amount of Contract: \_\_\_\_\_

Date of Completion: \_\_\_\_\_

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## MWBE PROGRAM

### M/WBE UTILIZATION PLAN

**M/WBE Program Requirements:** The requirements for the M/WBE Program are set forth on the following pages of this Bid Booklet, in the section entitled "Notice to All Prospective Contractors".

**Schedule B: M/WBE Utilization Plan:** Schedule B: M/WBE Utilization Plan for this Contract is set forth in this Bid Booklet on the pages following the section entitled "Notice to All Prospective Contractors". The M/WBE Utilization Plan (Part I) indicates whether Participation Goals have been established for this Contract. If Participation Goals have been established for this Contract, the bidder must submit an M/WBE Utilization Plan (Part II) with its bid.

**Waiver:** The bidder may seek a full or partial pre-award waiver of the Participation Goals in accordance with the "Notice to All Prospective Contractors" (See Part A, Section 10). The bidder's request for a waiver must be submitted at least seven (7) calendar days prior to the bid date. Waiver requests submitted after the deadline will not be considered. The form for requesting a waiver of the Participation Goals is set forth in the M/WBE Utilization Plan (Part III).

**Rejection of the Bid:** The bidder must complete Schedule B: M/WBE Utilization Plan (Part II) set forth in this Bid Booklet on the pages following the section entitled "Notice to All Prospective Contractors". A Schedule B submitted by the bidder which does not include the Vendor Certification and Required Affirmations (See Section V of Part II) will be deemed to be non-responsive, unless a full waiver of the Participation Goals is granted (Schedule B, Part III). In the event that the City determines that the bidder has submitted a Schedule B where the Vendor Certification and Required Affirmations are completed but other aspects of the Schedule B are not complete, or contain a copy or computation error that is at odds with the Vendor Certification and Required Affirmations, the bidder will be notified by the Agency and will be given four (4) calendar days from receipt of notification to cure the specified deficiencies and return a completed Schedule B to the Agency. Failure to do so will result in a determination that the Bid is non-responsive.

Receipt of notification is defined as the date notice is emailed or faxed (if the bidder has provided an email address or fax number), or no later than five (5) days from the date of mailing or upon delivery, if delivered.

**Impact on LBE Requirements:** If Participation Goals have been established for the participation of M/WBEs, the contractor is not required to comply with the Locally Based Enterprise Program ("LBE"). The LBE Program is set forth in Article 67 of the Contract.



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**NOTICE TO ALL PROSPECTIVE CONTRACTORS**

**PARTICIPATION BY MINORITY-OWNED AND WOMEN-OWNED BUSINESS  
ENTERPRISES IN CITY PROCUREMENT**

**ARTICLE I. M/WBE PROGRAM**

Local Law No. 129 of 2005 added and Local Law 1 of 2013 amended Section 6-129 of the Administrative Code of the City of New York (hereinafter "Section 6-129"). Section 6-129 establishes the program for participation in City procurement ("M/WBE Program") by minority- owned business enterprises ("MBEs") and women-owned business enterprises ("WBEs"), certified in accordance with Section 1304 of the New York City Charter. As stated in Section 6-129, the intent of the program is to address the impact of discrimination on the City's procurement process, and to promote the public interest in avoiding fraud and favoritism in the procurement process, increasing competition for City business, and lowering contract costs. The contract provisions contained herein are pursuant to Section 6-129, and the rules of the Department of Small Business Services ("DSBS") promulgated thereunder.

**If this Contract is subject to the M/WBE Program established by Section 6-129, the specific requirements of MBE and/or WBE participation for this Contract are set forth in Schedule B of the Contract (entitled the "M/WBE Utilization Plan"), and are detailed below. The Contractor must comply with all applicable MBE and WBE requirements for this Contract.**

All provisions of Section 6-129 are hereby incorporated in the Contract by reference and all terms used herein that are not defined herein shall have the meanings given such terms in Section 6-129. Article I, Part A, below, sets forth provisions related to the participation goals for construction, standard and professional services contracts. Article I, Part B, below, sets forth miscellaneous provisions related to the M/WBE Program.

**PART A**

**PARTICIPATION GOALS FOR CONSTRUCTION, STANDARD  
AND PROFESSIONAL SERVICES CONTRACTS OR TASK ORDERS**

1. The **MBE and/or WBE Participation Goals** established for this Contract or Task Orders issued pursuant to this Contract, ("Participation Goals"), as applicable, are set forth on Schedule B, Part I to this Contract (see Page 1, line 1 Total Participation Goals) or will be set forth on Schedule B, Part I to Task Orders issued pursuant to this Contract, as applicable.

The **Participation Goals** represent a percentage of the total dollar value of the Contract or Task Order, as applicable, that may be achieved by awarding subcontracts to firms certified with New York City Department of Small Business Services as MBEs and/or WBEs, and/or by crediting the participation of prime contractors and/or qualified joint ventures as provided in Section 3 below, unless the goals have been waived or modified by Agency in accordance with Section 6-129 and Part A, Sections 10 and 11 below, respectively.

2. If **Participation Goals** have been established for this Contract or Task Orders issued pursuant to this Contract, Contractor agrees or shall agree as a material term of the Contract that Contractor shall be subject to the **Participation Goals**, unless the goals are waived or modified by Agency in accordance with Section 6-129 and Part A, Sections 10 and 11 below, respectively.

3. If **Participation Goals** have been established for this Contract or Task Order issued pursuant to this Contract, a Contractor that is an MBE and/or WBE shall be permitted to count its own participation toward fulfillment of the relevant **Participation Goal**, provided that in accordance with Section 6-129 the value of Contractor's participation shall be determined by subtracting from the total value of the Contract or Task Order, as applicable, any amounts that the Contractor pays to direct subcontractors (as defined in Section 6-129(c)(13)), and provided further that a Contractor that is certified as both an MBE and a WBE may count its own participation either toward the goal for MBEs or the goal for WBEs, but not both.

A Contractor that is a qualified joint venture (as defined in Section 6-129(c)(30)) shall be permitted to count a percentage of its own participation toward fulfillment of the relevant **Participation Goal**. In accordance with Section 6-129, the value of Contractor's participation shall be determined by subtracting from the total value of the Contract or Task Order, as applicable, any amounts that Contractor pays to direct subcontractors, and then multiplying the remainder by the percentage to be applied to total profit to

determine the amount to which an MBE or WBE is entitled pursuant to the joint venture agreement, provided that where a participant in a joint venture is certified as both an MBE and a WBE, such amount shall be counted either toward the goal for MBEs or the goal for WBEs, but not both.

4. A. If **Participation Goals** have been established for this Contract, a prospective contractor shall be required to submit with its bid or proposal, as applicable, a completed Schedule B, M/WBE Utilization Plan, Part II (see Pages 2-4) indicating: (a) whether the contractor is an MBE or WBE, or qualified joint venture; (b) the percentage of work it intends to award to direct subcontractors; and (c) in cases where the contractor intends to award direct subcontracts, a description of the type and dollar value of work designated for participation by MBEs and/or WBEs, and the time frames in which such work is scheduled to begin and end. In the event that this M/WBE Utilization Plan indicates that the bidder or proposer, as applicable, does not intend to meet the **Participation Goals**, the bid or proposal, as applicable, shall be deemed non-responsive, unless Agency has granted the bidder or proposer, as applicable, a pre-award waiver of the Participation Goals in accordance with Section 6-129 and Part A, Section 10 below.

B. (i) If this Contract is for a master services agreement or other requirements type contract that will result in the issuance of Task Orders that will be individually registered ("Master Services Agreement") and is subject to M/WBE **Participation Goals**, a prospective contractor shall be required to submit with its bid or proposal, as applicable, a completed Schedule B, M/WBE Participation Requirements for Master Services Agreements That Will Require Individually Registered Task Orders, Part II (page 2) indicating the prospective contractor's certification and required affirmations to make all reasonable good faith efforts to meet participation goals established on each individual Task Order issued pursuant to this Contract, or if a partial waiver is obtained or such goals are modified by the Agency, to meet the modified **Participation Goals** by soliciting and obtaining the participation of certified MBE and/or WBE firms. In the event that the Schedule B indicates that the bidder or proposer, as applicable, does not intend to meet the **Participation Goals** that may be established on Task Orders issued pursuant to this Contract, the bid or proposal, as applicable, shall be deemed non-responsive.

(ii) **Participation Goals** on a Master Services Agreement will be established for individual Task Orders issued after the Master Services Agreement is awarded. If **Participation Goals** have been established on a Task Order, a contractor shall be required to submit a Schedule B – M/WBE Utilization Plan For Independently Registered Task Orders That Are Issued Pursuant to Master Services Agreements, Part II (see Pages 2-4) indicating: (a) whether the contractor is an MBE or WBE, or qualified joint venture; (b) the percentage of work it intends to award to direct subcontractors; and (c) in cases where the contractor intends to award direct subcontracts a description of the type and dollar value of work designated for participation by MBEs and/or WBEs, and the time frames in which such work is scheduled to begin and end. The contractor must engage in good faith efforts to meet the **Participation Goals** as established for the Task Order unless Agency has granted the contractor a pre-award waiver of the Participation Goals in accordance with Section 6-129 and Part A, Section 10 below.

**C. THE BIDDER/PROPOSER MUST COMPLETE THE SCHEDULE B INCLUDED HEREIN (SCHEDULE B, PART II). A SCHEDULE B SUBMITTED BY THE BIDDER/PROPOSER WHICH DOES NOT INCLUDE THE VENDOR CERTIFICATION AND REQUIRED AFFIRMATIONS (SEE SECTION V OF PART II) WILL BE DEEMED TO BE NON-RESPONSIVE, UNLESS A FULL WAIVER OF THE PARTICIPATION GOALS IS GRANTED (SCHEDULE B, PART III). IN THE EVENT THAT THE CITY DETERMINES THAT THE BIDDER/PROPOSER HAS SUBMITTED A SCHEDULE B WHERE THE VENDOR CERTIFICATION AND REQUIRED AFFIRMATIONS ARE COMPLETED BUT OTHER ASPECTS OF THE SCHEDULE B ARE NOT COMPLETE, OR CONTAIN A COPY OR COMPUTATION ERROR THAT IS AT ODDS WITH THE VENDOR CERTIFICATION AND AFFIRMATIONS, THE BIDDER/PROPOSER WILL BE NOTIFIED BY THE AGENCY AND WILL BE GIVEN FOUR (4) CALENDAR DAYS FROM RECEIPT OF NOTIFICATION TO CURE THE SPECIFIED DEFICIENCIES AND RETURN A COMPLETED SCHEDULE B TO THE AGENCY. FAILURE TO DO SO WILL RESULT IN A DETERMINATION THAT THE BID/PROPOSAL IS NON-RESPONSIVE. RECEIPT OF NOTIFICATION IS DEFINED AS THE DATE NOTICE IS E-MAILED OR FAXED (IF THE BIDDER/PROPOSER HAS PROVIDED AN E-MAIL ADDRESS OR FAX NUMBER), OR NO LATER THAN FIVE (5) CALENDAR DAYS FROM THE DATE OF MAILING OR UPON DELIVERY, IF DELIVERED.**

5. Where an M/WBE Utilization Plan has been submitted, the Contractor shall, within 30 days of issuance by Agency of a notice to proceed, submit a list of proposed persons or entities to which it intends to award subcontracts within the subsequent 12 months. In the case of multi-year contracts, such list shall also be submitted every year thereafter. The Agency may also require the Contractor to report periodically about the contracts awarded by its direct subcontractors to indirect subcontractors (as defined in Section 6-129(c)(22)). **PLEASE NOTE: If this Contract is a public works project subject to GML §101(5) (i.e., a contract valued at or**

below \$3M for projects in New York City) or if the Contract is subject to a project labor agreement in accordance with Labor Law §222, and the bidder is required to identify at the time of bid submission its intended subcontractors for the Wicks trades (plumbing and gas fitting; steam heating, hot water heating, ventilating and air conditioning (HVAC); and electric wiring), the Contractor must identify all those to which it intends to award construction subcontracts for any portion of the Wicks trade work at the time of bid submission, regardless of what point in the life of the contract such subcontracts will occur. In identifying intended subcontractors in the bid submission, bidders may satisfy any Participation Goals established for this Contract by proposing one or more subcontractors that are MBEs and/or WBEs for any portion of the Wicks trade work. In the event that the Contractor's selection of a subcontractor is disapproved, the Contractor shall have a reasonable time to propose alternate subcontractors.

6. MBE and WBE firms must be certified by DSBS in order for the Contractor to credit such firms' participation toward the attainment of the **Participation Goals**. Such certification must occur prior to the firms' commencement of work. A list of MBE and WBE firms may be obtained from the DSBS website at [www.nyc.gov/buycertified](http://www.nyc.gov/buycertified), by emailing DSBS at [buyer@sbs.nyc.gov](mailto:buyer@sbs.nyc.gov), by calling (212) 513-6356, or by visiting or writing DSBS at 110 William St., New York, New York, 10038, 7th floor. Eligible firms that have not yet been certified may contact DSBS in order to seek certification by visiting [www.nyc.gov/getcertified](http://www.nyc.gov/getcertified), emailing [MWBE@sbs.nyc.gov](mailto:MWBE@sbs.nyc.gov), or calling the DSBS certification helpline at (212) 513-6311. A firm that is certified as both an MBE and a WBE may be counted either toward the goal for MBEs or the goal for WBEs, but not both. No credit shall be given for participation by a graduate MBE or graduate WBE, as defined in Section 6-129(c)(20).

7. Where an **M/WBE Utilization Plan** has been submitted, the Contractor shall, with each voucher for payment, and/or periodically as Agency may require, submit statements, certified under penalty of perjury, which shall include, but not be limited to, the total amount the Contractor paid to its direct subcontractors, and, where applicable pursuant to Section 6-129(j), the total amount direct subcontractors paid to indirect subcontractors; the names, addresses and contact numbers of each MBE or WBE hired as a subcontractor by the Contractor, and, where applicable, hired by any of the Contractor's direct subcontractors; and the dates and amounts paid to each MBE or WBE. The Contractor shall also submit, along with its voucher for final payment: the total amount it paid to subcontractors, and, where applicable pursuant to Section 6-129(j), the total amount its direct subcontractors paid directly to their indirect subcontractors; and a final list, certified under penalty of perjury, which shall include the name, address and contact information of each subcontractor that is an MBE or WBE, the work performed by, and the dates and amounts paid to each.

If payments made to, or work performed by, MBEs or WBEs are less than the amount specified in the Contractor's **M/WBE Utilization Plan**, Agency shall take appropriate action, in accordance with Section 6-129 and Article II below, unless the Contractor has obtained a modification of its **M/WBE Utilization Plan** in accordance with Section 6-129 and Part A, Section 11 below.

9. Where an **M/WBE Utilization Plan** has been submitted, and the Contractor requests a change order the value of which exceeds the greater of 10 percent of the Contract or Task Order, as applicable, or \$500,000, Agency shall review the scope of work for the Contract or Task Order, as applicable, and the scale and types of work involved in the change order, and determine whether the **Participation Goals** should be modified.

10. Pre-award waiver of the **Participation Goals**. (a) A bidder or proposer, or contractor with respect to a Task Order, may seek a pre-award full or partial waiver of the **Participation Goals** in accordance with Section 6-129, which requests that Agency change one or more **Participation Goals** on the grounds that the **Participation Goals** are unreasonable in light of the availability of certified firms to perform the services required, or by demonstrating that it has legitimate business reasons for proposing a lower level of subcontracting in its **M/WBE Utilization Plan**.

(b) To apply for a full or partial waiver of the **Participation Goals**, a bidder, proposer, or contractor, as applicable, must complete Part III (Page 5) of Schedule B and submit such request no later than seven (7) calendar days prior to the date and time the bids, proposals, or Task Orders are due, in writing to the Agency by email at [rodriguez@ddc.nyc.gov](mailto:rodriguez@ddc.nyc.gov) or via facsimile at (718) 391-1885. Bidders, proposers, or contractors, as applicable, who have submitted requests will receive an Agency response by no later than two (2) calendar days prior to the due date for bids, proposals, or Task Orders; provided, however, that if that date would fall on a weekend or holiday, an Agency response will be provided by close-of-business on the business day before such weekend or holiday date.

(c) If the Agency determines that the **Participation Goals** are unreasonable in light of the availability of certified firms to perform the services required, it shall revise the solicitation and extend the deadline for bids and proposals, or revise the Task Order, as applicable.

(d) Agency may grant a full or partial waiver of the Participation Goals to a bidder, proposer or contractor, as applicable, who demonstrates—before submission of the bid, proposal or Task Order, as applicable—that it has legitimate business reasons for proposing the level of subcontracting in its M/WBE Utilization Plan. In making its determination, Agency shall consider factors that shall include, but not be limited to, whether the bidder, proposer or contractor, as applicable, has the capacity and the bona fide intention to perform Contract without any subcontracting, or to perform the Contract without awarding the amount of subcontracts represented by the Participation Goals. In making such determination, Agency may consider whether the M/WBE Utilization Plan is consistent with past subcontracting practices of the bidder, proposer or contractor, as applicable, whether the bidder, proposer or contractor, as applicable, has made efforts to form a joint venture with a certified firm, and whether the bidder, proposer, or contractor, as applicable, has made good faith efforts to identify other portions of the Contract that it intends to subcontract.

11. Modification of M/WBE Utilization Plan. (a) A Contractor may request a modification of its M/WBE Utilization Plan after award of this Contract. PLEASE NOTE: If this Contract is a public works project subject to GML §101(5) (i.e., a contract valued at or below \$3M for projects in New York City) or if the Contract is subject to a project labor agreement in accordance with Labor Law §222, and the bidder is required to identify at the time of bid submission its intended subcontractors for the Wicks trades (plumbing and gas fitting; steam heating, hot water heating, ventilating and air conditioning (HVAC); and electric wiring), the Contractor may request a Modification of its M/WBE Utilization Plan as part of its bid submission. The Agency may grant a request for Modification of a Contractor's M/WBE Utilization Plan if it determines that the Contractor has established, with appropriate documentary and other evidence, that it made reasonable, good faith efforts to meet the Participation Goals. In making such determination, Agency shall consider evidence of the following efforts, as applicable, along with any other relevant factors:

- (i) The Contractor advertised opportunities to participate in the Contract, where appropriate, in general circulation media, trade and professional association publications and small business media, and publications of minority and women's business organizations;
- (ii) The Contractor provided notice of specific opportunities to participate in the Contract, in a timely manner, to minority and women's business organizations;
- (iii) The Contractor sent written notices, by certified mail or facsimile, in a timely manner, to advise MBEs or WBEs that their interest in the Contract was solicited;
- (iv) The Contractor made efforts to identify portions of the work that could be substituted for portions originally designated for participation by MBEs and/or WBEs in the M/WBE Utilization Plan, and for which the Contractor claims an inability to retain MBEs or WBEs;
- (v) The Contractor held meetings with MBEs and/or WBEs prior to the date their bids or proposals were due, for the purpose of explaining in detail the scope and requirements of the work for which their bids or proposals were solicited;
- (vi) The Contractor made efforts to negotiate with MBEs and/or WBEs as relevant to perform specific subcontracts, or act as suppliers or service providers;
- (vii) Timely written requests for assistance made by the Contractor to Agency's M/WBE liaison officer and to DSBS;
- (viii) Description of how recommendations made by DSBS and Agency were acted upon and an explanation of why action upon such recommendations did not lead to the desired level of participation of MBEs and/or WBEs.

Agency's M/WBE officer shall provide written notice to the Contractor of the determination.

(b) The Agency may modify the **Participation Goals** when the scope of the work has been changed by the Agency in a manner that affects the scale and types of work that the Contractor indicated in its M/WBE Utilization Plan would be awarded to subcontractors.

12. If this Contract is for an indefinite quantity of construction, standard or professional services or is a requirements type contract and the Contractor has submitted an M/WBE Utilization Plan and has committed to subcontract work to MBEs and/or WBEs in order to meet the **Participation Goals**, the Contractor will not be deemed in violation of the M/WBE Program requirements for this Contract with regard to any work which was intended to be subcontracted to an MBE and/or WBE to the extent that the Agency has determined that such work is not needed.

13. If **Participation Goals** have been established for this Contract or a Task Order issued pursuant to this Contract, at least once annually during the term of the Contract or Task Order, as applicable, Agency shall review the Contractor's progress toward attainment of its M/WBE Utilization Plan, including but not limited to, by reviewing the percentage of work the Contractor has actually awarded to MBE and/or WBE subcontractors and the payments the Contractor made to such subcontractors.

14. If **Participation Goals** have been established for this Contract or a Task Order issued pursuant to this Contract, Agency shall evaluate and assess the Contractor's performance in meeting those goals, and such evaluation and assessment shall become part of the Contractor's overall contract performance evaluation.

## **PART B: MISCELLANEOUS**

1. The Contractor shall take notice that, if this solicitation requires the establishment of an **M/WBE Utilization Plan**, the resulting contract may be audited by DSBS to determine compliance with Section 6-129. See §6-129(e)(10). Furthermore, such resulting contract may also be examined by the City's Comptroller to assess compliance with the **M/WBE Utilization Plan**.

2. Pursuant to DSBS rules, construction contracts that include a requirement for an **M/WBE Utilization Plan** shall not be subject to the law governing Locally Based Enterprises set forth in Section 6-108.1 of the Administrative Code of the City of New York.

3. DSBS is available to assist contractors and potential contractors in determining the availability of MBEs and/or WBEs to participate as subcontractors, and in identifying opportunities that are appropriate for participation by MBEs and/or WBEs in contracts.

4. Prospective contractors are encouraged to enter into qualified joint venture agreements with MBEs and/or WBEs as defined by Section 6-129(c)(30).

5. By submitting a bid or proposal the Contractor hereby acknowledges its understanding of the **M/WBE Program** requirements set forth herein and the pertinent provisions of Section 6-129, and any rules promulgated thereunder, and if awarded this Contract, the Contractor hereby agrees to comply with the **M/WBE Program** requirements of this Contract and pertinent provisions of Section 6-129, and any rules promulgated thereunder, all of which shall be deemed to be material terms of this Contract. The Contractor hereby agrees to make all reasonable, good faith efforts to solicit and obtain the participation of MBEs and/or WBEs to meet the required **Participation Goals**.

## **ARTICLE II. ENFORCEMENT**

1. If Agency determines that a bidder or proposer, as applicable, has, in relation to this procurement, violated Section 6-129 or the DSBS rules promulgated pursuant to Section 6-129, Agency may disqualify such bidder or proposer, as applicable, from competing for this Contract and the Agency may revoke such bidder's or proposer's prequalification status, if applicable.

2. Whenever Agency believes that the Contractor or a subcontractor is not in compliance with Section 6-129 or the DSBS rules promulgated pursuant to Section 6-129, or any provision of this Contract that implements Section 6-129, including, but not limited to any **M/WBE Utilization Plan**, Agency shall send a written notice to the Contractor describing the alleged noncompliance and offering the Contractor an opportunity to be heard. Agency shall then conduct an investigation to determine whether such Contractor or subcontractor is in compliance.

3. In the event that the Contractor has been found to have violated Section 6-129, the DSBS rules promulgated pursuant to Section 6-129, or any provision of this Contract that implements Section 6-129, including, but not limited to, any **M/WBE Utilization Plan**, Agency may determine that one of the following actions should be taken:

- (a) entering into an agreement with the Contractor allowing the Contractor to cure the violation;
  - (b) revoking the Contractor's pre-qualification to bid or make proposals for future contracts;
  - (c) making a finding that the Contractor is in default of the Contract;
  - (d) terminating the Contract;
  - (e) declaring the Contractor to be in breach of Contract;
  - (f) withholding payment or reimbursement;
  - (g) determining not to renew the Contract;
- assessing actual and consequential damages;

- (i) assessing liquidated damages or reducing fees, provided that liquidated damages may be based on amounts representing costs of delays in carrying out the purposes of the M/WBE Program, or in meeting the purposes of the Contract, the costs of meeting utilization goals through additional procurements, the administrative costs of investigation and enforcement, or other factors set forth in the Contract;
- (j) exercising rights under the Contract to procure goods, services or construction from another contractor and charge the cost of such contract to the Contractor that has been found to be in noncompliance; or
- (k) taking any other appropriate remedy.

4. If an **M/WBE** Utilization Plan has been submitted, and pursuant to this Article II, Section 3, the Contractor has been found to have failed to fulfill its **Participation Goals** contained in its **M/WBE** Utilization Plan or the **Participation Goals** as modified by Agency pursuant to Article I, Part A, Section 11, Agency may assess liquidated damages in the amount of ten percent (10%) of the difference between the dollar amount of work required to be awarded to MBE and/or WBE firms to meet the **Participation Goals** and the dollar amount the Contractor actually awarded and paid, and/or credited, to MBE and/or WBE firms. In view of the difficulty of accurately ascertaining the loss which the City will suffer by reason of Contractor's failure to meet the **Participation Goals**, the foregoing amount is hereby fixed and agreed as the liquidated damages that the City will suffer by reason of such failure, and not as a penalty. Agency may deduct and retain out of any monies which may become due under this Contract the amount of any such liquidated damages; and in case the amount which may become due under this Contract shall be less than the amount of liquidated damages suffered by the City, the Contractor shall be liable to pay the difference.

5. Whenever Agency has reason to believe that an MBE and/or WBE is not qualified for certification, or is participating in a contract in a manner that does not serve a commercially useful function (as defined in Section 6-129(c)(8)), or has violated any provision of Section 6-129, Agency shall notify the Commissioner of DSBS who shall determine whether the certification of such business enterprise should be revoked.

6. Statements made in any instrument submitted to Agency pursuant to Section 6-129 shall be submitted under penalty of perjury and any false or misleading statement or omission shall be grounds for the application of any applicable criminal and/or civil penalties for perjury. The making of a false or fraudulent statement by an MBE and/or WBE in any instrument submitted pursuant to Section 6-129 shall, in addition, be grounds for revocation of its certification.

7. The Contractor's record in implementing its **M/WBE** Utilization Plan shall be a factor in the evaluation of its performance. Whenever Agency determines that a Contractor's compliance with an **M/WBE** Utilization Plan has been unsatisfactory, Agency shall, after consultation with the City Chief Procurement Officer, file an advice of caution form for inclusion in VENDEX as caution data.

Tax ID #: \_\_\_\_\_

APT E-  
PIN#: 85015B0101

Contract # 1 - General Construction Work

## SCHEDULE B - M/WBE Utilization Plan

### Part I: M/WBE Participation Goals

Part I to be completed by contracting agency

#### Contract Overview

APT E-Pin # 85015B0101 FMS Project ID#: HH112BLEL

Project Title/Agency Bellevue Men's Shelter Elevator Rehabilitation

PIN # 8502015HL0002C

Bid/Proposal  
Response Date: APRIL 20, 2015

Contracting Agency Department of Design and Construction

Agency Address 30-30 Thomson Avenue City Long Island City State NY Zip Code 11101

Contact Person Norma Negron Title MWBE Liaison & Compliance Analyst

Telephone # (718) 391-1502 Email negronn@ddc.nyc.gov

#### Project Description (attach additional pages if necessary)

This Project consists of the rehabilitation and modernization of three passenger elevators located in the building and associated upgrades to bring the elevator system up to local code. The three elevators have been inactive for many years and desperately need to be renovated. In general the scope of work with this project includes: ■ Removal of existing equipment and appurtenances associated with the existing elevators. ■ Minor relocation of existing building system piping routed through the elevator shafts. ■ Elevator cabs will remain, new interior cabs, associated controls and motors will be replaced. ■ Hoist way venting and smoke detection to comply with local codes. ■ HVAC cooling of the elevator machine rooms and basement electrical room. ■ Electrical work to facilitate the installation of upgraded elevator equipment, including fire alarm tie-ins. ■ New elevator pit sum pits and pumps tied into existing plumbing systems. ■ Architectural rehabilitation to the east penthouse elevator machine room (i.e. façade, cornice, roof, louvers, windows, doors, etc.) ■ Structural improvements that relate to the architectural, elevator and HVAC scope of work.

#### M/WBE Participation Goals for Services

Enter the percentage amount for each group or for an unspecified goal. Please note that there are no goals for Asian Americans in Professional Services

Prime Contract Industry: Construction

Group	Percentage	
<u>Unspecified*</u>	<u>5</u>	<u>%</u>
or		
Black American	<u>Unspecified</u>	<u>%</u>
Hispanic American	<u>Unspecified</u>	<u>%</u>
Asian American	<u>Unspecified</u>	<u>%</u>
Women	<u>Unspecified</u>	<u>%</u>
<b>Total Participation Goals</b>	<b>5</b>	<b>%</b>

Line 1

Note: For this procurement, individual ethnicity and gender goals are not specified. The Total Participation Goals for construction contracts may be met by using Black American, Hispanic American, Asian American or Women certified firms or any combination of such firms.



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Tax ID #: \_\_\_\_\_

APT E-

PIN#: 85015B0101

**SCHEDULE B - Part II: M/WBE Participation Plan**

Form to be completed by the bidder/proposer:

Please note: For Non-M/WBE Prime Contractors who will NOT subcontract any services and will self-perform the entire contract, you must obtain a FULL waiver by completing the Waiver Application on pages 9 and 9a and timely submitting it to the contracting agency pursuant to the Notice to Prospective Contractors. Once a FULL WAIVER is granted, it must be included with your bid or proposal and you do not have to complete or submit this form with your bid or proposal.

**Section I: Prime Contractor Contact Information**

Tax ID # _____	FMS Vendor ID # _____
Business Name _____	Contact Person _____
Address _____	
Telephone # _____	Email _____

**Section II: M/WBE Utilization Goal Calculation: Check the applicable box and complete subsection.**

**PRIME CONTRACTOR ADOPTING AGENCY M/WBE PARTICIPATION GOALS**

<input type="checkbox"/> For Prime Contractors (Including Qualified Joint Ventures and M/WBE firms) adopting Agency M/WBE Participation Goals.  Calculate the total dollar value of your total bid that you agree will be awarded to M/WBE subcontractors for services and/or credited to an M/WBE prime contractor or Qualified Joint Venture.  Please review the Notice to Prospective Contractors for more information on how to obtain credit for M/WBE participation.	Total Bid/Proposal Value	Agency Total Participation Goals (Line 1, Page 6)	=	Calculated M/WBE Participation Amount
	\$	X	=	\$ Line 2

**PRIME CONTRACTOR OBTAINED PARTIAL WAIVER APPROVAL: ADOPTING MODIFIED M/WBE PARTICIPATION GOALS**

<input type="checkbox"/> For Prime Contractors (Including Qualified Joint Ventures and M/WBE firms) adopting Modified M/WBE Participation Goals.  Calculate the total dollar value of your total bid that you agree will be awarded to M/WBE subcontractors for services and/or credited to an M/WBE prime contractor or Qualified Joint Venture.  Please review the Notice to Prospective Contractors for more information on how to obtain credit for M/WBE participation.	Total Bid/Proposal Value	Adjusted Participation Goal (From Partial Waiver)	=	Calculated M/WBE Participation Amount
	\$	X	=	\$ Line 3

**Section III: M/WBE Utilization Plan: How Proposer/Bidder Will Fulfill M/WBE Participation Goals. Please review the Notice to Prospective Contractors for more information on how to obtain credit for M/WBE participation. Check applicable box. The Proposer or Bidder will fulfill the M/WBE Participation Goals:**

As an M/WBE Prime Contractor that will self-perform and/or subcontract to other M/WBE firms a portion of the contract the value of which is at least the amount located on Lines 2 or 3 above, as applicable. The value of any work subcontracted to non-M/WBE firms will not be credited towards fulfillment of M/WBE Participation Goals. Please check all that apply to Prime Contractor:

MBE       WBE

As a Qualified Joint Venture with an M/WBE partner, in which the value of the M/WBE partner's participation and/or the value of any work subcontracted to other M/WBE firms is at least the amount located on Lines 2 or 3 above, as applicable. The value of any work subcontracted to non M/WBE firms will not be credited towards fulfillment of M/WBE Participation Goals.

As a non M/WBE Prime Contractor that will enter into subcontracts with M/WBE firms the value of which is at least the amount located on Lines 2 or 3 above, as applicable.

**Section IV: General Contract Information**

What is the expected percentage of the total contract dollar value that you expect to award in subcontracts for services, regardless of M/WBE status? % \_\_\_\_\_

*Enter brief description of the type(s) and dollar value of subcontracts for all any services you plan on subcontracting if awarded this contract. For each item, indicate whether the work is designated for participation by MBEs and/or WBEs and the time frame in which such work is scheduled to begin and end. Use additional sheets if necessary.*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_
13. \_\_\_\_\_
14. \_\_\_\_\_
15. \_\_\_\_\_
16. \_\_\_\_\_
17. \_\_\_\_\_

✓ **Scopes of Subcontract Work**

**Section V: Vendor Certification and Required Affirmations**

I hereby:

- 1) acknowledge my understanding of the M/WBE participation requirements as set forth herein and the pertinent provisions of Section 6-129 of the Administrative Code of the City of New York (Section 6-129), and the rules promulgated thereunder;
- 2) affirm that the information supplied in support of this M/WBE Utilization Plan is true and correct;
- 3) agree, if awarded this Contract, to comply with the M/WBE participation requirements of this Contract, the pertinent provisions of Section 6-129, and the rules promulgated thereunder, all of which shall be deemed to be material terms of this Contract
- 4) agree and affirm that it is a material term of this Contract that the Vendor will award the total dollar value of the M/WBE Participation Goals to certified MBEs and/or WBEs, unless a full waiver is obtained or such goals are modified by the Agency; and
- 5) agree and affirm, if awarded this Contract, to make all reasonable, good faith efforts to meet the M/WBE Participation Goals, or if a partial waiver is obtained or such goals are modified by the Agency, to meet the modified Participation Goals by soliciting and obtaining the participation of certified MBE and/or WBE firms.

Signature \_\_\_\_\_

Date \_\_\_\_\_

Print Name \_\_\_\_\_

Title \_\_\_\_\_

**SCHEDULE B - PART III - REQUEST FOR WAIVER OF M/WBE PARTICIPATION REQUIREMENT**

**Contract Overview**

Tax ID # \_\_\_\_\_ FMS Vendor ID # \_\_\_\_\_  
 Business Name \_\_\_\_\_  
 Contact Name \_\_\_\_\_ Telephone # \_\_\_\_\_ Email \_\_\_\_\_  
 Type of Procurement  Competitive Sealed Bids  Other Bid/Response Due Date \_\_\_\_\_  
 APT E-PIN # (for this procurement): \_\_\_\_\_ Contracting Agency: \_\_\_\_\_

**M/WBE Participation Goals as described in bid/solicitation documents**

\_\_\_\_\_ % Agency M/WBE Participation Goal

**Proposed M/WBE Participation Goal as anticipated by vendor seeking waiver**

\_\_\_\_\_ % of the total contract value anticipated in good faith by the bidder/proposer to be subcontracted for services and/or credited to an M/WBE Prime Contractor or Qualified Joint Venture.

**Basis for Waiver Request: Check appropriate box & explain in detail below (attach additional pages if needed)**

- Vendor does not subcontract services, and has the capacity and good faith intention to perform all such work itself with its own employees.
- Vendor subcontracts some of this type of work but at a lower % than bid/solicitation describes, and has the capacity and good faith intention to do so on this contract. (Attach subcontracting plan outlining services that the vendor will self-perform and subcontract to other vendors or consultants.)
- Vendor has other legitimate business reasons for proposing the M/WBE Participation Goal above. Explain under separate cover.

**References**

List 3 most recent contracts performed for NYC agencies (if any). Include information for each subcontract awarded in performance of such contracts. Add more pages if necessary.

CONTRACT NO.	AGENCY	DATE COMPLETED
Total Contract Amount \$ _____	Total Amount Subcontracted \$ _____	_____
Item of Work Subcontracted and Value of subcontract _____	Item of Work Subcontracted and Value of subcontract _____	Item of Work Subcontracted and Value of subcontract _____
CONTRACT NO. _____	AGENCY _____	DATE COMPLETED _____
Total Contract Amount \$ _____	Total Amount Subcontracted \$ _____	_____
Item of Work Subcontracted and Value of subcontract _____	Item of Work Subcontracted and Value of subcontract _____	Item of Work Subcontracted and Value of subcontract _____
CONTRACT NO. _____	AGENCY _____	DATE COMPLETED _____
Total Contract Amount \$ _____	Total Amount Subcontracted \$ _____	_____
Item of Work Subcontracted and Value of subcontract _____	Item of Work Subcontracted and Value of subcontract _____	Item of Work Subcontracted and Value of subcontract _____

List 3 most recent contracts performed for other entities. Include information for each subcontract awarded in performance of such contracts. Add more pages if necessary.

(Complete ONLY if vendor has performed fewer than 3 New York City contracts.)

<b>TYPE OF Contract</b>	<b>ENTITY</b>	<b>DATE COMPLETED</b>
Manager at entity that hired vendor (Name/Phone No./Email)		
<b>Total Contract Amount \$</b>	<b>Total Amount Subcontracted \$</b>	
<b>Type of Work Subcontracted</b>		

<b>TYPE OF Contract</b>	<b>AGENCY/ENTITY</b>	<b>DATE COMPLETED</b>
Manager at agency/entity that hired vendor (Name/Phone No./Email)		
<b>Total Contract Amount \$</b>	<b>Total Amount Subcontracted \$</b>	
<b>Item of Work Subcontracted and Value of subcontract</b>	<b>Item of Work Subcontracted and Value of subcontract</b>	<b>Item of Work Subcontracted and Value of subcontract</b>

<b>TYPE OF Contract</b>	<b>AGENCY/ENTITY</b>	<b>DATE COMPLETED</b>
Manager at entity that hired vendor (Name/Phone No./Email)		
<b>Total Contract Amount \$</b>	<b>Total Amount Subcontracted \$</b>	
<b>Item of Work Subcontracted and Value of subcontract</b>	<b>Item of Work Subcontracted and Value of subcontract</b>	<b>Item of Work Subcontracted and Value of subcontract</b>

**VENDOR CERTIFICATION:** I hereby affirm that the information supplied in support of this waiver request is true and correct, and that this request is made in good faith.

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_  
**Print Name:** \_\_\_\_\_ **Title:** \_\_\_\_\_



**BID FORM**  
**THE CITY OF NEW YORK**  
**DEPARTMENT OF DESIGN AND CONSTRUCTION**  
**DIVISION OF PUBLIC BUILDINGS**

**BID FOR FURNISHING ALL LABOR AND  
MATERIAL NECESSARY AND REQUIRED FOR:**

**PROJECT ID: HH112BLEL**

**Bellevue Men's Shelter Elevator Rehabilitation  
400 East 30th Street  
Manhattan 10016**

Name of Bidder: \_\_\_\_\_

Date of Bid Opening: \_\_\_\_\_

Bidder is: (Check one, whichever applies)    Individual ( )    Partnership ( )    Corporation ( )

Place of Business of Bidder: \_\_\_\_\_

Bidder's Telephone Number: \_\_\_\_\_ Bidder's Fax Number: \_\_\_\_\_

Bidder's Email Address: \_\_\_\_\_

Residence of Bidder (If Individual): \_\_\_\_\_

If Bidder is a Partnership, fill in the following blanks:

Names of Partners

Residence of Partners

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

If Bidder is a Corporation, fill in the following blanks:

Organized under the laws of the State of \_\_\_\_\_

Name and Home Address of President: \_\_\_\_\_

Name and Home Address of Secretary: \_\_\_\_\_

Name and Home Address of Treasurer: \_\_\_\_\_

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## BID FORM

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The above-named Bidder affirms and declares:

1. The said bidder is of lawful age and the only one interested in this bid; and no person, firm or corporation other than hereinbefore named has any interest in this bid, or in the Contract proposed to be taken.
2. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief: (1) the prices in this bid have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor; (2) unless otherwise required by law, the prices quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and (3) no attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.
3. No councilman or other officer or employee or person whose salary is payable in whole or in part from the City Treasury is directly or indirectly interested in this bid, or in the supplies, materials, equipment, work or labor to which it relates, or in any of the profits thereof.
4. The bidder is not in arrears to the City of New York upon debt or contract or taxes, and is not a defaulter, as surety or otherwise, upon any obligation of the City of New York, and has not been declared not responsible, or disqualified, by any agency of the City of New York or State of New York, nor is there any proceeding pending relating to the responsibility or qualification of the bidder to receive public contracts except as set forth on the Affirmation included as page 17 of this Bid Booklet.

The bidder hereby affirms that it has paid all applicable City income, excise and other taxes for all years it has conducted business activities in New York City.

5. The bidder, as an individual, or as a member, partner, director or officer of the bidder, if the same be a firm, partnership or corporation, executes this document expressly warranting and representing that should this bid be accepted by the City and the Contract awarded to him, he and his subcontractors engaged in the performance:
  - (1) will comply with the provisions of Section 6-108 of the Administrative Code of the City of New York and the non-discrimination provisions of Section 220a of the New York State Labor Law, as more expressly and in detail set forth in the Agreement; (2) will comply with Section 6-109 of the Administrative Code of the City of New York in relation to minimum wages and other stipulations as more expressly and in detail set forth in the Agreement; (3) have complied with the provisions of the aforesaid laws since their respective effective dates, and (4) will post notices to be furnished by the City, setting forth the requirements of the aforesaid laws in prominent and conspicuous places in each and every plant, factory, building and structure where employees engaged in the performance of the Contract can readily view it, and will continue to keep such notices posted until the supplies, materials and equipment, or work labor and services required to be furnished or rendered by the Contractor have been finally accepted by the City. In the event of any breach or violation of the foregoing, the Contractor may be subject to damages, liquidated or otherwise, cancellation of the Contract and suspension as a bidder for a period of three years. (The words, "the bidder", "he", "his", and "him" where used shall mean the individual bidder, firm, partnership or corporation executing this bid).



6. Compliance Report

The bidder, as an individual, or as a member, partner, director, or officer of the bidder, if the same be a firm, partnership, or corporation, (1) represents that his attention has been specifically drawn to Executive Order No. 50, dated April 25, 1980, on Equal Employment Compliance of the contract, and (2) warrants that he will comply with the provisions of Executive Order No. 50. The Employment Report must be submitted as part of the bid.

The bidder, as an individual, or as a member, partner, director, or officer of the bidder, if the same be a firm, partnership, or corporation, executes this document expressly warranting that he will comply with: (1) the provision of the contract on providing records, Chapter 8.

7. By submission of this bid, the bidder certifies that it now has and will continue to have the financial capability to fully perform the work required for this contract. Any award of this contract will be made in reliance upon such certification. Upon request therefor, the bidder will submit written verification of such financial capability in a form that is acceptable to the department.

8. In accordance with Section 165 of the State Finance Law, the bidder agrees that tropical hardwoods, as defined in Section 165 of the State Finance Law, shall not be utilized in the performance of this Contract, except as the same are permitted by the foregoing provision of law.

9. The bidder has visited and examined the site of the work and has carefully examined the Contract in the form approved by the Corporation Counsel, and will execute the Contract and perform all its items, covenants and conditions, and will provide, furnish and deliver all the work, materials, supplies, tools and appliances for all labor and materials necessary or required for the hereinafter named work, all in strict conformity with the Contract, for the prices set forth in the Bid Schedule:

10. **M/WBE UTILIZATION PLAN:** By signing its bid, the bidder agrees to the Vendor Certification and Required Affirmations set forth below, unless a full waiver of the Participation Goals is granted. The Vendor Certification and Required Affirmations will be deemed to satisfy the requirement to complete Section V of Part II of Schedule B: M/WBE Utilization Plan.

**Section V: Vendor Certification and Required Affirmations:**

I hereby:

- 1) acknowledge my understanding of the M/WBE participation requirements as set forth in this Contract and the pertinent provisions of Section 6-129 of the Administrative Code of the City of New York and the rules promulgated thereunder;
- 2) affirm that the information supplied in support of the M/WBE Utilization Plan is true and correct;
- 3) agree, if awarded this Contract, to comply with the M/WBE participation requirements of this Contract, the pertinent provisions of Section 6-129, and the rules promulgated thereunder, all of which shall be deemed to be material terms of this Contract;
- 4) agree and affirm that it is a material term of this Contract that the Vendor will award the total dollar value of the M/WBE Participation Goals to certified MBEs and/or WBEs, unless a full waiver is obtained or such goals are modified by the Agency; and
- 5) agree and affirm, if awarded this Contract, to make all reasonable, good faith efforts to meet the M/WBE Participation Goals, or If a partial waiver is obtained or such goals are modified by the Agency, to meet the modified Participation Goals by soliciting and obtaining the participation of certified MBE and/or WBE firms.

**BID FORM**

**PROJECT ID: HH112BLEL**

**TOTAL BID PRICE:** In the space provided below, the Bidder shall indicate the total bid price in figures.

- A. **LUMP SUM PRICE** - Total price for all labor and material for all required work, excluding items (B) set forth below. Total Price shall include all costs and expenses, i.e. labor, material overhead and profit for all the Work, described and shown in the drawings and specifications.

Total Price for  
Material Sold and  
Delivered

Total Price For  
Labor

\$ \_\_\_\_\_ +

\$ \_\_\_\_\_

Total Price for Item A= \$ \_\_\_\_\_

- B. **ALLOWANCE** for Incidental Asbestos Abatement  
(Section 028013 of the Specifications)

\$15,000.00

TOTAL BID PRICE (Add A + B)  
( a/k/a BID PROPOSAL)

\$ \_\_\_\_\_

**BIDDER'S SIGNATURE AND AFFIDAVIT**

\* **SUBCONTRACTOR IDENTIFICATION:** You MUST complete and submit the form entitled "Bidder's Identification of Subcontractors" (page 17) at the time you submit your bid. You must submit this form in a separate, sealed envelope (BID ENVELOPE #2). In the event an award of contract is not made to the Bidder, the Bidder hereby authorizes the Agency to shred the form entitled "Bidder's Identification of Subcontractors". \_\_\_\_\_ Yes \_\_\_\_\_ No

Bidder: \_\_\_\_\_

By: \_\_\_\_\_  
(Signature of Partner or corporate officer)

Attest: \_\_\_\_\_  
(Corporate Seal) Secretary of Corporate Bidder

Affidavit on the following page should be subscribed and sworn to before a Notary Public

**THIS PAGE INTENTIONALLY LEFT BLANK**

**BID FORM (TO BE NOTARIZED)**

\*\*\*\*\*

**AFFIDAVIT WHERE BIDDERS IS AN INDIVIDUAL**

STATE OF NEW YORK, COUNTY OF \_\_\_\_\_ ss:

\_\_\_\_\_ being duly sworn says:

I am the person described in and who executed the foregoing bid, and the several matters therein stated are in all respects true.

\_\_\_\_\_  
(Signature of the person who signed the Bid)

Subscribed and sworn to before me this  
\_\_\_\_\_ day of \_\_\_\_\_,

\_\_\_\_\_  
Notary Public

\*\*\*\*\*

**AFFIDAVIT WHERE BIDDERS IS A PARTNERSHIP**

STATE OF NEW YORK, COUNTY OF \_\_\_\_\_ ss:

\_\_\_\_\_ being duly sworn says:

I am a member of \_\_\_\_\_ the firm described in and which executed the foregoing bid. I subscribed the name of the firm thereto on behalf of the firm, and the several matters therein stated are in all respects true.

\_\_\_\_\_  
(Signature of Partner who signed the Bid)

Subscribed and sworn to before me this  
\_\_\_\_\_ day of \_\_\_\_\_,

\_\_\_\_\_  
Notary Public

\*\*\*\*\*

**AFFIDAVIT WHERE BIDDERS IS A CORPORATION**

STATE OF NEW YORK, COUNTY OF \_\_\_\_\_ ss:

\_\_\_\_\_ being duly sworn says:

I am the \_\_\_\_\_ of the above named corporation whose name is subscribed to and which executed the foregoing bid. I reside at \_\_\_\_\_  
I have knowledge of the several matters therein stated, and they are in all respects true.

\_\_\_\_\_  
(Signature of Corporate Officer who signed the Bid)

Subscribed and sworn to before me this  
\_\_\_\_\_ day of \_\_\_\_\_,

\_\_\_\_\_  
Notary Public

## AFFIRMATION

The undersigned bidder affirms and declares that said bidder is not in arrears to the City of New York upon debt contract or taxes and is not a defaulter, as surety or otherwise, upon obligation to the City of New York, and has not been declared not responsible, or disqualified, by any agency of the City of New York, nor is there any proceeding pending relating to the responsibility or qualification of the bidder to receive public contracts except \_\_\_\_\_

\_\_\_\_\_  
(If none, the bidder shall insert the word "None" in the space provided above.)

Full Name of Bidder: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

CHECK ONE BOX AND INCLUDE APPROPRIATE NUMBER:

A - Individual or Sole Proprietorship \*  
SOCIAL SECURITY NUMBER

-----

B - Partnership, Joint Venture or other unincorporated organization  
EMPLOYER IDENTIFICATION NUMBER

-----

C - Corporation  
EMPLOYER IDENTIFICATION NUMBER

-----

By: \_\_\_\_\_  
Signature:

Title: \_\_\_\_\_

If a corporation, place seal here

This affirmation must be signed by an officer or duly authorized representative.

\* Under the Federal Privacy Act the furnishing of Social Security Numbers by bidders on City contracts is voluntary. Failure to provide a Social Security Number will not result in a bidder's disqualification. Social Security Numbers will be used to identify bidders, proposers or vendors to ensure their compliance with laws, to assist the City in enforcement of laws, as well as to provide the City a means of identifying of businesses which seek City contracts.

## **BIDDER'S IDENTIFICATION OF SUBCONTRACTORS**

### **NOTICE TO BIDDERS**

**SUBMISSION:** The Bidder must, at the time of the bid, submit the completed form on the next page ("BIDDER'S IDENTIFICATION OF SUBCONTRACTORS"). This form must be submitted in a separate, sealed envelope (BID ENVELOPE #2). Failure to do so will result in the disqualification of the bid as non-responsive.

\*\*\*\*\*

Please be advised that pursuant to GML § 101(5) the Bidder is required to submit with its bid the names of subcontractors it intends to use to perform the following work on this contract, as well as the agreed-upon amount to be paid to each:

- plumbing and gas fitting;
- steam heating, hot water heating, ventilating and air conditioning apparatus; and
- electric wiring and standard illuminating fixtures.

**NOTE:** This project may not involve all of the above listed subcontractors. Please see the form on the next page which indicates the subcontractors required for this Project.

All listed subcontractors must be used to perform the work identified on this form for the amount listed. The listed subcontractors are not alternatives to each other. The list of subcontractors is to be submitted in a separate sealed envelope by completing the form 'Bidders Identification of Subcontractors' for any subcontractors intended to be used in any of the three trades listed above. If bidder intends to use its own forces for any of the above listed work, bidder should complete this form using its own name.

**Failure to submit the completed form on the next page ("Bidder's Identification of Subcontractors") that includes the names of subcontractors and the agreed upon amounts to be paid to such subcontractors will render the bid non-responsive.**

**PLEASE NOTE:** for any contract that is subject to M/WBE Participation Goals under Local Law 129, if the bidder's intention to use its own forces to do any of the above-referenced work would result in Bidder's failure to attain the Target Subcontracting Percentage identified in Schedule B (Subcontractor Utilization Plan), the bid will be non-responsive unless the bidder requests and obtains a Waiver of Target Subcontracting Percentage (Schedule B, Part III) in advance of bid submission. Failure to submit the completed 'BIDDERS IDENTIFICATION OF SUBCONTRACTORS' form that includes the names of subcontractors and the agreed upon amounts to be paid to such subcontractors will render the bid non-responsive.

After the low bid is announced, the sealed list submitted by the low bidder will be opened and the names of the subcontractors will be announced. The sealed lists of subcontractors submitted by all other bidders shall be maintained by the Agency unopened unless such bidder shall become the low bidder (e.g., the initial low bidder is found non-responsive). All unopened lists of subcontractors shall be returned to the bidders unopened after contract award, unless the bidder has given the agency permission to shred the form.

After bid submission, any change of subcontractor or agreed-upon amount to be paid to each shall require approval of the Agency upon a showing of a legitimate construction need which shall include, but not be limited to, a change in project specifications, a change in project material costs, a change to subcontractor status as determined pursuant to §222 (2)(e) of the Labor Law, or if the subcontractor has become otherwise unwilling, unable or unavailable to perform the subcontract.

**BIDDER'S IDENTIFICATION OF SUBCONTRACTORS**

**Project ID: HH112BLEL**

**SUBMISSION:** In addition to its Bid (Bid Envelope # 1), the Bidder must, at the time of the bid, complete and submit this form in a separate, sealed envelope (Bid Envelope # 2). To complete this form, the Bidder must identify the subcontractors it intends to use for the work listed below, as well as the dollar amount to be paid to each subcontractor. Failure to complete this form and submit it in a separate, sealed envelope will result in the disqualification of the bid as non-responsive.

The Bidder intends to use the following subcontractors. If the Bidder intends to do any of the work referenced below with its own forces, the Bidder should complete this form using its own name. If multiple subcontractors for any trade are proposed, Bidder may submit multiple copies of this form.

<b>1. PLUMBING CONTRACTOR:</b>		Description of Plumbing Work:
_____	_____	_____
(Print Name)		
Agreed amount to be paid Subcontractor: \$ _____	_____	_____
	_____	_____
<b>2. HVAC CONTRACTOR:</b>		Description of HVAC Work:
_____	_____	_____
(Print Name)		
Agreed amount to be paid Subcontractor: \$ _____	_____	_____
	_____	_____
<b>3. ELECTRICAL CONTRACTOR:</b>		Description of Electrical Work:
_____	_____	_____
(Print Name)		
Agreed amount to be paid Subcontractor: \$ _____	_____	_____
	_____	_____

**BIDDER'S SIGNATURE:** The Bidder must sign and complete this form in the spaces provided below:

_____		_____	
(Bidder's Signature)		(Print Name)	
_____			
(Address)			
_____			
(Title)	(Phone #)	(Fax#)	(Date)

**BID BOND 1  
FORM OF BID BOND**

KNOW ALL MEN BY THESE PRESENTS. That we, \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

hereinafter referred to as the "Principal", and \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

hereinafter referred to as the "Surety" are held and firmly bound to THE CITY OF NEW YORK, hereinafter referred to as the "CITY", or to its successors and assigns in the penal sum of \_\_\_\_\_  
\_\_\_\_\_

(\$ \_\_\_\_\_), Dollars lawful money of the United States, for the payment of which said sum of money well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Whereas, the Principal is about to submit (or has submitted) to the City the accompanying proposal, hereby made a part hereof, to enter into a contract in writing for \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

NOW, THEREFORE, the conditions of this obligation are such that if the Principal shall not withdraw said Proposal without the consent of the City for a period of forty-five (45) days after the opening of bids and in the event of acceptance of the Principal's Proposal by the City, if the Principal shall:

(a) Within ten (10) days after notification by the City, execute in quadruplicate and deliver to the City all the executed counterparts of the Contract in the form set forth in the Contract Documents, in accordance with the proposal as accepted, and

(b) Furnish a performance bond and separate payment bond, as may be required by the City, for the faithful performance and proper fulfillment of such Contract, which bonds shall be satisfactory in all respects to the City and shall be executed by good and sufficient sureties, and

(c) In all respects perform the agreement created by the acceptance of said Proposal as provided in the Information for Bidders, bound herewith and made a part hereof, or if the City shall reject the aforesaid Proposal, then this obligation shall be null and void; otherwise to remain in full force and effect.



BID BOND 2

In the event that the Proposal of the Principal shall be accepted and the Contract be awarded to him the Surety hereunder agrees subject only to the payment by the Principal of the premium therefore, if requested by the City, to write the aforementioned performance and payment bonds in the form set forth in the Contract Documents.

It is expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

There shall be no liability under this bond if, in the event of the acceptance of the Principal's Proposal by the City, either a performance bond or payment bond, or both, shall not be required by the City on or before the 30th day after the date on which the City signs the Contract.

The surety, for the value received, hereby stipulates and agrees that the obligations of the Surety and its bond shall in no way be impaired or affected by any postponements of the date upon which the City will receive or open bids, or by any extensions of time within which the City may accept the Principal's Proposal, or by any waiver by the City of any of the requirements of the Information for Bidders, and the Surety hereby waives notice of any such postponements, extensions, or waivers.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers the \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

(Seal)

\_\_\_\_\_

Principal

(L.S.)

By:

\_\_\_\_\_

(Seal)

\_\_\_\_\_

Surety

By:

\_\_\_\_\_

ACKNOWLEDGEMENT OF PRINCIPAL, IF A CORPORATION

State of \_\_\_\_\_ County of \_\_\_\_\_ ss:  
On this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, before me personally came  
\_\_\_\_\_ to me known, who, being by me duly sworn, did depose and say that he  
resides at \_\_\_\_\_  
that he is the \_\_\_\_\_ of \_\_\_\_\_  
the corporation described in and which executed the foregoing instrument; that he knows the seal of said  
corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the  
directors of said corporation, and that he signed his name thereto by like order.

\_\_\_\_\_  
Notary Public

ACKNOWLEDGEMENT OF PRINCIPAL, IF A PARTNERSHIP

State of \_\_\_\_\_ County of \_\_\_\_\_ ss:  
On this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, before me personally appeared  
\_\_\_\_\_ to me known and known to me to be one of the members of the firm of  
\_\_\_\_\_ described in and who executed the foregoing instrument, and he  
acknowledged to me that he executed the same as and for the act and deed of said firm.

\_\_\_\_\_  
Notary Public

ACKNOWLEDGEMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of \_\_\_\_\_ County of \_\_\_\_\_ ss:  
On this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, before me personally appeared  
\_\_\_\_\_ to me known and known to me to be the person described in and who  
executed the foregoing instrument and acknowledged that he executed the same.

\_\_\_\_\_  
Notary Public

AFFIX ACKNOWLEDGEMENTS AND JUSTIFICATION OF SURETIES

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## BID BREAKDOWN

**Submission:** Bidders are advised that the requirement to submit a Bid Breakdown applies to each contract for which an "X" is indicated before the word "Yes". If required, the bidder must submit, with its bid, a completed Bid Breakdown. Failure to provide a completed Bid Breakdown may result in rejection of the bid as non-responsive.

    X          YES                                      NO

### Limitations on Use of Bid Breakdown:

Bidders are advised that the Bid Breakdown shall be used for bid analysis purposes only and shall not be binding for any other purposes under the Contract, including, without limitation, for payment purposes or in connection with a contractor claim for extra work. If the form for the Bid Breakdown does not include an item of work required by the Contract Documents, such omission shall have no effect whatsoever, nor shall it be used by the contractor in connection with a claim for extra work (i.e., work for which the contractor is entitled to a change order).

### Instructions for Preparing Bid Breakdown:

- (A) The Bid Breakdown is set forth on the following pages of this Bid Booklet and is in accordance with the Construction Specification Institute (CSI) format. For all items of work listed in the Bid Breakdown, the bidder must indicate the price for labor and the price for material, as well as the estimated quantities required.
- (B) In preparing its Bid Breakdown, the bidder shall submit prices that include all costs for overhead and profit. Overhead shall include, without limitation, all costs in connection with the following: administration, management, superintendence, small tools, insurance, bonds, and provision of services or items required by the General Conditions [except for Security/Fire Guard Services and Temporary Heat]. If the Project requires Security/Fire Guard Services and/or Temporary Heat, such service(s) will be included as separate line items in the Bid Breakdown.
- (C) If an item is set forth in the Bid Breakdown, but is not included in the Contract Documents (Drawings, Specifications, General Conditions, and/or Addenda), the bidder is advised to leave the item blank and exclude the cost of the item from its grand total. In an attachment to its Bid Breakdown, the bidder shall provide a list of all items left blank.
- (D) If an item is not set forth in the Bid Breakdown, but is included in the Contract Documents (Drawings, Specifications, General Conditions, and/or Addenda), the bidder is advised to add the item to its Bid Breakdown and include the cost of the item in its grand total. In an attachment to its Bid Breakdown, the bidder shall provide a list of all items added.

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NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

Project: Bellevue Men's Shelter Elevator Rehabilitation  
 Location: 400 East 30th Street, New York NY 10016  
 Bidder:

CONTRACTORS BID BREAKDOWN FORM

CONTRACT 1 - General Construction

DDC ID: HH12BLEL  
 Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	<b>CONTRACT 1 - GENERAL CONSTRUCTION WORK</b>							
<b>Division 1</b>	<b>GENERAL REQUIREMENTS</b>							
010000	Mobilization		ls					
	Security Guard/ Fire Guard		ls					
	<b>Subtotal</b>							
<b>Division 2</b>	<b>EXISTING CONDITIONS</b>							
022000	Excavation, Filling and Grading (Included w/ 220002)							
024191	Selective Demolition, Removals, and Salvage		days					
	Hoisting requirements		sf					
	Scaffold							
	<b>Penthouse Facades (including probes and repairs) Masonry &amp; Columns:</b>							
	Shore & Brace, remove brick & terra cotta		sf					
	Facade-							
	Remove masonry façade as required for structural repairs		sf					
	Parapet-							
	Remove parapet copings		lf					
	Remove brick parapet		sf					
	Limestone-							
	Removals		sf					
	Remove terra cotta cornice		sf					
	Remove terra cotta cornice		sf					
	Remove mechanical equipment & raised equipment pad		sf					
	Remove wall at basement transformer room, incl door & finishes		lf					
	Misc demolition & removals		ls					
	<b>Subtotal</b>							

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NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

Project: Bellevue Men's Shelter Elevator Rehabilitation  
Location: 400 East 30th Street, New York NY 10016  
Bidder:

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
028213	Asbestos Abatement		ls					
	Asbestos Abatement							
	<b>Subtotal</b>							
<b>Division 3</b>	<b>CONCRETE</b>							
033000	Cast-in-Place Concrete and Cement Work							
	Roof top pad for HVAC equip.		sf					
	Patch at removed slabs		sf					
	Patch and level floor at remainder of Penthouse		sf					
	Fill in slab openings		sf					
	Concrete slab		ea					
	New sump pits at sub basement		loc					
	Trench infills at basement		sf					
	New trench to accommodate re-routed piping		sf					
	Flash Patch and Seal concrete floors		sf					
	<b>Subtotal</b>							
034900	Glass Fiber Reinforced Concrete							
	Provide new GFRC cornice elements		sf					
	<b>Subtotal</b>							
<b>Division 4</b>	<b>MASONRY</b>							
040513.91	Masonry Restoration Mortaring							
	Repaint masonry façade to remain		sf					
	<b>Subtotal</b>							
042113	Brick Masonry							
	Penthouse Facades:							
	Columns-							
	Reinstall masonry façade		sf					
	Replace masonry façade with new		sf					



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NEW YORK CITY DEPARTMENT OF  
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CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	Facade-							
	Reinstall masonry facade		sf					
	Parapet-							
	Reset extg parapet copings		lf					
	Rebuild brick parapet		sf					
	<b>Subtotal</b>							
<b>042129</b>	<b>Terra Cotta Masonry</b>							
	Reinstall extg terra cotta		sf					
	Replace unusable terra cotta with new GFRC		sf					
	Replace damaged terra cotta entablature course below cornice with GFRC		sf					
	Interior Terra Cotta wall repairs		ls					
	<b>Subtotal</b>							
<b>042200</b>	<b>Concrete Unit Masonry</b>							
	Elevator shaft repairs		ea					
	Infill existing trench openings where piping previously entered elev. Pit with CMU		loc					
	<b>Subtotal</b>							
<b>044113</b>	<b>Stone Masonry</b>							
	Repair limestone		sf					
	Remove & replace 100% steel armatures supporting cornice		ls					
	<b>Subtotal</b>							
<b>Division 5</b>	<b>METALS</b>							
<b>051000</b>	<b>Structural Steel</b>							
	Penthouse Facades:							
	Columns-							
	Structural repairs / cleaning		ls					
	New structural steel		ton					

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NEW YORK CITY DEPARTMENT OF  
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Location: 400 East 30th Street, New York NY 10016  
Bidder: \_\_\_\_\_

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	Thermal spray coat steel at corners		coils					
	Facade-							
	Structural remediation / cleaning		ls					
	Limestone-		ls					
	Structural repairs							
	Fill in slab openings-		ls					
	Structural steel		ls					
	Misc. openings, etc.							
	<b>Subtotal</b>							
<b>053000</b>	<b>Metal Decking (Included w/ 051000)</b>							
<b>055000</b>	<b>Metal Fabrication</b>							
	Remove non-compliant ladders & replace with appr. Steel ladders w/ handrails		ea					
	Remove non-compliant railings & replace w/ OSHA & code compliant barriers		lf					
	<b>Subtotal</b>							
<b>055213</b>	<b>Pipe and Tube Railings (Included w/ 055000)</b>							
<b>Division 7</b>	<b>THERMAL AND MOISTURE PROTECTION</b>							
<b>071326</b>	<b>Self-Adhering Sheet Waterproofing</b>							
	Columns:							
	Waterproofing membrane		sf					
	Limestone:							
	Waterproofing membrane		sf					
	<b>Subtotal</b>							

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NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

**CONTRACTOR'S BID BREAKDOWN FORM**

CONTRACT 1 - General Construction

Project: Bellevue Men's Shelter Elevator Rehabilitation

Location: 400 East 30th Street, New York NY 10016

Bidder:

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
072100	Insulation (Included w/ 053000, 089199, & 092900)							
075216	Modified Bituminous Membrane Roofing East Penthouse Hipped Roof. Cut & patch existing roofing to maintain warranty (assumed 10%) Modify membrane for built-in sheet metal gutter lining Remove & replace built-in sheet metal gutter lining New membrane roofing at terraces - bitumen system Replace roof drains and cover, and associated piping New scuppers		sf sf lf sf ea ea					
	<b>Subtotal</b>							
076200	Sheet Metal Flashing and Trim (Included w/ 075216)							
077100	Roof Specialties (Included w/ 075216)							
078100	Applied Fireproofing East Penthouse Façade: Columns: Fireproof steel		cols					
	<b>Subtotal</b>							
079200	Joint Sealants (Included w/ 034900, 0765216, & 089119)							



NEW YORK CITY DEPARTMENT OF  
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**CONTRACTOR'S BID BREAKDOWN FORM**

CONTRACT 1 - General Construction

Project: Bellevue Men's Shelter Elevator Rehabilitation  
 Location: 400 East 30th Street, New York NY 10016  
 Bidder: \_\_\_\_\_

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
<b>Division 8</b>	<b>OPENINGS</b>							
081113	Hollow Metal Doors and Frames		ea					
	New exterior door		sf					
	Basement transformer room partitions		ea					
	Doors		ea					
	Doors - Sgl		ea					
	Doors - Dbl		ea					
	<b>Subtotal</b>							
<b>085113</b>	<b>Aluminum Windows</b>							
	Remove galv. Steel window & replace with alum. Window		ea					
	Copper Louvers & Aluminum Screens / Windows:							
	New windows		sf					
	<b>Subtotal</b>							
<b>085200</b>	<b>Metal Clad Wood Window Restoration (Included w/ 085113)</b>							
<b>087100</b>	<b>Door Hardware (Included w/ 081113)</b>							
<b>089119</b>	<b>Fixed Louvers</b>							
	Copper Louvers & Aluminum Screens / Windows:							
	Remove & replace damaged louvers & screens		sf					
	New louvers		sf					
	New louver at West elevation		sf					
	<b>Subtotal</b>							
<b>Division 9</b>	<b>FINISHES</b>							
092100	Gypsum Plaster (Included w/ 092900)							



NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

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Bidder:

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
092216	Non-Structural Metal Framing (Included w/ 092900)							
092900	Gypsum Board							
	9th floor and attic probes - New partition to enclose pipes:							
	New 2hr rated drywall fire wall		sf					
	New 1hr rated drywall fire wall		sf					
	New 1hr rated drywall soffit		sf					
	Wall repairs at 1st through 9th elevator lobby's		floors					
	Misc. Rough carpentry, Blocking & Protection		ls					
	Fire-rated fuel oil chases / soffits		sf					
	Subtotal							
099113	Exterior Painting (Included w/ 042113, 042129, 042200, 044113)							
099600	High Performance Coatings							
	Wall finish repairs at 1st through 9th elevator lobby's		floors					
	Terrazzo floor repairs		ls					
	Subtotal							
099900	Paint and Coatings Removal (Included w/ 042113, 042129, 042200, 044113)							



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DESIGN + CONSTRUCTION

Project: Bellevue Men's Shelter Elevator Rehabilitation

Location: 400 East 30th Street, New York NY 10016

Bidder:

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
<b>Division 14</b>	<b>CONVEYING EQUIPMENT</b>							
142100	Traction Elevators							
	Extg elevator selective removals		ea					
	Upgrade passenger elevator #43		ea					
	Upgrade passenger elevator #44		ea					
	Upgrade service elevator #45		ea					
	Signage		ls					
	<b>Subtotal</b>							
<b>Division 22</b>	<b>PLUMBING</b>							
220002	Plumbing Special Conditions (Included w/ 220003)							
220003	Plumbing Scope of Work							
	Demolition /remedial work:							
	Disconnect & remove existing sanitary piping		lf					
	Disconnect & remove existing domestic water piping		lf					
	Disconnect & remove existing domestic water piping 6" dia - riser		ea					
	Disconnect & remove existing roof drain		ea					
	Tie-out piping		ea					
	Charts / painting /identification		ls					
	Clean, flush & test		ls					
	Chopping / patching / fire sealing		ls					
	<b>Subtotal</b>							
220517	Sleeves and Sleeve Seals for Plumbing Piping (Included w/ 220003)							
220518	Escutcheons for Plumbing Piping (Included w/ 220003)							

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NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

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CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
220529	Hangers, Supports, Anchors, and Guides (Included w/ 220003)							
220553	Identification of Plumbing Piping and Equipment (Included w/ 220003)							
220580	Access Doors in General Construction (Included w/ 092900)							
220590	Testing (Included w/ 220003)							
221316	Sanitary Waste and Vent Piping and Fitting Materials Storm, Sanitary Waste and Vent & Pump discharge Piping / supports 4" dia 2" Galvanized iron pump discharge piping Drain piping / supports - C.I. (Allow) Tie-in piping Floor drains 4" dia with related piping Seamless drain pans Misc. valving and specialties		lf lf lf ea ea ea ls					
	<b>Subtotal</b>							
221319	Sanitary Waste Piping Specialties (Included w/ 221316)							
221429	Sump Pumps Elevator sump pump - oil - minder - simplex, controls, alarms, remote panel, local piping / valving - power cord - control tie		units					
	<b>Subtotal</b>							

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CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
<b>Division 23</b>	<b>HVAC</b>							
230002	HVAC Special Conditions (Included w/ 230003)							
230003	HVAC Scope of Work							
	Disconnect & remove existing duct with related accessories		lbs					
	Outdoor air fan and exhaust fan - remove / dispose		fans					
	Laboratory fan - remove /dispose		set					
	Remove existing louvers		ea					
	Disconnect & remove fin tube radiator with assoc. Piping		ea					
	Cut & cap ductwork 48"x48"		ea					
	Trench piping & steel plate cover		lf					
	Remove existing housekeeping pad		ea					
	Slab penetration		loc					
	Fire seal of ductwork		opngs					
	Housekeeping pad 4"x2'		ea					
	Trench		lf					
	Charts / painting /identification		ls					
	Hoisting / handling / setting of equipment and ductwork		ls					
	Chopping / patching / fire sealing		ls					
	Temporary Heat		ls					
	<b>Subtotal</b>							
230005	HVAC Access Doors in General Construction (Included w/ 092900)							
230200	Firestopping (Included w/ 230003)							
230513	Electric Motors (Included w/ 230003)							

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CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
230529	Hangers, Anchors, and Supports Blank-off existing opening - 16 ga. insulated		loc					
	Subtotal							
230548	Vibration Isolation (Included w/ 230003)							
230553	HVAC System Identification (Included w/ 230003)							
230593	HVAC Testing, Adjusting and Balancing (Included w/ 230003)							
230700	Insulation Insulation (existing steam piping)		lf					
	Subtotal							
231113	Sheetmetal Fire seal of ductwork Galvanized iron ductwork Air Distribution (Ref. Drawings M-202.00): Galvanized iron ductwork (including plenum) Grille / register Volume damper Gravity damper Motorized automatic louver Flexible duct connector Install smoke detector and access door		opngs lbs lbs ea ea ea ea lf ea					
	Subtotal							





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CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
232500	Pipe Cleaning and Chemical Water Treatment (Included w/ 230003)							
233313	Dampers		ea					
	Gravity Dampers		ea					
	Motorized damper with access door		loc					
	Wire mesh screen opening							
	<b>Subtotal</b>							
233600	Air Terminal Units (Included w/ 230003)							
233610	Air Outlets and Inlets		ea					
	Blank - off, motor operated damper - 700 cfm							
	<b>Subtotal</b>							
235210	Piping and Accessories							
	Steam piping / insulation		lf					
	Tie-out piping		ea					
	Cut & cap piping		ea					
	Fire seal of piping @ radiators		opngs					
	Miscellaneous Piping Reroute:							
	Steam piping / insulation (in trench in slab)		lf					
	Tie-in piping		lf					
	Condensate piping /insulation		lf					
	<b>Subtotal</b>							

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CONTRACTORS BID BREAKDOWN FORM

CONTRACT 1 - General Construction

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Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
236210	<b>Air Cooled Air Conditioning Units</b>							
	Unitary controls		unit					
	Hoisting / setting AC unit		lift					
	Room thermostat / M.O.D. / ATC / BMS		fan					
	Drain pan for refrigeration piping		ls					
	Air conditioning split system - local panel		ea					
	<b>Subtotal</b>							
236220	<b>Rooftop Packaged Cooling Units</b>							
	Air conditioning split system, access panels:							
	2.0 Tons refrigeration, 3800 cfm with ductless fan coil unit-		unit					
	Unitary controls - R 410a		unit					
	Refrigeration 5/8" dia with insulation		lf					
	Refrigeration - 3/8" dia with insulation		ea					
	Condensate pump		ea					
	Electric unit heater 400 cfm, 17.1 mbh, 5 kw		ea					
	Electric unit heater 400 cfm, 11.2 mbh, 3.3 kw		ea					
	Automatic Controls:							
	Packaged AC unit - local panel		ahu					
	Fire smoke damper		fsd					
	Smoke control - 3 rooms and elev. Vents		area					
	Terminal boxes		ea					
	Galv. Steel drain pan		ea					
	<b>Subtotal</b>							
237305	<b>Fans (Included w/ 230003)</b>							
238440	<b>Space Heating Units (Included w/ 230003)</b>							

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NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

**CONTRACTOR'S BID BREAKDOWN FORM**

CONTRACT 1 - General Construction

Project: Bellevue Men's Shelter Elevator Rehabilitation  
 Location: 400 East 30th Street, New York NY 10016  
 Bidder:

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
238500	Variable Frequency Controllers		ea					
	VAV variable air volume box 200 cfm - 400 cfm							
	Subtotal							
238600	Electric Motor Controllers (Included w/ 2300003)							
<b>Division 26</b>	<b>ELECTRICAL</b>							
260002	Electrical Special Conditions (Included w/ 2600003)							
260003	Electrical Scope of Work							
	Demolition (Disconnect and Make Safe)		ls					
	Cutting/Patching		ls					
	Temporary Electric		ls					
	Subtotal							
260005	Electrical Access Doors in General Construction (Included w/ 092900)							
260250	Electrical Systems Identification (Included w/ 2600003)							
260265	Electrical Testing, Adjusting and Balancing (Included w/ 2600003)							
260280	Equipment Connections and Coordination							
	30 Amp NEMA 3R		ea					
	30 Amp NEMA 1		ea					
	Motorized Damper		ea					





NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

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Bidder: \_\_\_\_\_

CONTRACTORS BID BREAKDOWN FORM

CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	VAV Box		ea					
	Electric Unit Heater		ea					
	ACC Unit		ea					
	AC Unit		ea					
	Condensate Pump		ea					
	Fan		ea					
	Elevator Sump Pump		ea					
	Elevator 20 HP		ea					
	Elevator 50HP		ea					
	<b>Subtotal</b>							
260290	Ceiling, Floor and Wall Electrical Penetration Fire Seals		ls					
	Sleeves/Firestopping							
	<b>Subtotal</b>							
260519	600 Volt Wire and Cable (Included w/ 260003)							
260526	Grounding System (Included w/ 260003)							
260533	Raceways and Boxes							
	4" RGS		lf					
	2 1/2" RGS		lf					
	2 1/2" Conduit		lf					
	1 1/4" Conduit		lf					
	1" Conduit		lf					
	3/4" Conduit		lf					
	600 MCM		lf					
	250 MCM		lf					
	# 3/0 Wire		lf					

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DESIGN + CONSTRUCTION

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Bidder:

**CONTRACTOR'S BID BREAKDOWN FORM**

CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	# 1 Wire		lf					
	# 2 Wire		lf					
	# 6 Wire		lf					
	# 8 Wire		lf					
	# 10 Wire		lf					
	3/4" Conduit - Lighting		lf					
	# 12 Wire - Lighting		lf					
	3/4" Conduit - Branch		lf					
	# 12 Wire - Branch		lf					
	2" Conduit - Mech. Equip.		lf					
	1" Conduit - Mech. Equip.		lf					
	3/4" Conduit - Mech. Equip.		lf					
	# 3/0 Wire - Mech. Equip.		lf					
	# 4 Wire - Mech. Equip.		lf					
	# 10 Wire - Mech. Equip.		lf					
	# 12 Wire - Mech. Equip.		lf					
	3/4" Conduit - F.A.		lf					
	# 12 Wire - F.A.		lf					
	<b>Subtotal</b>							
260548	<b>Vibration Isolation and Seismic Restraints (Included w/ 260003)</b>							
262213	<b>Dry Type Transformers (Included w/ 260003)</b>							
262416	<b>Panelboards</b>							
	Power Distribution:							
	1200 Amp Service Switch		ea					
	600 Amp Panel		ea					
	400 Amp Panel		ea					

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Bidder:

CONTRACTORS BID BREAKDOWN FORM

CONTRACT 1 - General Construction

DDC ID: HH112BLEL  
Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	100 Amp Panel		ea					
	300 KVA Transformer		ea					
	30 KVA Transformer		ea					
	15 KVA Transformer		ea					
	Panel Mounting Assembly		ea					
	Transformer Mounting Assembly		ea					
	Tap to Existing Service		ls					
	Pull Box		ea					
	<b>Subtotal</b>							
262726	<b>Wiring Devices</b>							
	Branch Circuitry							
	Duplex Receptacle		ea					
	GFI Duplex Receptacle		ea					
	GFI Duplex Receptacle, WP		ea					
	Single Pole Light Switch		ea					
	Single Pole Light Switch, WP		ea					
	<b>Subtotal</b>							
262813	<b>Fuses (600 V and Less) (Included w/ 2600003)</b>							
262816	<b>Disconnect Switches (Included w/ 2600003)</b>							
262919	<b>Switchboards (Included w/ 2600003)</b>							

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CONTRACT 1 - General Construction

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Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
264001	Fire Alarm and Detection System							
	Combination Speaker/Strobe		ea					
	Smoke Detector		ea					
	Smoke Detector, Elevator Recall		ea					
	Smoke Detector, Duct Mounted		ea					
	Warden Station		ea					
	Fire Smoke Damper		ea					
	Tie-in to Existing System/Reprogramming/Testing/Engineering		ls					
	<b>Subtotal</b>							
265000	Luminaires and Accessories							
	Lighting Fixture Type "FK-A"		ea					
	Lighting Fixture Type "FK-A", em		ea					
	Lighting Fixture Type "FK-B"		ea					
	<b>Subtotal</b>							
<u>Division 28</u>	<b>SECURITY</b>							
280000	Security General System Requirements (Included w/ 282313)							
282313	Video Surveillance Control and Management Systems							
	Empty conduit for TX		lf					
	<b>Subtotal</b>							
282629	Video Surveillance Remote Devices and Sensors (Included w/ 282313)							

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CONTRACT 1 - General Construction

DDC ID: HH112BLEL

Sponsor Agency: Dept of Homeless Services

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
285100	Security Communication System (Included w/ 282313)							
287200	Video Management (Included w/ 282313)							
<b>TOTAL CONTRACT 1 - GENERAL CONSTRUCTION WORK</b>								

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**ATTACHMENT 1 - BID INFORMATION  
PROJECT ID: HH112BLEL**

**DESCRIPTION AND LOCATION OF WORK:**

**BELLEVUE MEN'S SHELTER ELEVATOR REHABILITATION  
400 EAST 30<sup>TH</sup> STREET  
NEW YORK, NY 10016  
E-PIN: 85015B0101 / DDC PIN: 8502015HL0002C**

**DOCUMENTS AVAILABLE AT:**

Department of Design and Construction, Contract Section  
30-30 Thomson Avenue - First Floor, Long Island City, NY 11101

**SUBMISSION OF BIDS BEFORE BID OPENING:**

**TIME TO SUBMIT:**

On or Before: **MONDAY, APRIL 10, 2015**

**BIDS MUST BE CLOCKED IN PRIOR TO BID OPENING**

**PLACE TO SUBMIT:**

Department of Design and Construction, Contract Section (located behind Security Desk)  
30-30 Thomson Avenue - First Floor, Long Island City, NY 11101

**BID OPENING:**

<b>PLACE OF BID OPENING:</b>	Department of Design and Construction Contract Section 30-30 Thomson Avenue – First Floor Long Island City, NY 11101
<b>DATE AND HOUR:</b>	<b>MONDAY, APRIL 20, 2015 @ 2:00 PM</b>
	<b>LATE BIDS WILL NOT BE ACCEPTED</b>

**PRE-BID CONFERENCE:**

<b>PLACE</b>	<b>BELLEVUE MEN'S SHELTER 400 East 30<sup>th</sup> Street New York, NY 10016</b>
<b>DATE AND HOUR</b>	<b>FRIDAY, APRIL 10, 2015 AT 10:00 AM</b>
<b>MANDATORY OR OPTIONAL</b>	<b>OPTIONAL</b>

**BID SECURITY:**

Bid Security is required in the amount set forth below; provided, however, bid security is not required if the TOTAL BID PRICE set forth on the Bid Form is less than \$1,000,000.

- (1) Bond in an amount not less than 10% of the TOTAL BID PRICE set forth on the Bid Form, OR
- (2) Certified Check in an amount not less than 2% of the TOTAL BID PRICE set forth on the Bid Form

**PERFORMANCE AND PAYMENT SECURITY:**

Required for Contracts in the amount of \$1,000,000.00 or more. Performance and Payment Security shall each be in an amount equal to 100% of the Contract Price

**AGENCY CONTACT PERSON:**

Lorraine Holley, 30-30 Thomson Avenue - First Floor, Long Island City, Queens, NY 11101  
Telephone (718) 391-3170 or (718) 391-1016 Fax: (718) 391-2615

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**BID BOOKLET  
PART B**

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## SAFETY QUESTIONNAIRE

The bidder must include, with its bid, all information requested on this Safety Questionnaire. Failure to provide a completed and signed Safety Questionnaire at the time of bid opening may result in disqualification of the bid as non-responsive.

### 1. Bidder Information:

Company Name: \_\_\_\_\_

DDC Project Number: \_\_\_\_\_

Company Size:            \_\_\_\_\_ Ten (10) employees or less  
                                  \_\_\_\_\_ Greater than ten (10) employees

Company has previously worked for DDC            \_\_\_\_\_ YES                                    \_\_\_\_\_ NO

### 2. Type(s) of Construction Work

TYPE OF WORK	LAST 3 YEARS	THIS PROJECT
General Building Construction	_____	_____
Residential Building Construction	_____	_____
Nonresidential Building Construction	_____	_____
Heavy Construction, except building	_____	_____
Highway and Street Construction	_____	_____
Heavy Construction, except highways	_____	_____
Plumbing, Heating, HVAC	_____	_____
Painting and Paper Hanging	_____	_____
Electrical Work	_____	_____
Masonry, Stonework and Plastering	_____	_____
Carpentry and Floor Work	_____	_____
Roofing, Siding, and Sheet Metal	_____	_____
Concrete Work	_____	_____
Specialty Trade Contracting	_____	_____
Asbestos Abatement	_____	_____
<b>Other (specify)</b>	_____	_____
_____	_____	_____

### 3. Experience Modification Rate:

The Experience Modification Rate (EMR) is a rating generated by the National Council of Compensation Insurance (NCCI). This rating is used to determine the contractor's premium for worker's compensation insurance. The contractor may obtain its EMR by contacting its insurance broker or the NCCI. If the contractor cannot obtain its EMR, it must submit a written explanation as to why.

The Contractor must indicate its Intrastate and Interstate EMR for the past three years. [Note: For contractors with less than three years of experience, the EMR will be considered to be 1.00].

YEAR	<u>INTRASTATE RATE</u>	<u>INTERSTATE RATE</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

If the Intrastate and/or Interstate EMR for any of the past three years is greater than 1.00, the contractor must attach, to this questionnaire, a written explanation for the rating and identify what corrective action was taken to correct the situation resulting in that rating.

**4. OSHA Information:**

- YES     NO    Contractor has received a willful violation issued by OSHA or New York City Department of Buildings (NYCDOB) within the last three years.
- YES     NO    Contractor has had an incident requiring OSHA notification within 8 hours (i.e., fatality, or hospitalization of three or more employees).

The Occupational Safety and Health Act (OSHA) of 1970 requires employers with ten or more employees, on a yearly basis to complete and maintain on file the form entitled "Log of Work-related Injuries and Illnesses". This form is commonly referred to as the OSHA 300 Log (OSHA 200 Log for 2001 and earlier).

The OSHA 300 Log must be submitted for the last three years for contractors with more than ten employees.

The Contractor must indicate the total number of hours worked by its employees, as reflected in payroll records for the past three years.

The contractor must submit the Incident Rate for Lost Time Injuries (the Incident Rate) for the past three years. The Incident Rate is calculated in accordance with the formula set forth below. For each given year, the total number of incidents is the total number of non-fatal injuries and illnesses reported on the OSHA 300 Log. The 200,000 hours represents the equivalent of 100 employees working forty hours a week, fifty weeks per year.

$$\text{Incident Rate} = \frac{\text{Total Number of Incidents} \times 200,000}{\text{Total Number of Hours Worked by Employees}}$$

YEAR	TOTAL NUMBERS OF HOURS WORKED BY EMPLOYEES	INCIDENT RATE
_____	_____	_____
_____	_____	_____
_____	_____	_____

If the contractor's Incident Rate for any of the past three years is one point higher than the Incident Rate for the type of construction it performs (listed below), the contractor must attach, to this questionnaire, a written explanation for the relatively high rate.

General Building Construction	8.5
Residential Building Construction	7.0
Nonresidential Building Construction	10.2
Heavy Construction, except building	8.7
Highway and Street Construction	9.7
Heavy Construction, except highways	8.3
Plumbing, Heating, HVAC	11.3
Painting and Paper Hanging	6.9
Electrical Work	9.5
Masonry, Stonework and Plastering	10.5
Carpentry and Floor Work	12.2
Roofing, Siding, and Sheet Metal	10.3
Concrete Work	8.6
Specialty Trade Contracting	8.6

**5. Safety Performance on Previous DDC Project(s)**

YES  NO Contractor previously audited by the DDC Office of Site Safety.

DDC Project Number(s): \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

YES  NO Accident on previous DDC Project(s).

DDC Project Number(s): \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

YES  NO Fatality or Life-altering Injury on DDC Project(s) within the last three years.  
[Examples of a life-altering injury include loss of limb, loss of a sense (e.g., sight, hearing), or loss of neurological function].

DDC Project Number(s): \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

Date: \_\_\_\_\_

By: \_\_\_\_\_  
(Signature of Owner, Partner, Corporate Officer)

Title: \_\_\_\_\_

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## Pre-Award Process

The bidder is advised that as part of the pre-award review of its bid, it may be required to submit the information described in Sections (A) through (D) below. If required, the bidder must submit such information within five (5) business days following receipt of notification from DDC that it is among the low bidders. Such notification from DDC will be by facsimile or in writing and will specify the types of information which must be submitted.

**In the event the bidder fails to submit the required information within the specified time frame, its bid may be rejected as nonresponsive.**

\*\*\*\*\*

- (A) **Project Reference Form:** If required, the bidder must complete and submit the Project Reference Form set forth on pages 28 through 30 of this Bid Booklet. The Project Reference Form consists of 3 parts: (1) Similar Contracts Completed by the Bidder, (2) Contracts Currently Under Construction by the Bidder, and (3) Pending Contracts Not Yet Started by the Bidder.
- (B) **Copy of License:** If required, the bidder must submit a copy of the license under which the bidder will be performing the work. Such license must clearly show the following: (1) Name of the Licensee, (2) License Number, and (3) Expiration date of the License. A copy of the license will be required from bidders for the following contracts: Plumbing Work, Electrical Work and Asbestos Abatement.
- (C) **Financial Information:** If required, the bidder must submit the financial information described below:

- (1) **Audited Financial Statements:** Financial statements (Balance Sheet and Income Statement) of the entity submitting the bid, as audited by an independent auditor licensed to practice as a certified public accountant (CPA). Audited financial statements for the three most recent fiscal years must be submitted. Each such financial statement must include the auditor's standard report.

If the bidder does not have audited financial statements, it must submit an affidavit attesting to the fact that the bidder does not have such statements. In addition, the bidder must submit the following documentation covering the three most recent fiscal years: signed federal tax returns, unaudited financial statements, and a "certified review letter" from a certified public accountant (CPA) verifying the unaudited financial statements.

Unless the most recent audited or unaudited financial statement was issued within ninety (90) days, the bidder must submit interim financial information that includes data on financial position and results of operation (income data) for the current fiscal year. Such information may be summarized on a monthly or quarterly basis or at other intervals.

- (2) Schedule of Aged Accounts Receivable, including portion due within ninety (90) days.

- (D) **Project Specific Information:** If required, the bidder must submit the project specific information described below:

- (1) Statement indicating the number of years of experience the bidder has had and in what type of construction.
- (2) Resumes of all key personnel to be involved in the project, including the proposed project superintendent.
- (3) List of significant pieces of equipment expected to be used for the contract, and whether such equipment is owned or leased.

- (4) Description of work expected to be subcontracted, and to what firms, if known.
- (5) List of key material suppliers.
- (6) Preliminary bar chart time schedule
- (7) Contractor's expected means of financing the project. This should be based on the assumption that the contractor is required to finance 2X average monthly billings throughout the contract period.
- (8) Any other issues the contractor sees as impacting his ability to complete the project according to the contract.

In addition to the information described in Sections (A) through (D) above, the bidder shall submit such additional information as the Commissioner may require, including without limitation, an explanation or justification for specific unit price items.

The bidder is further advised that it may be required to attend a pre-award meeting with DDC representatives. If such a meeting is convened, the bidder will be advised as to any additional material to be provided.

**A. PROJECT REFERENCES – SIMILAR CONTRACTS COMPLETED BY THE BIDDER**

List all contracts substantially completed within the last 4 years similar to the contract being awarded, up to a maximum of 10, in descending order of date of substantial completion.

Project & Location	Contract Type	Contract Amount (\$000)	Date Completed	Owner Reference & Tel. No.	Architect/Engineer Reference & Tel. No. if different from owner

**B. PROJECT REFERENCES – CONTRACTS CURRENTLY UNDER CONSTRUCTION BY THE BIDDER**

List all contracts currently under construction even if they are not similar to the contract being awarded.

Project & Location	Contract Type	Contract Amount (\$000)	Subcontracted to Others (\$000)	Uncompleted Portion (\$000)	Date Scheduled to Complete	Owner Reference & Tel. No.	Architect/Engineer Reference & Tel. No. if different from owner

**C. PROJECT REFERENCES – PENDING CONTRACTS NOT YET STARTED BY THE BIDDER**

List all contracts awarded to or won by the bidder but not yet started.

Project & Location	Contract Type	Contract Amount (\$000)	Date Scheduled to Start	Owner Reference & Tel. No.	Architect/Engineer Reference & Tel. No. if different from owner

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**OFFICE OF THE MAYOR  
BUREAU OF LABOR SERVICES  
CONTRACT CERTIFICATE**

To be completed if the contract is less than \$1,000,000

Contractor: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Telephone Number: \_\_\_\_\_

Name and Title of Signatory: \_\_\_\_\_  
\_\_\_\_\_

Contracting Agency or Owner: \_\_\_\_\_

Project Number: \_\_\_\_\_

Proposed Contract Amount: \_\_\_\_\_

Description and Address of Proposed Contract: \_\_\_\_\_

Names of Subcontractors in the amount of 750,000 or more on this contract (if not known at this time, so state indicating that trades will be subcontracted):  
\_\_\_\_\_  
\_\_\_\_\_

I, (fill in name of person signing) \_\_\_\_\_,  
hereby affirm that I am authorized by the above-named contractor to certify that said contractor's proposed contract with the above-named owner or city agency is less than \$1,000,000. This affirmation is made in accordance with Executive Order No. 50 (1980) as amended and its implementing regulations.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

**WILLFUL OR FRAUDULENT FALSIFICATION OF ANY DATA OR INFORMATION SUBMITTED HEREWITH MAY RESULT IN THE TERMINATION OF ANY CONTRACT BETWEEN THE CITY AND THE BIDDER OR CONTRACTOR AND BAR THE BIDDER OR CONTRACTOR FROM PARTICIPATION IN ANY CITY CONTRACT FOR A PERIOD OF UP TO THREE YEARS. FURTHER, SUCH FALSIFICATION MAY RESULT IN CRIMINAL PROSECUTION.**

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## VENDEX COMPLIANCE

(A) **Vendex Fees:** Pursuant to Procurement Policy Board Rule 2-08(f)(2), the contractor will be charged a fee for the administration of the VENDEX system, including the Vendor Name Check process, if a Vendor Name Check review is required to be conducted by the Department of Investigation. The contractor shall also be required to pay the applicable required fees for any of its subcontractors for which Vendor Name Check reviews are required. The fee(s) will be deducted from payments made to the contractor under the contract. For contracts with an estimated value of less than or equal to \$1,000,000, the fee will be \$175 per Vendor Name Check review. For contracts with an estimated value of greater than \$1,000,000, the fee will be \$350 per Vendor Name Check review.

(B) **Confirmation of Vendex Compliance:** The Bidder shall submit this Confirmation of Vendex Compliance to the Department of Design and Construction, Contracts Section, 30-30 Thomson Avenue – First Floor, Long Island City, NY 11101.

**Bid Information:** The Bidder shall complete the bid information set forth below.

Name of Bidder: \_\_\_\_\_  
Bidder's Address: \_\_\_\_\_  
Bidder's Telephone Number: \_\_\_\_\_  
Bidder's Fax Number: \_\_\_\_\_  
Date of Bid Opening: \_\_\_\_\_  
Project ID: \_\_\_\_\_

**Vendex Compliance:** To demonstrate compliance with Vendex requirements, the Bidder shall complete either Section (1) or Section (2) below, whichever applies.

(1) **Submission of Vendex Questionnaires to MOCS:** By signing in the space provided below, the Bidder certifies that as of the date specified below, the Bidder has submitted Vendex Questionnaires to the Mayor's Office of Contract Services, Attn: VENDEX, 253 Broadway, 9<sup>th</sup> Floor, New York, New York 10007.

Date of Submission: \_\_\_\_\_

By: \_\_\_\_\_  
(Signature of Partner or corporate officer)

Print Name: \_\_\_\_\_

(2) **Submission of Certification of No Change to DDC:** By signing in the space provided below, the Bidder certifies that it has read the instructions in a "Vendor's Guide to Vendex" and that such instructions do not require the Bidder to submit Vendex Questionnaires. The Bidder has completed **TWO ORIGINALS** of the Certification of No Change set forth on the next page of this Bid Booklet.

By: \_\_\_\_\_  
(Signature of Partner or corporate officer)

Print Name: \_\_\_\_\_

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**DIRECTIONS:** Please execute two originals (both with original signature).  
Please forward directly to the agency (not M.O.C.S.).



## Certificate of No Change Form

- Please submit two completed forms. Copies will not be accepted.
- Please send both copies to the agency that requested it, unless you are advised to send it directly to the Mayor's Office of Contract Services (MOCS).
- A materially false statement willfully or fraudulently made in connection with this certification, and/or the failure to conduct appropriate due diligence in verifying the information that is the subject of this certification, may result in rendering the submitting entity non-responsible for the purpose of contract award.
- A materially false statement willfully or fraudulently made in connection with this certification may subject the person making the false statement to criminal charges

I, \_\_\_\_\_, being duly sworn, state that I have read  
*Enter Your Name*

and understand all the items contained in the vendor questionnaire and any submission of change as identified on page one of this form and certify that as of this date, these items have not changed. I further certify that, to the best of my knowledge, information and belief, those answers are full, complete, and accurate; and that, to the best of my knowledge, information, and belief, those answers continue to be full, complete, and accurate.

In addition, I further certify on behalf of the submitting vendor that the information contained in the principal questionnaire(s) and any submission of change identified on page two of this form have not changed and have been verified and continue, to the best of my knowledge, to be full, complete and accurate.

I understand that the City of New York will rely on the information supplied in this certification as additional inducement to enter into a contract with the submitting entity.

### **Vendor Questionnaire** *This section is required.*

*This refers to the vendor questionnaire(s) submitted for the vendor doing business with the City.*

Name of Submitting Entity: \_\_\_\_\_

Vendor's Address: \_\_\_\_\_

Vendor's EIN or TIN: \_\_\_\_\_ Requesting Agency: \_\_\_\_\_

Are you submitting this Certification as a parent? (Please circle one)      Yes      No

Signature date on the last full vendor questionnaire signed for the submitting vendor: \_\_\_\_\_

Signature date on change submission for the submitting vendor: \_\_\_\_\_

# Principal Questionnaire

*This section refers to the most recent principal questionnaire submissions.*



Principal Name	Date of signature on last full Principal Questionnaire	Date(s) of signature on submission of change
1		
2		
3		
4		
5		
6		

Check if additional changes were submitted and attach a document with the date of additional submissions.

## Certification *This section is required.*

*This form must be signed and notarized. Please complete this twice. Copies will not be accepted.*

### Certified By:

\_\_\_\_\_  
*Name (Print)*

\_\_\_\_\_  
*Title*

\_\_\_\_\_  
*Name of Submitting Entity*

\_\_\_\_\_  
*Signature*

\_\_\_\_\_  
*Date*

### Notarized By:

\_\_\_\_\_  
*Notary Public*

\_\_\_\_\_  
*County License Issued*

\_\_\_\_\_  
*License Number*

Sworn to before me on: \_\_\_\_\_  
*Date*

**DIRECTIONS:** Please execute two originals (both with original signature).  
Please forward directly to the agency (not M.O.C.S.).



## Certificate of No Change Form

- Please submit two completed forms. Copies will not be accepted.
- Please send both copies to the agency that requested it, unless you are advised to send it directly to the Mayor's Office of Contract Services (MOCS).
- A materially false statement willfully or fraudulently made in connection with this certification, and/or the failure to conduct appropriate due diligence in verifying the information that is the subject of this certification, may result in rendering the submitting entity non-responsible for the purpose of contract award.
- A materially false statement willfully or fraudulently made in connection with this certification may subject the person making the false statement to criminal charges

I, \_\_\_\_\_, being duly sworn, state that I have read  
*Enter Your Name*

and understand all the items contained in the vendor questionnaire and any submission of change as identified on page one of this form and certify that as of this date, these items have not changed. I further certify that, to the best of my knowledge, information and belief, those answers are full, complete, and accurate; and that, to the best of my knowledge, information, and belief, those answers continue to be full, complete, and accurate.

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I understand that the City of New York will rely on the information supplied in this certification as additional inducement to enter into a contract with the submitting entity.

### **Vendor Questionnaire** *This section is required.*

*This refers to the vendor questionnaire(s) submitted for the vendor doing business with the City.*

Name of Submitting Entity: \_\_\_\_\_

Vendor's Address: \_\_\_\_\_

Vendor's EIN or TIN: \_\_\_\_\_ Requesting Agency: \_\_\_\_\_

Are you submitting this Certification as a parent? (Please circle one)      Yes      No

Signature date on the last full vendor questionnaire signed for the submitting vendor: \_\_\_\_\_

Signature date on change submission for the submitting vendor: \_\_\_\_\_

# Principal Questionnaire

*This section refers to the most recent principal questionnaire submissions.*



Principal Name	Date of signature on last full Principal Questionnaire	Date(s) of signature on submission of change
1		
2		
3		
4		
5		
6		

Check if additional changes were submitted and attach a document with the date of additional submissions.

## **Certification** *This section is required.*

*This form must be signed and notarized. Please complete this twice. Copies will not be accepted.*

**Certified By:**

\_\_\_\_\_  
*Name (Print)*

\_\_\_\_\_  
*Title*

\_\_\_\_\_  
*Name of Submitting Entity*

\_\_\_\_\_  
*Signature*

\_\_\_\_\_  
*Date*

**Notarized By:**

\_\_\_\_\_  
*Notary Public*

\_\_\_\_\_  
*County License Issued*

\_\_\_\_\_  
*License Number*

Sworn to before me on: \_\_\_\_\_  
*Date*

**IRAN DIVESTMENT ACT COMPLIANCE RIDER  
FOR NEW YORK CITY CONTRACTORS**

The Iran Divestment Act of 2012, effective as of April 12, 2012, is codified at State Finance Law (“SFL”) §165-a and General Municipal Law (“GML”) §103-g. The Iran Divestment Act, with certain exceptions, prohibits municipalities, including the City, from entering into contracts with persons engaged in investment activities in the energy sector of Iran. Pursuant to the terms set forth in SFL §165-a and GML §103-g, a person engages in investment activities in the energy sector of Iran if:

- (a) The person provides goods or services of twenty million dollars or more in the energy sector of Iran, including a person that provides oil or liquefied natural gas tankers, or products used to construct or maintain pipelines used to transport oil or liquefied natural gas, for the energy sector of Iran; or
- (b) The person is a financial institution that extends twenty million dollars or more in credit to another person, for forty-five days or more, if that person will use the credit to provide goods or services in the energy sector in Iran and is identified on a list created pursuant to paragraph (b) of subdivision three of Section 165-a of the State Finance Law and maintained by the Commissioner of the Office of General Services.

A bid or proposal shall not be considered for award nor shall any award be made where the bidder or proposer fails to submit a signed and verified bidder’s certification.

Each bidder or proposer must certify that it is not on the list of entities engaged in investment activities in Iran created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the State Finance Law. In any case where the bidder or proposer cannot certify that they are not on such list, the bidder or proposer shall so state and shall furnish with the bid or proposal a signed statement which sets forth in detail the reasons why such statement cannot be made. The City of New York may award a bid to a bidder who cannot make the certification on a case by case basis if:

- (1) The investment activities in Iran were made before the effective date of this section (i.e., April 12, 2012), the investment activities in Iran have not been expanded or renewed after the effective date of this section and the person has adopted, publicized and is implementing a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran: or
- (2) The City makes a determination that the goods or services are necessary for the City to perform its functions and that, absent such an exemption, the City would be unable to obtain the goods or services for which the contract is offered. Such determination shall be made in writing and shall be a public document.

**BIDDER'S CERTIFICATION OF COMPLIANCE WITH  
IRAN DIVESTMENT ACT**

Pursuant to General Municipal Law §103-g, which generally prohibits the City from entering into contracts with persons engaged in investment activities in the energy sector of Iran, the bidder/proposer submits the following certification:

*[Please Check One]*

**BIDDER'S CERTIFICATION**

- By submission of this bid or proposal, each bidder/proposer and each person signing on behalf of any bidder/proposer certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief, that each bidder/proposer is not on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the State Finance Law.
- I am unable to certify that my name and the name of the bidder/proposer does not appear on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the State Finance Law. I have attached a signed statement setting forth in detail why I cannot so certify.

Dated: \_\_\_\_\_, New York  
\_\_\_\_\_, 20\_\_

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
PRINTED NAME

\_\_\_\_\_  
TITLE

Sworn to before me this  
\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_

\_\_\_\_\_  
Notary Public

Dated:



**CITY OF NEW YORK**

**DIVISION OF LABOR SERVICES**

**CONSTRUCTION EMPLOYMENT REPORT**

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The City of New York Department of Small Business Services  
Division of Labor Services Contract Compliance Unit  
110 William Street, New York, New York 10038  
Phone: (212) 513 - 6323  
Fax: (212) 618-8879

**CONSTRUCTION EMPLOYMENT REPORT**

**GENERAL INFORMATION**

1. Your contractual relationship in this contract is: Prime contractor  Subcontractor
- 1a. Are M/WBE goals attached to this project? Yes  No
2. Please check one of the following if your firm would like information on how to certify with the City of New York as a:
- Minority Owned Business Enterprise  Locally Based Business Enterprise  
 Women Owned Business Enterprise  Emerging Business Enterprise  
 Disadvantaged Business Enterprise
- 2a. If you are certified as an **MBE, WBE, LBE, EBE** or **DBE**, what city/state agency are you certified with? \_\_\_\_\_ Are you DBE certified? Yes  No
3. Please indicate if you would like assistance from SBS in identifying certified M/WBEs for contracting opportunities: Yes  No
4. Is this project subject to a project labor agreement? Yes  No
5. Are you a Union contractor? Yes  No  If yes, please list which local(s) you affiliated with \_\_\_\_\_
6. Are you a Veteran owned company? Yes  No

**PART I: CONTRACTOR/SUBCONTRACTOR INFORMATION**

7. \_\_\_\_\_  
Employer Identification Number or Federal Tax I.D. Email Address
8. \_\_\_\_\_  
Company Name
9. \_\_\_\_\_  
Company Address and Zip Code
10. \_\_\_\_\_  
Chief Operating Officer Telephone Number
11. \_\_\_\_\_  
Designated Equal Opportunity Compliance Officer Telephone Number  
(If same as Item #10, write "same")
12. \_\_\_\_\_  
Name of Prime Contractor and Contact Person  
(If same as Item #8, write "same")

13. Number of employees in your company: \_\_\_\_\_

14. Contract information:

(a) \_\_\_\_\_ (b) \_\_\_\_\_  
Contracting Agency (City Agency) Contract Amount

(c) \_\_\_\_\_ (d) \_\_\_\_\_  
Procurement Identification Number (PIN) Contract Registration Number (CT#)

(e) \_\_\_\_\_ (f) \_\_\_\_\_  
Projected Commencement Date Projected Completion Date

(g) Description and location of proposed contract:  
\_\_\_\_\_  
\_\_\_\_\_

15. Has your firm been reviewed by the Division of Labor Services (DLS) within the past 36 months and issued a Certificate of Approval? Yes \_\_\_ No \_\_\_

If yes, attach a copy of certificate.

16. Has DLS within the past month reviewed an Employment Report submission for your company and issued a Conditional Certificate of Approval? Yes \_\_\_ No \_\_\_

If yes, attach a copy of certificate.

**NOTE: DLS WILL NOT ISSUE A CONTINUED CERTIFICATE OF APPROVAL IN CONNECTION WITH THIS CONTRACT UNLESS THE REQUIRED CORRECTIVE ACTIONS IN PRIOR CONDITIONAL CERTIFICATES OF APPROVAL HAVE BEEN TAKEN.**

17. Has an Employment Report already been submitted for a different contract (not covered by this Employment Report) for which you have not yet received compliance certificate? Yes \_\_\_ No \_\_\_ If yes,

Date submitted: \_\_\_\_\_

Agency to which submitted: \_\_\_\_\_

Name of Agency Person: \_\_\_\_\_

Contract No: \_\_\_\_\_

Telephone: \_\_\_\_\_

18. Has your company in the past 36 months been audited by the United States Department of Labor, Office of Federal Contract Compliance Programs (OFCCP)? Yes \_\_\_ No \_\_\_

If yes,

(a) Name and address of OFCCP office.

\_\_\_\_\_  
\_\_\_\_\_

(b) Was a Certificate of Equal Employment Compliance issued within the past 36 months?

Yes \_\_\_ No \_\_\_

If yes, attach a copy of such certificate.

(c) Were any corrective actions required or agreed to? Yes \_\_\_ No \_\_\_

If yes, attach a copy of such requirements or agreements.

(d) Were any deficiencies found? Yes \_\_\_ No \_\_\_

If yes, attach a copy of such findings.

19. Is your company or its affiliates a member or members of an employers' trade association which is responsible for negotiating collective bargaining agreements (CBA) which affect construction site hiring? Yes \_\_\_ No \_\_\_

If yes, attach a list of such associations and all applicable CBA's.

## PART II: DOCUMENTS REQUIRED

20. For the following policies or practices, attach the relevant documents (e.g., printed booklets, brochures, manuals, memoranda, etc.). If the policy(ies) are unwritten, attach a full explanation of the practices. See instructions.

- \_\_\_ (a) Health benefit coverage/description(s) for all management, nonunion and union employees (whether company or union administered)
- \_\_\_ (b) Disability, life, other insurance coverage/description
- \_\_\_ (c) Employee Policy/Handbook
- \_\_\_ (d) Personnel Policy/Manual
- \_\_\_ (e) Supervisor's Policy/Manual
- \_\_\_ (f) Pension plan or 401k coverage/description for all management, nonunion and union employees, whether company or union administered
- \_\_\_ (g) Collective bargaining agreement(s).
- \_\_\_ (h) Employment Application(s)
- \_\_\_ (i) Employee evaluation policy/form(s).
- \_\_\_ (j) Does your firm have medical and/or non-medical (i.e. education, military, personal, pregnancy, child care) leave policy?

21. To comply with the Immigration Reform and Control Act of 1986 when and of whom does your firm require the completion of an I-9 Form?

- (a) Prior to job offer Yes\_\_\_ No\_\_\_
- (b) After a conditional job offer Yes\_\_\_ No\_\_\_
- (c) After a job offer Yes\_\_\_ No\_\_\_
- (d) Within the first three days on the job Yes\_\_\_ No\_\_\_
- (e) To some applicants Yes\_\_\_ No\_\_\_
- (f) To all applicants Yes\_\_\_ No\_\_\_
- (g) To some employees Yes\_\_\_ No\_\_\_
- (h) To all employees Yes\_\_\_ No\_\_\_

22. Explain where and how completed I-9 Forms, with their supportive documentation, are maintained and made accessible.

\_\_\_\_\_

\_\_\_\_\_

23. Does your firm or any of its collective bargaining agreements require job applicants to take a medical examination? Yes\_\_\_ No\_\_\_

If yes, is the medical examination given:

- (a) Prior to a job offer Yes\_\_\_ No\_\_\_
- (b) After a conditional job offer Yes\_\_\_ No\_\_\_
- (c) After a job offer Yes\_\_\_ No\_\_\_
- (d) To all applicants Yes\_\_\_ No\_\_\_
- (e) Only to some applicants Yes\_\_\_ No\_\_\_

If yes, list for which applicants below and attach copies of all medical examination or questionnaire forms and instructions utilized for these examinations.

\_\_\_\_\_

\_\_\_\_\_

24. Do you have a written equal employment opportunity (EEO) policy? Yes\_\_\_ No\_\_\_

If yes, list the document(s) and page number(s) where these written policies are located.

\_\_\_\_\_

\_\_\_\_\_

25. Does the company have a current affirmative action plan(s) (AAP)

- \_\_\_ Minorities and Women
- \_\_\_ Individuals with handicaps
- \_\_\_ Other. Please specify \_\_\_\_\_

26. Does your firm or collective bargaining agreement(s) have an internal grievance procedure with respect to EEO complaints? Yes\_\_\_ No\_\_\_

If yes, please attach a copy of this policy.

If no, attach a report detailing your firm's unwritten procedure for handling EEO complaints.

27. Has any employee, within the past three years, filed a complaint pursuant to an internal grievance procedure or with any official of your firm with respect to equal employment opportunity? Yes\_\_\_ No\_\_\_

If yes, attach an internal complaint log. See instructions.

28. Has your firm, within the past three years, been named as a defendant (or respondent) in any administrative or judicial action where the complainant (plaintiff) alleged violation of any anti-discrimination or affirmative action laws? Yes\_\_\_ No\_\_\_

If yes, attach a log. See instructions.

29. Are there any jobs for which there are physical qualifications? Yes\_\_\_ No\_\_\_

If yes, list the job(s), submit a job description and state the reason(s) for the qualification(s).

---

---

30. Are there any jobs for which there are age, race, color, national origin, sex, creed, disability, marital status, sexual orientation, or citizenship qualifications? Yes\_\_\_ No\_\_\_

If yes, list the job(s), submit a job description and state the reason(s) for the qualification(s).

---

---

**SIGNATURE PAGE**

I, (print name of authorized official signing) \_\_\_\_\_ hereby certify that the information submitted herewith is true and complete to the best of my knowledge and belief and submitted with the understanding that compliance with New York City's equal employment requirements, as contained in Chapter 56 of the City Charter, Executive Order No. 50 (1980), as amended, and the implementing Rules and Regulations, is a contractual obligation. I also agree on behalf of the company to submit a certified copy of payroll records to the Division of Labor Services on a monthly basis.

\_\_\_\_\_  
Contractor's Name

\_\_\_\_\_  
Name of person who prepared this Employment Report Title

\_\_\_\_\_  
Name of official authorized to sign on behalf of the contractor Title

\_\_\_\_\_  
Telephone Number

\_\_\_\_\_  
Signature of authorized official Date

If contractors are found to be underutilizing minorities and females in any given trade based on Chapter 56 Section 3H, the Division of Labor Services reserves the right to request the contractor's workforce data and to implement an employment program.

Contractors who fail to comply with the above mentioned requirements or are found to be in noncompliance may be subject to the withholding of final payment.

Willful or fraudulent falsifications of any data or information submitted herewith may result in the termination of the contract between the City and the bidder or contractor and in disapproval of future contracts for a period of up to five years. Further, such falsification may result in civil and/or criminal prosecution.

To the extent permitted by law and consistent with the proper discharge of DLS' responsibilities under Charter Chapter 56 of the City Charter and Executive Order No. 50 (1980) and the implementing Rules and Regulations, all information provided by a contractor to DLS shall be confidential.

**Only original signatures accepted.**

Sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_\_

\_\_\_\_\_  
Notary Public Authorized Signature Date



**FORM A. CONTRACT BID INFORMATION: USE OF SUBCONTRACTORS/TRADES**

1. Do you plan to subcontract work on this contract? Yes \_\_\_ No \_\_\_
2. If yes, complete the chart below.

**NOTE: All proposed subcontractors with a subcontract in excess of \$750,000 must complete an Employment Report for review and approval before the contract may be awarded and work commences.**

SUBCONTRACTOR'S NAME*	OWNERSHIP (ENTER APPROPRIATE CODE LETTERS BELOW)	WORK TO BE PERFORMED BY SUBCONTRACTOR	TRADE PROJECTED FOR USE BY SUBCONTRACTOR	PROJECTED DOLLAR VALUE OF SUBCONTRACT

**\*If subcontractor is presently unknown, please enter the trade (craft name).**

**OWNERSHIP CODES**

- W: White
- B: Black
- H: Hispanic
- A: Asian
- N: Native American
- F: Female

**FORM B: PROJECTED WORKFORCE**

**TRADE CLASSIFICATION CODES**

- (J) Journeylevel Workers
- (H) Helper
- (A) Apprentice
- (TRN) Trainee
- (TOT) Total by Column

For each trade to be engaged by your company for this project, enter the projected workforce for Males and Females by trade classification on the charts below.

Trade:	MALES					FEMALES				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	White Non Hisp.	Black Non Hisp.	Hisp.	Asian	Native Amer.	White Non Hisp.	Black Non Hisp.	Hisp.	Asian	Native Amer.
J										
H										
A										
TRN										
TOT										

Total (Col. #1-10):

Total Minority, Male & Female  
(Col. #2,3,4,5,7,8,9, & 10):

Total Female  
(Col. #6 - 10):

What are the recruitment sources for you projected hires (i.e., unions, government employment office, job tap center, community outreach)?

**FORM B: PROJECTED WORKFORCE**

**MALES**

**FEMALES**

Trade: \_\_\_\_\_

Union Affiliation, if applicable \_\_\_\_\_

Total (Col. #1-10): \_\_\_\_\_

Total Minority, Male & Female  
(Col. #2,3,4,5,7,8,9, & 10): \_\_\_\_\_

Total Female  
(Col. #6 - 10): \_\_\_\_\_

	MALES			FEMALES						
	(1) White Non Hisp.	(2) Black Non Hisp.	(3) Hisp.	(4) Asian	(5) Native Amer.	(6) White Non Hisp.	(7) Black Non Hisp.	(8) Hisp.	(9) Asian	(10) Native Amer.
J										
H										
A										
TRN										
TOT										

What are the recruitment sources for you projected hires (i.e., unions, government employment office, job tap center, community outreach)?

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**FORM C: CURRENT WORKFORCE**

**TRADE CLASSIFICATION CODES**

- (J) Journeylevel Workers
- (H) Helper
- (A) Apprentice
- (TRN) Trainee
- (TOT) Total by Column

For each trade currently engaged by your company for all work performed in New York City, enter the current workforce for Males and Females by trade classification on the charts below.

Trade:	MALES						FEMALES			
	(1) White Non Hisp.	(2) Black Non Hisp.	(3) Hisp.	(4) Asian	(5) Native Amer.	(6) White Non Hisp.	(7) Black Non Hisp.	(8) Hisp.	(9) Asian	(10) Native Amer.
Union Affiliation, if applicable										
Total (Col. #1-10):										
Total Minority, Male & Female (Col. #2,3,4,5,7,8,9, & 10):										
Total Female (Col. #6 - 10):										
J										
H										
A										
TRN										
TOT										

What are the recruitment sources for you projected hires (i.e., unions, government employment office, job tap center, community outreach)?

**FORM C: CURRENT WORKFORCE**

Trade: \_\_\_\_\_

Union Affiliation, if applicable \_\_\_\_\_

Total (Col. #1-10): \_\_\_\_\_

Total Minority, Male & Female  
(Col. #2,3,4,5,7,8,9, & 10): \_\_\_\_\_

Total Female  
(Col. #6 - 10): \_\_\_\_\_

**MALES**

(1) White Non Hisp.	(2) Black Non Hisp.	(3) Hisp.	(4) Asian	(5) Native Amer.

J

H

A

TRN

TOT

**FEMALES**

(6) White Non Hisp.	(7) Black Non Hisp.	(8) Hisp.	(9) Asian	(10) Native Amer.

What are the recruitment sources for you projected hires (i.e., unions, government employment office, job tap center, community outreach)?

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FMS ID: HH112BLEL



**THE CITY OF NEW YORK  
DEPARTMENT OF DESIGN AND CONSTRUCTION  
DIVISION OF PUBLIC BUILDINGS**

30-30 THOMSON AVENUE                      LONG ISLAND CITY, NEW YORK 11101-3045  
TELEPHONE (718) 391-1000                  WEBSITE [www.nyc.gov/buildnyc](http://www.nyc.gov/buildnyc)

**Contract for Furnishing all Labor and Material Necessary and Required for:**

**CONTRACT NO. 1            GENERAL CONSTRUCTION WORK**

**Bellevue Men's Shelter Elevator  
Rehabilitation**

**LOCATION:                      400 East 30th Street  
BOROUGH:                    Manhattan 10016  
CITY OF NEW YORK**

Five Star Contracting Companies, Inc.  
Contractor

Dated \_\_\_\_\_, 20\_\_\_\_

Entered in the Comptroller's Office

\_\_\_\_\_  
First Assistant Bookkeeper

Dated \_\_\_\_\_, 20\_\_\_\_







**PROJECT ID:**

**HH112BLEL**

**THE CITY OF NEW YORK  
DEPARTMENT OF DESIGN AND CONSTRUCTION  
DIVISION OF PUBLIC BUILDINGS**

30-30 THOMSON AVENUE  
LONG ISLAND CITY, NEW YORK 11101-3045  
TELEPHONE (718) 391-1000  
WEBSITE [www.nyc.gov/buildnyc](http://www.nyc.gov/buildnyc)

**VOLUME 2 OF 3**

**PROJECT LABOR AGREEMENT  
INFORMATION FOR BIDDERS  
CONTRACT  
PERFORMANCE AND PAYMENT BONDS  
SCHEDULE OF PREVAILING WAGES  
GENERAL CONDITIONS**

FOR FURNISHING ALL LABOR AND MATERIALS  
NECESSARY AND REQUIRED FOR THE PROJECT

**Bellevue Men's Shelter Elevator  
Rehabilitation**

**LOCATION:  
BOROUGH:  
CITY OF NEW YORK**

**400 East 30th Street  
Manhattan 10016**

**CONTRACT NO. 1**

**GENERAL CONSTRUCTION WORK**

**Dept of Homeless Services**

**WSP Group**

**Date: January 12, 2015**



**5-1-15**





NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

**THE CITY OF NEW YORK  
DEPARTMENT OF DESIGN AND CONSTRUCTION  
DIVISION OF PUBLIC BUILDINGS**

30-30 THOMSON AVENUE  
LONG ISLAND CITY, NEW YORK 11101-3045  
TELEPHONE (718) 391-1000  
WEBSITE [www.nyc.gov/buildnyc](http://www.nyc.gov/buildnyc)

**VOLUME 2 OF 3**

**PROJECT LABOR AGREEMENT  
INFORMATION FOR BIDDERS  
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FOR FURNISHING ALL LABOR AND MATERIALS  
NECESSARY AND REQUIRED FOR THE PROJECT





# NOTICE TO BIDDERS

Please be advised the Project Labor Agreement (PLA) attached and incorporated in this Invitation for Bids has been extended to apply to contracts let prior to March 15, 2015, including this contract. Other than extending the expiration date, all other terms of the PLA continue to apply in full force and effect.

## NOTICE:

### THIS CONTRACT IS NOT SUBJECT TO THE REQUIREMENTS OF THE WICKS LAW FOR SEPARATE PRIME CONTRACTORS

This contract is subject to a Project Labor Agreement ("PLA"). In accordance with the Labor Law, the requirements of the Wicks Law for separate prime contractors do not apply to any project that is covered by a PLA. Accordingly, the requirements of the Wicks Law for separate prime contractors do not apply to this Project. However, the Contract Documents for this Project (General Conditions, Drawings and Specifications) were prepared as if the requirements of the Wicks Law for separate prime contractors did apply. To correct this situation, the bidder is advised that the Contract Documents are revised as set forth below.

- (A) Delete any and all references to separate responsibilities, separate specifications, separate drawings and/or separate contracts for the four subdivisions of the work listed below:
- General Construction Work (Contract No. 1)
  - Plumbing Work (Contract No. 2)
  - HVAC & Fire Protection Work (Contract No. 3)
  - Electrical Work (Contract No. 4)
- (B) Revise all such references to indicate that:
- The Project consists of a single contract, the Contract for General Construction Work.
  - All responsibilities and obligations in the Contract Documents assigned to the separate Contractors for the four subdivisions of the work listed above are the responsibility of the Contractor for General Construction Work.
  - The Contractor for General Construction Work is responsible for the performance of all required work for the Project as set forth in the Contract Documents, including all responsibilities and obligations assigned to the separate Contractors for the four subdivisions of the work listed above.
- (C) Revise any and all references to Contracts Nos. 2, 3 and 4 to refer to Contract No. 1.
- (D) Revise the specifications for plumbing work to require Contractor for General Construction Work to engage a Licensed Plumber to perform the required plumbing work.
- (E) Revise the specifications for electrical work to require Contractor for General Construction Work to engage a Licensed Electrician to perform the required electrical work.

## NOTICE:

# THIS CONTRACT IS SUBJECT TO A PROJECT LABOR AGREEMENT

This contract is subject to the attached Project Labor Agreement ("PLA") entered into between the City and the Building and Construction Trades Council of Greater New York ("BCTC") affiliated Local Unions. By submitting a bid, the Contractor agrees that if awarded the Contract the PLA is binding on the Contractor and all subcontractors of all tiers. The bidder to be awarded the contract will be required to execute the attached Letter of Assent prior to award. Contractor shall include in any subcontract a requirement that the subcontractor, and sub-subcontractors of all tiers, become signatory to and bound to the PLA with respect to the subcontracted work. Contractor will also be required to have all subcontractors of all tiers execute the attached Letter of Assent prior to such subcontractors performing any work on the Project. Bidders are advised that the City of New York and City agencies have entered into multiple PLAs. The terms of each PLA, while similar, are not identical. All bidders should carefully read the entire PLA that governs this Contract.

To the extent that the terms of the PLA conflict with any other terms of the invitation for bids, including the Standard Construction Contract, the terms of the PLA shall govern. For example, the PLA section that authorizes the scheduling of a four-day work, ten hours per day on straight time at the commencement of the job, PLA Article 12, section 1, overrides the Standard Construction Contract's provision concerning a five-day work week with a maximum of eight hours in a day, Standard Construction Contract Article 37.2.1. Where, however, the invitation for bids, including the Standard Construction Contract, requires the approval of the City/Department, the PLA does not supersede or eliminate that requirement.

In addition to the various provisions regarding work rules, Contractors should take special note of the requirement that Contractors and Subcontractors make payments to designated employee benefit funds. See PLA Article 11, Section 2. The PLA also contains provisions for what occurs when a contractor or a subcontractor fails to make required payments into the benefit funds, including potentially the direct payment by the City to the benefit fund of monies owed and corresponding withholding of payments to the Contractor. See PLA Article 11, Section 2. The City strongly advises Contractors to read these provisions carefully and to include appropriate provisions in subcontracts addressing these possibilities.

This Contract is subject to the apprenticeship requirements of Labor Law §222 and to apprenticeship requirements established by the Department pursuant to Labor Law §816-b. Please be advised that the involved trades have apprenticeship programs that meet the statutory requirements of Labor Law 222(e) and the requirements set by the Department pursuant to Labor Law §816-b, contractors and subcontractors who agree to perform the Work pursuant to the PLA are participating in such apprenticeship programs within the meaning of Labor Law §222(e) and the Department's directive.

If this Contract is subject to the Minority-Owned and Women-Owned Business Enterprise ("M/WBE") program created by Local Law 129, the specific requirements of M/WBE participation for this Contract are set forth in Schedule B entitled the "Subcontractor Utilization Plan", and are detailed in a separate Notice to Prospective Contractors included with this bid package. If such requirements are included with this Contract, the City strongly advises Contractors to read those provisions, as well as PLA Article 4, Section 2(C), carefully. A list of M/WBE firms may be obtained from the DSBS website at [www.nyc.gov/buycertified](http://www.nyc.gov/buycertified), by emailing DSBS at [buyer@sbs.nyc.gov](mailto:buyer@sbs.nyc.gov), by calling (212) 513-6356, or by visiting or writing DSBS at 110 William St., New York, New York, 10038, 7th floor. Eligible firms that have not yet been certified may contact DSBS in order to seek certification by visiting [www.nyc.gov/getcertified](http://www.nyc.gov/getcertified), emailing [MWBE@sbs.nyc.gov](mailto:MWBE@sbs.nyc.gov), or calling the DSBS certification helpline at (212) 513-6311.

The local collective bargaining agreements (CBAs) that are incorporated into the PLA as PLA Schedule A Agreements are available on computer disk from the Department's Contract Officer upon the request of any prospective bidder. Please note that the "PLA Schedule A" is distinct from the Department's Schedule A that is a part of this invitation for bids.

A contact list for the participating unions is set forth after the FAQs.

Below are answers to frequently asked questions (FAQs) about this PLA:

**Q1. Does a contractor need to be signatory with the unions in the NYC Building and Construction Trades Council in order to bid on projects under the PLA?**

A. No, any contractor may bid by signing and agreeing to the terms of the PLA. The contractor need not be signatory with these unions by any other labor agreement or for any other project.

**Q2. Does a contractor agreeing to the PLA and signing the Letter of Assent create a labor agreement with these unions outside of the project covered by the PLA?**

A. No, the PLA applies only to those projects that the Contractor agrees to perform under the PLA and makes no labor agreement beyond those projects.

**Q3. Does the PLA affect the subcontractors that a bidder may utilize on the project?**

A. Subject to the Department's approval of subcontractors pursuant to Article 17 of the Standard Construction Contract, a contractor may use any subcontractor, union or non-union, as long as the subcontractor signs and agrees to the terms of the PLA.

**Q4. Are bidders required to submit Letters of Assent signed by proposed subcontractors with their bid in order to be found responsive?**

A. No, bidders do not have to submit signed Letters of Assent from their subcontractors with their bid. Subcontractors, however, will be required to sign the letter of Assent prior to being approved by the Department.

**Q5. May a contractor or subcontractor use any of its existing employees to perform this work?**

A. Generally labor will be referred to the contractor from the respective signatory local unions. See PLA Article 4. However, contractors and subcontractors may continue to use up to 12% of their existing, qualifying labor force for this work, in accordance with the terms of PLA Article 4, Section 2B. Certified MWBEs for which participation goals are set pursuant to NYC Administrative Code §6-129 that are not signatory to any Schedule A CBAs may use their existing employees for the 2<sup>nd</sup>, 4<sup>th</sup>, 6<sup>th</sup> and 8<sup>th</sup> employee needed on the job if their contracts are valued at or under \$500,000. For contracts valued at above \$500,000 but under \$1,000,000, such certified MWBEs may use their own employees for the 2<sup>nd</sup>, 5<sup>th</sup> and 8<sup>th</sup> employees needed on the job in accordance with the provisions of PLA Article 4, Section 2C. If additional workers are needed by these MWBEs, the additional workers will be referred to the contractor from the signatory local unions subject to the contractor's right to meet 12% of the additional needs with its existing, qualifying employees.

**Q6. Must the City set MWBE participation goals for the particular project or contract in order for a certified MWBE to utilize the provisions of PLA Article 4, Section 2C?**

A. No. PLA Article 4, Section 2(C) specifies what categories of MWBEs are eligible to take advantage of this provision (i.e., those MWBEs for which the City is authorized to set participation goals under §6-129). For purposes of section 2(C), it is not necessary for the project to be subject to §6-129 or for the City to have actually set participation goals for the particular contract or project. The result is the same where a projects receives State funding and therefore is subject to the requirements of Article 15-A of the Executive Law.

**Q7. May a contractor bring in union members from locals that are not signatory unions?**

A. Referrals will be from the respective signatory locals and/or locals listed in schedule A of the PLA. Contractors may utilize 'traveler provisions' contained in the local collective bargaining agreements (local CBAs) where such provisions exist and/or in accordance with the provisions of PLA Article 4, Section 2.

**Q8. Does a non-union employee working under the PLA automatically become a union member?**



A. No, the non-union employee does not automatically become a union member by working on a project covered by the PLA. Non-union employees working under the PLA are subject to the union security provisions (i.e., union dues/agency shop fees) of the local CBAs while on the project. These employees will be enrolled in the appropriate benefit plans and earn credit toward various union benefit programs. See PLA Article 4, Section 6 and Article 11.

**Q9. Are all contractors and subcontractors working under the PLA, including non-union contractors and contractors signatory to collective bargaining agreements with locals other than those that are signatories to the PLA, required to make contributions to designated employee benefit funds?**

A. Contractors and subcontractors working under the PLA will be required to contribute on behalf of all employees covered by the PLA to established jointly trustee employee benefit funds designated in the Schedule A CBAs and required to be paid on public works under any applicable prevailing wage law. See PLA Article 11, Section 2. The Agency may withhold from amounts due the contractor any amounts required to be paid, but not actually paid into any such fund by the contractor or a subcontractor. See PLA Article 11, Section 2 C.

**Q10. What happens if a contractor or subcontractor fails to make a required payment to a designated employee benefit fund?**

A. The PLA sets forth a process for unions to address a contractor or a subcontractor's failure to make required payments. The process includes potentially the direct payment by the City to the benefit fund of monies owed and the corresponding withholding of payments to the Contractor. See PLA Article 11, Section 2. The City strongly advises Contractors to read these provisions carefully and to include appropriate provisions in subcontracts addressing these possibilities.

**Q11. Does signing on to the PLA satisfy the Apprenticeship Requirements established for this bid?**

A. Yes. By agreeing to perform the Work subject to the PLA, the bidder demonstrates compliance with the apprenticeship requirements imposed by this invitation for Bids.

**Q12. Does the PLA provide a standard work day across all the signatory trades?**

A. Yes, all signatory trades will work an eight (8) hour day, Monday through Friday with a day shift at straight time as the standard work week. The PLA also permits a contractor to schedule a four day [within Monday through Friday] work week, ten (10) hours per day at straight time if announced at the commencement of the project. See PLA Article 12, Section 1. This is an example where the terms of the PLA override provisions of the Standard Construction Contract (compare with section 37.2 of the Standard Construction Contract).

**Q13. Does the PLA create a common holiday schedule for all the signatory trades?**

A. Yes, the PLA recognizes eight (8) common holidays. See PLA Article 12, Section 4.

**Q14. Does the PLA provide for a standard policy for 'shift work' across all signatory trades?**

A. Yes, second and third shifts may be worked with a standard 5% premium pay. In addition, a day shift does not have to be scheduled in order to work the second and third shifts at the 1.05 hourly pay rate. See PLA Article 12, Section 3.

**Q15. May the Contractor schedule overtime work, including work on a weekend?**

A. Yes, the PLA permits the Contractor to schedule overtime work, including work on the weekends. See PLA Article 12, Sections 2, 3, and 5. To the extent that the Agency's approval is required before a Contractor may schedule or be paid for overtime, that approval is still required notwithstanding the PLA language.

**Q16. Are overtime payments affected by the PLA?**

A. Yes, all overtime pay incurred Monday through Saturday will be at time and one half (1 1/2). There will be no stacking or pyramiding of overtime pay under any circumstances. See PLA Article 12, Section 2. Sunday and holiday overtime will be paid according to each trades CBA.

Q17. Are there special provisions for Saturday work when a day is 'lost' during the week due to weather, power failure or other emergency?

A. Yes, when this occurs the Contractor may schedule Saturday work at weekday rates. See PLA Article 12, Section 5.

Q18. Does the PLA contain special provisions for the manning of Temporary Services?

A. Yes. Where temporary services are required by specific request of the agency or construction manager, they shall be provided by the contractor's existing employees during working hours in which a shift is scheduled for employees of the contractor. The need for temporary services during non-working hours will be determined by the agency or construction manager. There will be no stacking of trades on temporary services. See PLA Article 15.

Q19. What do the workers get paid when work is terminated early in a day due to inclement weather or otherwise cut short of 8 hours?

A. The PLA provides that employees who report to work pursuant to regular schedule and not given work will be paid two hours of straight time. Work terminated early for severe weather or emergency conditions will be paid only for time actually worked. In other instances where work is terminated early, the worker will be paid for a full day. See PLA Article 12, Sections 6 and 8.

Q20. Should a local collective bargaining agreement [local CBA] expire during the project will a work stoppage occur on a project subject to the PLA?

A. No. All the signatory unions are bound by the 'no strike' agreement as to the PLA work. Work will continue under the PLA and the otherwise expired local CBA(s) until the new local CBA(s) are negotiated and in effect. See PLA Articles 7 and 19.

Q21. May a contractor working under the PLA be subject to a strike or other boycott activity by a signatory union at another site while the contractor is a signatory to the PLA?

A. Yes. The PLA applies ONLY to work under the PLA and does not regulate labor relations at other sites even if those sites are in close proximity to PLA work.

Q22. If a contractor has worked under other PLAs in the New York City area, are the provisions in this PLA generally the same as the others?

A. While Project Labor Agreements often look similar to each other, and particular clauses are often used in multiple agreements, each PLA is a unique document and should be examined accordingly.

Q23. What happens if a dispute occurs between the contractor and an employee during the project?

A. The PLA contains a grievance and arbitration process to resolve disputes between the contractor and the employees. See PLA Article 9.

Q24. What happens if there is a dispute between locals as to which local gets to provide employees for a particular project or a particular aspect of a project?

A. The PLA provides for jurisdictional disputes to be resolved in accordance with the NY Plan. See PLA Article 10. A copy of the NY Plan is available upon request from the Department. The PLA provides that work is not to be disrupted or interrupted pending the resolution of any jurisdictional dispute. The work proceeds as assigned by the contractor until the dispute is resolved. See PLA Article 10, Section 3.

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## CONTACT INFORMATION FOR LOCAL UNIONS

### BOILER MAKERS LOCAL NO. 5

24 Van Siclen Avenue  
Floral Park, NY 11001  
Phone: (516) 326-2500  
Fax: (516) 326-3435  
Thomas Klein, Bus. Mgr.  
[boilermakers5@optonline.net](mailto:boilermakers5@optonline.net)

### BLASTERS & DRILLERS LOCAL NO. 29

43-12 Ditmars Blvd.  
Astoria, NY, 11105  
Phone: (718) 278-5800  
Thomas Russo, bus mgr.

### BRICKLAYERS LOCAL NO. 1

Santo Lanzafame (718) 392-0525

### BUILDING TRADES

71 West 23<sup>rd</sup> Street, Suite 501  
New York, NY 10010  
Phone: (212) 647-0700  
Fax: (212) 647-0705  
John Barnett, Chairman

### CARPENTERS DISTRICT COUNCIL

395 Hudson Street  
New York, New York 10014  
Phone: (212) 366-7500  
Fax: (212) 675-3140  
Michael J. Forde, Executive Secy. Treas.  
Peter Thomassen, President  
Denis Sheil, V.P.  
Ronald Rawald, D.C. Rep.  
[carpmik@aol.com](mailto:carpmik@aol.com)

### CEMENT MASONS NO. 780

150-42 12<sup>th</sup> Avenue  
Whitestone, NY 11357  
Phone: (718) 357-3750  
Fax: (718) 357-2057  
Angelo Scagnelli, Bus. Mgr.  
Paul M. Mantia, President  
[Angelolocal780@yahoo.com](mailto:Angelolocal780@yahoo.com)

### CONCRETE WORKERS DISTRICT COUNCIL NO. 16

29-18 35<sup>th</sup> Avenue  
Long Island City, NY 11106  
Phone: (718) 392-5077  
Fax: (718) 392-5087  
Alex Castaldi, Pres. Bus. Mgr.  
[Ccwdc16@yahoo.com](mailto:Ccwdc16@yahoo.com)

### DERRICKMEN AND RIGGERS CONCRETE WORKERS

25-19 43<sup>rd</sup> Avenue  
Long Island City, NY 11101  
Phone: (718) 361-6534

Fax: (718) 361-6584  
Joseph McDonald, Bus. Agent  
[joemaci97@aol.com](mailto:joemaci97@aol.com)

**DRYWALL TAPERS 1974**

265 West 14<sup>th</sup> Street  
New York, NY 10011

Phone: (212) 242-8500

Fax: (212) 242-2356

Joseph Giordano, Bus. Mgr.

Salvatore Marsala, Org.

Maurice Maynard, Org.

Ellior Santiago, Org.

Vincent Calderone, Org.

Ann Juliano Union Sec.

[Local1974@aol.com](mailto:Local1974@aol.com)

**ELECTRICAL LOCAL NO. 3**

158-11 Harry Van Arsdale, Jr. Avenue

Flushing, NY 113656

Phone: (718) 591-4000

Fax: (718) 380-8998

Christopher Erikson, Bus. Mgr.

John E. Marchell, President

Raymond Melville, Asst. Bus. Mgr. Construction

Paul Ryan, Asst. Bus. Mgr. Westchester/Fairfield

Luis Restrepo, Asst. Bus. Mgr.

Mark G. Hansen, Bus. Rep.

Elliot Hecht, Bus. Rep.

Raymond Kitson, Bus. Rep.

Austin McCann, Bus. Rep.

Robert Olenick, Bus. Rep.

Michael O'Neill, Bus. Rep.

Joseph Santigate, Bus. Rep.

Louis Sciara, Bus. Rep.

Lance Van Arsdale, Asst. Bus. Maintenance Division

Ray West, Bus. Rep.

[mail@local3ibew.org](mailto:mail@local3ibew.org)

**ELEVATOR CONSTRUCTORS NO. 1**

47-24 27<sup>th</sup> Avenue

Long Island City, NY 11101

Phone: (718) 767-7004

Fax: (718) 767-6730

Lenny Legotte, Pres. Bus. Mgr.

Thomas Moore, Bus. Agent

Gary Riefenhauser, Bus. Agent

Fred McCourt, Bus. Agent

Robert Stork, Bus. Agent

[llegotte@localoneiuec.com](mailto:llegotte@localoneiuec.com)

[snoble@localoneiuec.com](mailto:snoble@localoneiuec.com)

**ENGINEERS NO. ENGINEERS LOCAL UNION NO. 14**

141-57 Northern Boulevard

Flushing, NY 11354

Phone: (718) 939-0600

Fax: (718) 939-3131

Edwin Christian, Pres. Bus. Mgr.

Christopher Confrey, Bus. Rep. Rec Sec.  
John R. Powers, Bus. Rep. Treas.  
[engineers@iuoelocal14.com](mailto:engineers@iuoelocal14.com)

**ENGINEERS NO. 15, 15A, 15B, 15C, 15D**

265 West 14<sup>th</sup> Street  
New York, NY 10011  
Phone: (212) 929-5327-8-9  
Fax: (212) 206-0357  
James T. Callahan, Pres. & Bus. Mgr.  
Robert G. Shaw, Bus. Rep. & V.P.  
Charles Gambino, Bus. Rep., Fin. Sec.  
Brian S. Kelly, Bus. Rep. & Rec. Sec.  
Daniel Schneider, Bus. Rep. & Treasurer  
Gregg Nolan, Bus. Rep.  
Christopher Thomas, Bus. Rep.  
Bruce Murphy, Director of Training

**ENGINEERS NO. 30**

115-06 Myrtle Avenue  
Richmond Hill, NY 11418  
Phone: (718) 847-8484  
Fax: (718) 850-0524  
John T. Ahern, Bus. Mgr.

**ENGINEERS No. 94**

331-337 West 44<sup>th</sup> Street  
New York, NY 10036  
Phone: (212) 245-7040 Fax: (212) 245-7886  
Kuba Brown, Bus. Mgr. & President  
[kubabrown@local94.com](mailto:kubabrown@local94.com)

**GLAZERS NO. 1281**

45 West 14<sup>th</sup> Street  
New York, NY 10011  
Phone: (212) 924-5200  
Fax: (212) 255-1151  
William Einfeld, Bus. Rep.

**HEAT & FROST INSULATORS AND ASBESTOS WORKERS LOCAL UNION NO. 12**

25-19 43<sup>rd</sup> Avenue  
Long Island City, NY 11101  
Phone: (718) 784-3456  
Fax: (718) 784-8357  
Joseph Lapinski, Bus. Agent  
Nick Grgas, Bus. Agent  
Matthew Aracick, Fin. Sec.  
John Killard, President  
Dennis Ippolito, Bus. Mgr.  
[matty@insulatorslocal12.com](mailto:matty@insulatorslocal12.com)  
[dennis@insulators.org](mailto:dennis@insulators.org)

**HEAT FROST INSULATORS LOCAL UNION NO. 12A**

2110 Newton Avenue  
Astoria, NY 11102  
Phone: (718) 937-3203  
Fax: (718) 482-8722  
Francisco Vega, Bus. Mgr.

**IRON WORKERS DISTRICT**

505 White Plains Road, Suite 200  
Tarrytown, NY 10591  
Phone: (914) 332-4430  
Fax: (914) 332-4431  
Edward J. Walsh, Pres.  
[ironworkdc@aol.com](mailto:ironworkdc@aol.com)

**IRON WORKERS NO. 40**

451 Park Avenue South  
New York, NY 10016  
Phone: (212) 889-1320  
Fax: (212) 779-3267  
Robert Walsh, Bus. Mgr. Fin. Sec.  
Daniel Doyle, Bus. Rep. V.P.  
Kevin O'Rourke, Pres. Bus. Agent

**IRON WORKERS NO. 361**

89-19 97<sup>th</sup> Avenue  
Ozone Park, NY 11416  
Phone: (718) 332-1016-17  
Fax: (718) 322-1053  
Matthew Chartrand, Pres. Bus. Agent  
Richard O'Kane, Bus. Mgr. Fin. Sec.  
Thomas Seaman, President  
Anthony DeBlaisie, Bus. Agent, V.P.  
John Delaney, Jr., Rec. Sec.  
[unionhall@361.com](mailto:unionhall@361.com)

**LABORERS LOCAL NO. 78 ASBESTOS & LEAD ABATEMENT**

30 Cliff Street  
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**PROJECT LABOR AGREEMENT**

**COVERING SPECIFIED**

**RENOVATION & REHABILITATION  
OF CITY OWNED BUILDINGS AND STRUCTURES**

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**PROJECT LABOR AGREEMENT COVERING SPECIFIED  
RENOVATION & REHABILITATION OF NEW YORK CITY OWNED  
FACILITIES & STRUCTURES**

**ARTICLE 1 - PREAMBLE**

WHEREAS, the City of New York desires to provide for the cost efficient, safe, quality, and timely completion of certain rehabilitation and renovation work ("Program Work," as defined in Article 3) for Fiscal Years 2010 - 2014 in a manner designed to afford the lowest costs to the Agencies covered by this Agreement, and the Public it represents, and the advancement of permissible statutory objectives;

WHEREAS, this Project Labor Agreement will foster the achievement of these goals, inter alia, by:

(1) providing a mechanism for responding to the unique construction needs associated with this Program Work and achieving the most cost effective means of construction, including direct labor cost savings, by the Building and Construction Trades Council of Greater New York and Vicinity and the signatory Local Unions and their members waiving various shift and other hourly premiums and other work and pay practices which would otherwise apply to Program Work;

(2) expediting the construction process and otherwise minimizing the disruption to the covered Agencies' ongoing operations at the facilities that are the subject of the Agreement;

(3) avoiding the costly delays of potential strikes, slowdowns, walkouts, picketing and other disruptions arising from work disputes; reducing jobsite friction on common situs worksites, and promoting labor harmony and peace for the duration of the Program Work;

(4) standardizing the terms and conditions governing the employment of labor on the Program Work;

(5) permitting wide flexibility in work scheduling and shift hours and times to allow maximum work to be done during off hours yet at affordable pay rates;

(6) permitting adjustments to work rules and staffing requirements from those which otherwise might obtain;

(7) providing comprehensive and standardized mechanisms for the settlement of work disputes, including those relating to jurisdiction;

- (8) ensuring a reliable source of skilled and experienced labor; and
- (9) securing applicable New York State Labor Law exemptions.

WHEREAS, the Building and Construction Trades Council of Greater New York and Vicinity, its participating affiliated Local Unions and their members, desire to assist the City in meeting these operational needs and objectives as well as to provide for stability, security and work opportunities which are afforded by this Project Labor Agreement; and

WHEREAS, the Parties desire to maximize Program Work safety conditions for both workers and the community in the project area.

NOW, THEREFORE, the Parties enter into this Agreement:

## **SECTION 1. PARTIES TO THE AGREEMENT**

This is a Project Labor Agreement ("Agreement") entered into by the City of New York, on behalf of itself and the Agencies covered herein, including in their capacity as construction manager of covered projects and/or on behalf of any third party construction manager which may be utilized, and the Building and Construction Trades Council of Greater New York and Vicinity ("Council") (on behalf of itself) and the signatory affiliated Local Union's ("Unions" or "Local Unions"). The Council and each signatory Local Union hereby warrants and represents that it has been duly authorized to enter into this Agreement.

## **ARTICLE 2 - GENERAL CONDITIONS**

### **SECTION 1. DEFINITIONS**

Throughout this Agreement, the various Union parties including the Building and Construction Trades Council of Greater New York and Vicinity and its participating affiliated Local Unions, are referred to singularly and collectively as "Union(s)" or "Local Unions"; the term "Contractor(s)" shall include any Construction Manager, General Contractor and all other

contractors, and subcontractors of all tiers engaged in Program Work within the scope of this Agreement as defined in Article 3; "Agency" means the following New York City agencies: the Department for the Aging (DFTA), Administration for Children's Services (ACS), Department of Citywide Administrative Services (DCAS), Department of Corrections (DOC), Department of Design and Construction (DDC), Fire Department (FDNY), Department of Homeless Services (DHS), Human Resources Administration (HRA), Department of Health and Mental Hygiene (DOHMH), Department of Parks and Recreation (DPR), Police Department (NYPD); Department of Sanitation (DSNY); the New York City Agency that awards a particular contract subject to this Agreement may be referred to hereafter as the "Agency"; when an Agency acts as Construction Manager, unless otherwise provided, it has the rights and obligations of a "Construction Manager" in addition to the rights and obligations of an Agency; the Building and Construction Trades Council of Greater New York and Vicinity is referred to as the "Council"; and the work covered by this Agreement (as defined in Article 3) is referred to as "Program Work."

**SECTION 2. CONDITIONS FOR AGREEMENT TO BECOME EFFECTIVE**

This Agreement shall not become effective unless each of the following conditions are met: the Agreement is executed by (1) the Council, on behalf of itself, (2) the participating affiliated Local Unions; and (3) the mayor of the City of New York or his designee.

**SECTION 3. ENTITIES BOUND & ADMINISTRATION OF AGREEMENT**

This Agreement shall be binding on all participating Unions and their affiliates, the Construction Manager (in its capacity as such) and all Contractors of all tiers performing Program Work, as defined in Article 3. The Contractors shall include in any subcontract that they let for performance during the term of this Agreement a requirement that their subcontractors, of all tiers, become signatory and bound by this Agreement with respect to that subcontracted work

falling within the scope of Article 3 and all Contractors (including subcontractors) performing Program Work shall be required to sign a "Letter of Assent" in the form annexed hereto as Exhibit "A". This Agreement shall be administered by the applicable Agency or a Construction Manager or such other designee as may be named by the Agency or Construction Manager, on behalf of all Contractors.

#### SECTION 4. SUPREMACY CLAUSE

This Agreement, together with the local Collective Bargaining Agreements appended hereto as Schedule A, represents the complete understanding of all signatories and supersedes any national agreement, local agreement or other collective bargaining agreement of any type which would otherwise apply to this Program Work, in whole or in part, except that Program Work which falls within the jurisdiction of the Operating Engineers Locals 14 and 15 and/or the Teamsters Local 282 will be performed under the terms and conditions set out in the Schedule A agreements of Operating Engineers Locals 14 and 15 and Teamsters Local 282. Subject to the foregoing, where a subject covered by the provisions of this Agreement is also covered by a Schedule A, the provisions of this Agreement shall prevail. It is further understood that no Contractor shall be required to sign any other agreement as a condition of performing Program Work. No practice, understanding or agreement between a Contractor and a Local Union which is not set forth in this Agreement shall be binding on this Program Work unless endorsed in writing by the Construction Manager or such other designee as may be designated by the Agency.

#### SECTION 5. LIABILITY

The liability of any Contractor and the liability of any Union under this Agreement shall be several and not joint. The Construction Manager and any Contractor shall not be liable for any violations of this Agreement by any other Contractor; and the Council and

Local Unions shall not be liable for any violations of this Agreement by any other Union.

#### **SECTION 6. THE AGENCY**

The Agency (or Construction Manager where applicable) shall require in its bid specifications for all Program Work within the scope of Article 3 that all successful bidders, and their subcontractors of all tiers, become bound by, and signatory to, this Agreement. The Agency (or Construction Manager) shall not be liable for any violation of this Agreement by any Contractor. It is understood that nothing in this Agreement shall be construed as limiting the sole discretion of the Agency or Construction Manager in determining which Contractors shall be awarded contracts for Program Work. It is further understood that the Agency or Construction Manager has sole discretion at any time to terminate, delay or suspend the Program Work, in whole or part, on any Program.

#### **SECTION 7. AVAILABILITY AND APPLICABILITY TO ALL SUCCESSFUL BIDDERS**

The Unions agree that this Agreement will be made available to, and will fully apply to, any successful bidder for (or subcontractor of) Program Work who becomes signatory thereto, without regard to whether that successful bidder (or subcontractor) performs work at other sites on either a union or non-union basis and without regard to whether employees of such successful bidder (or subcontractor) are, or are not, members of any unions. This Agreement shall not apply to the work of any Contractor which is performed at any location other than the site of Program Work.

#### **SECTION 8. SUBCONTRACTING**

Contractors will subcontract Program Work only to a person, firm or corporation who is or agrees to become party to this Agreement.

#### **ARTICLE 3-SCOPE OF THE AGREEMENT**

#### **SECTION 1. WORK COVERED**

Program Work shall be limited to designated rehabilitation and renovation construction contracts bid and let by an Agency (or its Construction Manager where applicable) after the effective date of this Agreement with respect to rehabilitation and renovation work performed for an Agency on City-owned property under contracts let prior to June 30, 2014. Subject to the foregoing, and the exclusions below, such Program Work shall mean any and all contracts that predominantly involve the renovation, repair, alteration, rehabilitation or expansion of an existing City-owned building or structure within the five boroughs of New York City. Examples of Program Work include, but are not limited to, the renovation, repair, alteration and rehabilitation of an existing temporary or permanent structure, or an expansion of above ground structures located in the City on a City-owned building. This Program Work shall also include JOCS contracts, demolition work, site work, asbestos and lead abatement, painting services, carpentry services, and carpet removal and installation, to the extent incidental to such building rehabilitation of City-owned buildings or structures.

It is understood that Program Work does not include, and this Project Labor Agreement shall not apply to, any other work, including:

1. Contracts let and work performed in connection with projects carried over, recycled from, or performed under bids or rebids relating to work that were bid prior to the effective date of this Agreement or after June 30, 2014;
2. Contracts procured on an emergency basis;
3. Small purchases (purchases not more than \$100,000) awarded pursuant to New York City Charter §314, New York City Charter § 316 and New York City Procurement Policy Board Rules §3-08;
4. Contracts for work on streets and bridges and for the closing or environmental remediation of landfills;

5. Contracts with not-for-profit corporations where the City is not awarding or performing the work performed for that entity;

6. Contracts with governmental entities where the City is not awarding or performing the work performed for that entity;

7. Contracts with electric utilities, gas utilities, telephone companies, and railroads, except that it is understood and agreed that these entities may only install their work to a demarcation point, e.g. a telephone closet or utility vault, the location of which is determined prior to construction and employees of such entities shall not be used to replace employees performing Program Work pursuant to this agreement; and

8. Contracts for installation of information technology that are not otherwise Program Work.

#### **SECTION 2. TIME LIMITATIONS**

In addition to falling within the scope of Article 3, Section 1, to be covered by this Agreement Program Work must be (1) advertised and let for bid after the effective date of this Agreement, and (2) let for bid prior to June 30, 2014, the expiration date of this Agreement. It is understood that this Agreement, together with all of its provisions, shall remain in effect for all such Program Work until completion, even if not completed by the expiration date of the Agreement. If Program Work otherwise falling within the scope of Article 3, Section 1 is not let for bid by the expiration date of this Agreement, this Agreement may be extended to that work by mutual agreement of the parties.

#### **SECTION 3. EXCLUDED EMPLOYEES**

The following persons are not subject to the provisions of this Agreement, even though performing Program Work:

A. Superintendents, supervisors (excluding general and forepersons



specifically covered by a craft's Schedule A), engineers, professional engineers and/or licensed architects engaged in inspection and testing, quality control/assurance personnel, timekeepers, mail carriers, clerks, office workers, messengers, guards, technicians, non-manual employees, and all professional, engineering, administrative and management persons;

B. Employees of the Agency, New York City, or any other municipal or State agency, authority or entity, or employees of any other public employer, even though working on the Program site while covered Program Work is underway;

C. Employees and entities engaged in off-site manufacture, modifications, repair, maintenance, assembly, painting, handling or fabrication of project components, materials, equipment or machinery or involved in deliveries to and from the Program site, except to the extent they are lawfully included in the bargaining unit of a Schedule A agreement;

D. Employees of the Construction Manager (except that in the event the Agency engages a Contractor to serve as Construction Manager, then those employees of the Construction Manager performing manual, on site construction labor will be covered by this Agreement);

E. Employees engaged in on-site equipment warranty work unless employees are already working on the site and are certified to perform warranty work;

F. Employees engaged in geophysical testing other than boring for core samples;

G. Employees engaged in laboratory, specialty testing, or inspections, pursuant to a professional services agreement between the Agency, or any of the Agency's other professional consultants, and such laboratory, testing, inspection or surveying firm; and

H. Employees engaged in on-site maintenance of installed equipment or systems which maintenance is awarded as part of a contract that includes Program Work but

which maintenance occurs after installation of such equipment or system and is not directly related to construction services.

#### **SECTION 4. NON-APPLICATION TO CERTAIN ENTITIES**

This Agreement shall not apply to those parents, affiliates, subsidiaries, or other joint or sole ventures of any Contractor which do not perform Program Work. It is agreed that this Agreement does not have the effect of creating any joint employment, single employer or alter ego status among the Agency (including in its capacity as Construction Manager) or any Contractor. The Agreement shall further not apply to any New York City or other municipal or State agency, authority, or entity other than a listed Agency and nothing contained herein shall be construed to prohibit or restrict the Agency or its employees, or any State, New York City or other municipal or State authority, agency or entity and its employees, from performing on or off-site work related to Program Work.

As the contracts involving Program Work are completed and accepted, the Agreement shall not have further force or effect on such items or areas except where inspections, additions, repairs, modifications, check-out and/or warranty work are assigned in writing (copy to Local Union involved) by the Agency (or Construction Manager) for performance under the terms of this Agreement.

#### **ARTICLE 4- UNION RECOGNITION AND EMPLOYMENT**

##### **SECTION 1. PRE-HIRE RECOGNITION**

The Contractors recognize the signatory Unions as the sole and exclusive bargaining representatives of all employees who are performing on-site Program Work, with respect to that work.

##### **SECTION 2. UNION REFERRAL**

A. The Contractors agree to employ and hire craft employees for Program Work covered by this Agreement through the job referral systems and hiring halls established in the Local Unions area collective bargaining agreements. Notwithstanding this, Contractors shall have sole right to determine the competency of all referrals; to determine the number of employees required; to select employees for layoff (subject to Article 5, Section 3); and the sole right to reject any applicant referred by a Local Union, subject to the show-up payments. In the event that a Local Union is unable to fill any request for qualified employees within a 48 hour period after such requisition is made by a Contractor (Saturdays, Sundays and holidays excepted), a Contractor may employ qualified applicants from any other available source. In the event that the Local Union does not have a job referral system, the Contractor shall give the Local Union first preference to refer applicants, subject to the other provisions of this Article. The Contractor shall notify the Local Union of craft employees hired for Program Work within its jurisdiction from any source other than referral by the Union.

B. A Contractor may request by name, and the Local will honor, referral of persons who have applied to the Local for Program Work and who meet the following qualifications:

- (1) possess any license required by New York State law for the Program Work to be performed;
- (2) have worked a total of at least 1000 hours in the Construction field during the prior 3 years; and
- (3) were on the Contractor's active payroll for at least 60 out of the 180 calendar days prior to the contract award.

No more than twelve per centum (12%) of the employees covered by this Agreement, per Contractor by craft, shall be hired through the special provisions above. Under this provision, name referrals begin with the eighth employee needed and continue on that same

basis.

C. Notwithstanding Section 2(B), above, certified MWBE contractors for which participation goals are set pursuant to New York City Administrative Code §6-129, that are not signatory to any Schedule A CBAs, with contracts valued at or under five hundred thousand (\$500,000), may request by name, and the Local will honor, referral of the second (2<sup>nd</sup>), fourth (4<sup>th</sup>), sixth (6<sup>th</sup>), and eighth (8<sup>th</sup>) employee, who have applied to the Local for Program Work and who meet the following qualifications:

- (1) possess any license required by New York State law for the Program Work to be performed;
- (2) have worked a total of at least 1000 hours in the Construction field during the prior 3 years; and
- (3) were on the Contractor's active payroll for at least 60 out of the 180 work days prior to the contract award.

For such contracts valued at above \$500,000 but less than \$1 million, the Local will honor referrals by name of the second (2<sup>nd</sup>), fifth (5<sup>th</sup>), and eighth (8<sup>th</sup>) employee subject to the foregoing requirements. In both cases, name referrals will thereafter be in accordance with Section 2(B), above.

D. Where a certified MWBE Contractor voluntarily enters into a Collective Bargaining Agreement ("CBA") with a BCTC Union, the employees of such Contractor at the time the CBA is executed shall be allowed to join the Union for the applicable trade subject to satisfying the Union's basic standards of proficiency for admission.

### SECTION 3. NON-DISCRIMINATION IN REFERRALS

The Council represents that each Local Union hiring hall and referral system will be operated in a non-discriminatory manner and in full compliance with all applicable federal, state and local laws and regulations which require equal employment opportunities. Referrals

shall not be affected in any way by the rules, regulations, bylaws, constitutional provisions or any other aspects or obligations of union membership, policies or requirements and shall be subject to such other conditions as are established in this Article. No employment applicant shall be discriminated against by any referral system or hiring hall because of the applicant's union membership, or lack thereof.

#### **SECTION 4: MINORITY AND FEMALE REFERRALS**

In the event a Local Union either fails, or is unable to refer qualified minority or female applicants in percentages equaling the workforce participation goals adopted by the City and set forth in the Agency's (or, if applicable, Construction Manager's) bid specifications, within 48 hours of the request for same, the Contractor may employ qualified minority or female applicants from any other available source.

#### **SECTION 5. CROSS AND QUALIFIED REFERRALS**

The Local Unions shall not knowingly refer to a Contractor an employee then employed by another Contractor working under this Agreement. The Local Unions will exert their utmost efforts to recruit sufficient numbers of skilled and qualified crafts employees to fulfill the requirements of the Contractor.

#### **SECTION 6. UNION DUES**

All employees covered by this Agreement shall be subject to the union security provisions contained in the applicable Schedule A local agreements, as amended from time to time, but only for the period of time during which they are performing on-site Program Work and only to the extent of tendering payment of the applicable union dues and assessments uniformly required for union membership in the Local Unions which represent the craft in which the employee is performing Program Work. No employee shall be discriminated against at any Program Work site because of the employee's union membership or lack thereof. In the case of

unaffiliated employees, the dues payment will be received by the Local Unions as an agency shop fee.

## **SECTION 7. CRAFT FOREPERSONS AND GENERAL FOREPERSONS**

The selection of craft forepersons and/or general forepersons and the number of forepersons required shall be solely the responsibility of the Contractor except where otherwise provided by specific provisions of an applicable Schedule A, and provided that all craft forepersons shall be experienced and qualified journeymen in their trade as determined by the appropriate Local Union. All forepersons shall take orders exclusively from the designated Contractor representatives. Craft forepersons shall be designated as working forepersons at the request of the Contractor, except when an existing local Collective Bargaining Agreement prohibits a foreperson from working when the craft persons he is leading exceed a specified number.

## **ARTICLE 5- UNION REPRESENTATION**

### **SECTION 1. LOCAL UNION REPRESENTATIVE**

Each Local Union representing on-site employees shall be entitled to designate in writing (copy to Contractor involved and Construction Manager) one representative, and/or the Business Manager, who shall be afforded access to the Program Work site.

### **SECTION 2. STEWARDS**

A. Each Local Union shall have the right to designate a working journey person as a Steward and an alternate, and shall notify the Contractor and Construction Manager of the identity of the designated Steward (and alternate) prior to the assumption of such duties. Stewards shall not exercise supervisory functions and will receive the regular rate of pay for their craft classifications. All Stewards shall be working Stewards.

B. In addition to their work as an employee, the Steward shall have the right

to receive complaints or grievances and to discuss and assist in their adjustment with the Contractor's appropriate supervisor. Each Steward shall be concerned with the employees of the Steward's trade and, if applicable, subcontractors of their Contractor, but not with the employees of any other trade Contractor. No Contractor shall discriminate against the Steward in the proper performance of Union duties.

C. The Stewards shall not have the right to determine when overtime shall be worked, or who shall work overtime except pursuant to a Schedule A provision providing procedures for the equitable distribution of overtime.

### **SECTION 3. LAYOFF OF A STEWARD**

Contractors agree to notify the appropriate Union 24 hours prior to the layoff of a Steward, except in cases of discipline or discharge for just cause. If a Steward is protected against layoff by a Schedule A provision, such provision shall be recognized to the extent the Steward possesses the necessary qualifications to perform the work required. In any case in which a Steward is discharged or disciplined for just cause, the Local Union involved shall be notified immediately by the Contractor.

## **ARTICLE 6- MANAGEMENT'S RIGHTS**

### **SECTION 1. RESERVATION OF RIGHTS**

Except as expressly limited by a specific provision of this Agreement, Contractors retain full and exclusive authority for the management of their operations including, but not limited to, the right to: direct the work force, including determination as to the number of employees to be hired and the qualifications therefore; the promotion, transfer, layoff of its employees; require compliance with the directives of the Agency including standard restrictions related to security and access to the site that are equally applicable to Agency employees, guests,

or vendors; or the discipline or discharge for just cause of its employees; assign and schedule work; promulgate reasonable Program Work rules that are not inconsistent with this Agreement or rules common in the industry and are reasonably related to the nature of work; and, the requirement, timing and number of employees to be utilized for overtime work. No rules, customs, or practices which limit or restrict productivity or efficiency of the individual, as determined by the Contractor, Agency and/or Construction Manager and/or joint working efforts with other employees shall be permitted or observed.

## SECTION 2. MATERIALS, METHODS & EQUIPMENT

There shall be no limitation or restriction upon the Contractors' choice of materials, techniques, methods, technology or design, or, regardless of source or location, upon the use and installation of equipment, machinery, package units, pre-cast, pre-fabricated, pre-finished, or pre-assembled materials or products, tools, or other labor-saving devices. Contractors may, without restriction, install or use materials, supplies or equipment regardless of their source; provided, however, that where there is a Schedule "A" that includes a lawful union standards and practices clauses, then such clause as set forth in Schedule A Agreements will be complied with, unless there is a lawful Agency specification (or specification issued by a Construction Manager which would be lawful if issued by the Agency directly) that would specifically limit or restrict the Contractor's choice of materials, techniques, methods, technology or design, or, regardless of source or location, upon the use and installation of equipment, machinery, package units, pre-cast, pre-fabricated, pre-finished, or pre-assembled materials or products, tools, or other labor-saving devices, and which would prevent compliance with such Schedule A clause. The on-site installation or application of such items shall be performed by the craft having jurisdiction over such work; provided, however, it is recognized that other personnel having special qualifications may participate, in a supervisory capacity, in



the installation, check-off or testing of specialized or unusual equipment or facilities as designated by the Contractor. There shall be no restrictions as to work which is performed off-site for Program Work.

## **ARTICLE 7- WORK STOPPAGES AND LOCKOUTS**

### **SECTION 1. NO STRIKES-NO LOCK OUT**

There shall be no strikes, sympathy strikes, picketing, work stoppages, slowdowns, hand billing, demonstrations or other disruptive activity at the Program Work site for any reason by any Union or employee against any Contractor or employer. There shall be no other Union, or concerted or employee activity which disrupts or interferes with the operation of the Program Work or the objectives of the Agency at any Program Work site. In addition, failure of any Union or employee to cross any picket line established by any Union, signatory or non-signatory to this Agreement, or the picket or demonstration line of any other organization, at or in proximity to a Program Work site where the failure to cross disrupts or interferes with the operation of Program Work is a violation of this Article. Should any employees breach this provision, the Unions will use their best efforts to try to immediately end that breach and return all employees to work. There shall be no lockout at a Program Work site by any signatory Contractor, Agency or Construction Manager.

### **SECTION 2. DISCHARGE FOR VIOLATION**

A Contractor may discharge any employee violating Section 1, above, and any such employee will not be eligible thereafter for referral under this Agreement for a period of 100 days.

### **SECTION 3. NOTIFICATION**

If a Contractor contends that any Union has violated this Article, it will notify the

Local Union involved advising of such fact, with copies of the notification to the Council. The Local Union shall instruct and order, the Council shall request, and each shall otherwise use their best efforts to cause, the employees (and where necessary the Council shall use its best efforts to cause the Local Union), to immediately cease and desist from any violation of this Article. If the Council complies with these obligations it shall not be liable for the unauthorized acts of a Local Union or its members. Similarly, a Local Union and its members will not be liable for any unauthorized acts of the Council. Failure of a Contractor or the Construction Manager to give any notification set forth in this Article shall not excuse any violation of Section 1 of this Article.

#### SECTION 4. EXPEDITED ARBITRATION

Any Contractor or Union alleging a violation of Section 1 of this Article may utilize the expedited procedure set forth below (in lieu of, or in addition to, any actions at law or equity) that may be brought.

A. A party invoking this procedure shall notify J.J. Pierson or Richard Adelman; who shall alternate (beginning with Arbitrator J.J. Pierson) as Arbitrator under this expedited arbitration procedure. If the Arbitrator next on the list is not available to hear the matter within 24 hours of notice, the next Arbitrator on the list shall be called. Copies of such notification will be simultaneously sent to the alleged violator and Council.

B. The Arbitrator shall thereupon, after notice as to time and place to the Contractor, the Local Union involved, the Council and the Construction Manager, hold a hearing within 48 hours of receipt of the notice invoking the procedure if it is contended that the violation still exists. The hearing will not, however, be scheduled for less than 24 hours after the notice required by Section 3, above.

C. All notices pursuant to this Article may be provided by telephone, telegraph, hand delivery, or fax, confirmed by overnight delivery, to the Arbitrator, Contractor,

Construction Manager and Local Union involved. The hearing may be held on any day including Saturdays or Sundays. The hearing shall be completed in one session, which shall not exceed 8 hours duration (no more than 4 hours being allowed to either side to present their case, and conduct their cross examination) unless otherwise agreed. A failure of any Union or Contractor to attend the hearing shall not delay the hearing of evidence by those present or the issuance of an award by the Arbitrator.

D. The sole issue at the hearing shall be whether a violation of Section 1, above, occurred. If a violation is found to have occurred, the Arbitrator shall issue a Cease and Desist Award restraining such violation and serve copies on the Contractor and Union involved. The Arbitrator shall have no authority to consider any matter in justification, explanation or mitigation of such violation or to award damages (any damages issue is reserved solely for court proceedings, if any.) The Award shall be issued in writing within 3 hours after the close of the hearing, and may be issued without an Opinion. If any involved party desires an Opinion, one shall be issued within 15 calendar days, but its issuance shall not delay compliance with, or enforcement of, the Award.

E. The Agency and Construction Manager (or such other designee of the Agency) may participate in full in all proceedings under this Article.

F. An Award issued under this procedure may be enforced by any court of competent jurisdiction upon the filing of this Agreement together with the Award. Notice of the filing of such enforcement proceedings shall be given to the Union or Contractor involved, and the Construction Manager.

G. Any rights created by statute or law governing arbitration proceedings which are inconsistent with the procedure set forth in this Article, or which interfere with compliance thereto, are hereby waived by the Contractors and Unions to whom they accrue.

H. The fees and expenses of the Arbitrator shall be equally divided between the involved Contractor and Union.

#### SECTION 5. ARBITRATION OF DISCHARGES FOR VIOLATION

Procedures contained in Article 9 shall not be applicable to any alleged violation of this Article, with the single exception that an employee discharged for violation of Section 1, above, may have recourse to the procedures of Article 9 to determine only if the employee did, in fact, violate the provisions of Section 1 of this Article; but not for the purpose of modifying the discipline imposed where a violation is found to have occurred.

#### ARTICLE 8 - LABOR MANAGEMENT COMMITTEE

##### SECTION 1. SUBJECTS

The Program Labor Management Committee will meet on a regular basis to: 1) promote harmonious relations among the Contractors and Unions; 2) enhance safety awareness, cost effectiveness and productivity of construction operations; 3) protect the public interests; 4) discuss matters relating to staffing and scheduling with safety and productivity as considerations; and 5) review efforts to meet applicable participation goals for MWBEs and workforce participation goals for minority and female employees.

##### SECTION 2. COMPOSITION

The Committee shall be jointly chaired by a designee of the Agency and the President of the Council. It may include representatives of the Local Unions and Contractors involved in the issues being discussed. The parties may mutually designate an MWBE representative to participate in appropriate Committee discussions. The Committee may conduct business through mutually agreed upon sub-committees.

#### ARTICLE 9- GRIEVANCE & ARBITRATION PROCEDURE

## SECTION 1. PROCEDURE FOR RESOLUTION OF GRIEVANCES

Any question, dispute or claim arising out of, or involving the interpretation or application of this Agreement (other than jurisdictional disputes or alleged violations of Article 7, Section 1) shall be considered a grievance and shall be resolved pursuant to the exclusive procedure of the steps described below, provided, in all cases, that the question, dispute or claim arose during the term of this Agreement.

### Step 1:

(a) When any employee covered by this Agreement feels aggrieved by a claimed violation of this Agreement, the employee shall, through the Local Union business representative or job steward give notice of the claimed violation to the work site representative of the involved Contractor and the Construction Manager. To be timely, such notice of the grievance must be given within 7 calendar days after the act, occurrence or event giving rise to the grievance. The business representative of the Local Union or the job steward and the work site representative of the involved Contractor shall meet and endeavor to adjust the matter within 7 calendar days after timely notice has been given. If they fail to resolve the matter within the prescribed period, the grieving party, may, within 7 calendar days thereafter, pursue Step 2 of the grievance procedure by serving the involved Contractor with written copies of the grievance setting forth a description of the claimed violation, the date on which the grievance occurred, and the provisions of the Agreement alleged to have been violated. Grievances and disputes settled at Step 1 are non-precedential except as to the specific Local Union, employee and Contractor directly involved unless the settlement is accepted in writing by the Construction Manager (or designee) as creating a precedent.

(b) Should any signatory to this Agreement have a dispute (excepting jurisdictional disputes or alleged violations of Article 7, Section 1) with any other signatory to

this Agreement and, if after conferring, a settlement is not reached within 7 calendar days, the dispute shall be reduced to writing and proceed to Step 2 in the same manner as outlined in subparagraph (a) for the adjustment of employee grievances.

**Step 2:**

The Business Manager or designee of the involved Local Union, together with representatives of the involved Contractor, Council and the Construction Manager (or designee), shall meet in Step 2 within 7 calendar days of service of the written grievance to arrive at a satisfactory settlement.

**Step 3:**

(a) If the grievance shall have been submitted but not resolved in Step 2, any of the participating Step 2 entities may, within 21 calendar days after the initial Step 2 meeting, submit the grievance in writing (copies to other participants, including the Construction Manager or designee) to J.J. Pierson or Richard Adelman, who shall act, alternately (beginning with Arbitrator J.J. Pierson), as the Arbitrator under this procedure. The Labor Arbitration Rules of the American Arbitration Association shall govern the conduct of the arbitration hearing, at which all Step 2 participants shall be parties. The decision of the Arbitrator shall be final and binding on the involved Contractor, Local Union and employees and the fees and expenses of such arbitrations shall be borne equally by the involved Contractor and Local Union.

(b) Failure of the grieving party to adhere to the time limits set forth in this Article shall render the grievance null and void. These time limits may be extended only by written consent of the Construction Manager (or designee), involved Contractor and involved Local Union at the particular step where the extension is agreed upon. The Arbitrator shall have authority to make decisions only on the issues presented to him and shall not have the authority to change, add to, delete or modify any provision of this Agreement.

**SECTION 2. LIMITATION AS TO RETROACTIVITY**

No arbitration decision or award may provide retroactivity of any kind exceeding 60 calendar days prior to the date of service of the written grievance on the Construction Manager and the involved Contractor or Local Union.

**SECTION 3. PARTICIPATION BY AGENCY AND/OR CONSTRUCTION MANAGER**

The Agency and Construction Manager (or such other designee of the Agency) shall be notified by the involved Contractor of all actions at Steps 2 and 3 and, at its election, may participate in full in all proceedings at these Steps, including Step 3 arbitration.

**ARTICLE 10 - JURISDICTIONAL DISPUTES**

**SECTION 1. NO DISRUPTIONS**

There will be no strikes, sympathy strikes, work stoppages, slowdowns, picketing or other disruptive activity of any kind arising out of any jurisdictional dispute. Pending the resolution of the dispute, the work shall continue uninterrupted and as assigned by the Contractor. No jurisdictional dispute shall excuse a violation of Article 7.

**SECTION 2. ASSIGNMENT**

All Program Work assignments shall be made by the Contractor to unions affiliated with the BCTC consistent with the New York Plan for the Settlement of Jurisdictional Disputes ("New York Plan") and its Greenbook decisions, if any. Where there are no applicable Greenbook decisions, assignments shall be made in accordance with the provisions of the New York Plan and local industry practice.

**SECTION 3. NO INTERFERENCE WITH WORK**

There shall be no interference or interruption of any kind with the Program Work while any jurisdictional dispute is being resolved. The work shall proceed as assigned by the

Contractor until finally resolved under the applicable procedure of this Article. The award shall be confirmed in writing to the involved parties. There shall be no strike, work stoppage or interruption in protest of any such award.

## ARTICLE 11 - WAGES AND BENEFITS

### SECTION 1. CLASSIFICATION AND BASE HOURLY RATE

All employees covered by this Agreement shall be classified in accordance with the work performed and paid the hourly wage rates applicable for those classifications as required by the applicable prevailing wage laws.

### SECTION 2. EMPLOYEE BENEFITS

A. The Contractors agree to pay on a timely basis contributions on behalf of all employees covered by this Agreement to those established jointly trustee employee benefit funds designated in Schedule A (in the appropriate Schedule A amounts), provided that such benefits are required to be paid on public works under any applicable prevailing wage law. Bona fide jointly trustee fringe benefit plans established or negotiated through collective bargaining during the life of this Agreement may be added if similarly required under applicable prevailing wage law. Contractors, not otherwise contractually bound to do so, shall not be required to contribute to benefits, trusts or plans of any kind which are not required by the prevailing wage law provided, however, that this provision does not relieve Contractors signatory to local collective bargaining agreement with any affiliated union from complying with the fringe benefit requirements for all funds contained in the CBA.

B. The Contractors agree to be bound by the written terms of the legally established jointly trustee Trust Agreements specifying the detailed basis on which payments are to be paid into, and benefits paid out of, such Trust Funds but only with regard to Program Work done under this Agreement and only for those employees to whom this Agreement



requires such benefit payments.

C. To the extent consistent with New York City's Procurement Policy Board Rules with respect to prompt payment, as published at [www.nyc.gov/ppb](http://www.nyc.gov/ppb), §4-06(e), and in consideration of the unions' waiver of their rights to withhold labor from a contractor or subcontractor delinquent in the payment of fringe benefits contributions ("Delinquent Contractor"); the Agency agrees that where any such union and/or fringe benefit fund shall notify the Agency, the General Contractor, and the Delinquent Contractor in writing with back-up documentation that the Delinquent Contractor has failed to make fringe benefit contributions to it as provided herein and the Delinquent Contractor shall fail, within ten (10) calendar days after receipt of such notice, to furnish either proof of such payment or notice that the amount claimed by the union and/or fringe benefit fund is in dispute, the Agency shall withhold from amounts then or thereafter becoming due and payable to the General Contractor an amount equal to that portion of such payment due to the General Contractor that relates solely to the work performed by the Delinquent Contractor which the union or fringe benefit fund claims to be due it, and shall remit the amount when and so withheld to the fringe benefit fund and deduct such payment from the amounts then otherwise due and payable to the General Contractor, which payment shall, as between the General Contractor and the Agency, be deemed a payment by the Agency to the General Contractor; provided however, that in any month, such withholding shall not exceed the amount contained in the General Contractor's monthly invoice for work performed by the Delinquent Contractor. The union or its employee benefit funds shall include in its notification of delinquent payment of fringe benefits only such amount it asserts the Delinquent Contractor failed to pay on the specific project against which the claim is made and the union or its employee benefit funds may not include in such notification any amount such Delinquent Contractor may have failed to pay on any other City or non-City project.

D. In the event the General Contractor or Delinquent Contractor shall notify the Agency as above provided that the claim of the union or fringe benefit fund is in dispute, the Agency shall withhold from amounts then or thereafter becoming due and payable to the General Contractor an amount equal to that portion of such payment due to the General Contractor that relates solely to the work performed by the Delinquent Contractor which the union and/or fringe benefit fund claims to be due it, and deposit such amount when and so withheld in a separate interest-bearing account pending resolution of the dispute pursuant to the union's Schedule A agreement, and the amount so deposited together with the interest thereon shall be paid to the party or parties ultimately determined to be entitled thereto, or held until the Delinquent Contractor and union or fringe benefit fund shall otherwise agree as to the disposition thereof; provided however, that such withholding shall not exceed the amount contained in the General Contractor's monthly invoice for work performed by the Delinquent Contractor. In the event the Agency shall be required to withhold amounts from a General Contractor for the benefit of more than one fringe benefit fund, the amounts so withheld in the manner and amount prescribed above shall be applied to or for such fund in the order in which the written notices of nonpayment have been received by the Agency, and if more than one such notice was received on the same day, proportionately based upon the amount of the union and/or fringe benefit fund claims received on such day. Nothing herein contained shall prevent the Agency from commencing an interpleader action to determine entitlement to a disputed payment in accordance with section one thousand six of the civil practice law and rules or any successor provision thereto.

E. Payment to a fringe benefit fund under this provision shall not relieve the General Contractor or Delinquent Contractor from responsibility for the work covered by the payment. Except as otherwise provided, nothing contained herein shall create any obligation on

the part of the Agency to pay any union or fringe benefit fund, nor shall anything provided herein serve to create any relationship in contract or otherwise, implied or expressed, between the union/fund and/or fringe benefit and the Agency.

**ARTICLE 12- HOURS OF WORK, PREMIUM PAYMENTS,  
SHIFTS AND HOLIDAYS**

**SECTION 1. WORK WEEK AND WORK DAY**

A. The standard work week shall consist of 40 hours of work at straight time rates, Monday through Friday, 8 hours per day, plus ½ hour unpaid lunch period.

B. In accordance with Program needs, there shall be flexible start times with advance notice from Contractor to the Union. The Day Shift shall commence between the hours of 6:00 a.m. and 9:00 a.m. and shall end between the hours of 2:30 p.m. and 5:30 p.m., for an 8 hour day, and up to 7:30 p.m. for a 10 hour day. The Evening Shift shall commence between the hours of 3:00 p.m. and 6:00 p.m., unless different times are necessitated by the Agency's phasing plans on specific projects. The Night Shift shall commence between the hours of 11:00 p.m. and 2:00 a.m., unless different times are necessitated by the Agency's phasing plans on specific projects. Subject to the foregoing, starting and quitting times shall occur at the Program Work site designated by the Contractor.

C. Scheduling - Monday through Friday is the standard work week; 8 hours of work plus ½ hour unpaid lunch. Notwithstanding any other provision of this Agreement, a contractor may schedule a four day work week, 10 hours per day at straight time rates, plus a ½ hour unpaid lunch, at the commencement of the job.

D. Notice - Contractors shall provide not less than 5 days prior notice to the Local Union involved as to the work week and work hour schedules to be worked or such lesser notice as may be mutually agreed upon.

## SECTION 2. OVERTIME

Overtime shall be paid for any work over eight (8) hours in a day where 5/8s is scheduled or for work over ten (10) hours in a day where 4/10s is scheduled and over forty (40) hours in a week, at time and one half (1½) Monday through Saturday. All overtime work performed on Sunday and Holidays will be paid pursuant to the applicable Schedule A. There shall be no stacking or pyramiding of overtime pay under any circumstances. There will be no restriction upon the Contractor's scheduling of overtime or the nondiscriminatory designation of employees who shall be worked, including the use of employees, other than those who have worked the regular or scheduled work week, at straight time rates. The Contractor shall have the right to schedule work so as to minimize overtime or schedule overtime as to some, but not all, of the crafts and whether or not of a continuous nature.

## SECTION 3. SHIFTS

A. Flexible Schedules - Scheduling of shift work, including Saturday and Sunday work, shall be within the discretion of the Contractor in order to meet Program Work schedules and existing Program Work conditions including the minimization of interference with the mission of the Agency. It is not necessary to work a day shift in order to schedule a second or third shift, or a second shift in order to schedule a third shift, or to schedule all of the crafts when only certain crafts or employees are needed. Shifts must have prior approval of the Agency or Construction Manager, and must be scheduled with not less than five work days notice to the Local Union or such lesser notice as may be mutually agreed upon.

B. Second and/or Third Shifts/Saturday and/or Sunday Work - - The second shift shall start between 3 p.m. and 6 p.m. and the third shift shall start between 11 p.m. and 2 a.m., subject to different times necessitated by the Agency phasing plans on specific projects. There shall be no reduction in shift hour work. With respect to second and third shift work there

shall be a 5% shift premium. No other premium or other payments for such work shall be required unless such work is in excess of 40 hours in the week. All employees within a classification performing Program Work will be paid at the same wage rate regardless of the shift or work scheduled work, subject only to the foregoing provisions.

C. Flexible Starting Times - Shift starting times will be adjusted by the Contractor as necessary to fulfill Program Work requirements subject to the notice requirements of paragraph A.

#### SECTION 4. HOLIDAYS

A. Schedule - There shall be 8 recognized holidays on the Project:

New Years Day	Labor Day
Martin Luther King Day	President's Day
Memorial Day	Thanksgiving Day
Independence Day	Christmas Day

All said holidays shall be observed on the calendar date except those holidays which occur on Saturday shall be observed on the previous Friday and those that occur on Sunday shall be observed on the following Monday.

B. Payment - Regular holiday pay, if any, for work performed on such a recognized holiday shall be in accordance with the applicable Schedule A.

C. Exclusivity - No holidays other than those listed in Section 4(A) above shall be recognized or observed.

#### SECTION 5. SATURDAY MAKE-UP DAYS

When severe weather, power failure, fire or natural disaster or other similar circumstances beyond the control of the Contractor prevent work from being performed on a regularly scheduled weekday, the Contractor may schedule a Saturday make-up day and such

time shall be scheduled and paid as if performed on a weekday. Any other Saturday work shall be paid at time and one-half (1½). The Contractor shall notify the Local Union on the missed day or as soon thereafter as practicable if such a make-up day is to be worked.

#### SECTION 6. REPORTING PAY

A. Employees who report to the work location pursuant to their regular schedule and who are not provided with work shall be paid two hours reporting pay at straight time rates. An employee whose work is terminated early by a Contractor due to severe weather, power failure, fire or natural disaster or for similar circumstances beyond the Contractor's control, shall receive pay only for such time as is actually worked. In other instances in which an employee's work is terminated early (unless provided otherwise elsewhere in this Agreement), the employee shall be paid for his full shift.

B. When an employee, who has completed their scheduled shift and left the Program Work site, is "called out" to perform special work of a casual, incidental or irregular nature, the employee shall receive overtime pay at the rate of time and one-half of the employee's straight time rate for hours actually worked.

C. When an employee leaves the job or work location of their own volition or is discharged for cause or is not working as a result of the Contractor's invocation of Section 7 below, they shall be paid only for the actual time worked.

D. Except as specifically set forth in this Article there shall be no premiums, bonuses, hazardous duty, high time or other special premium payments or reduction in shift hours of any kind.

E. There shall be no pay for time not actually worked except as specifically set forth in this Article and except where an applicable Schedule A requires a full weeks' pay for forepersons.

### SECTION 7. PAYMENT OF WAGES

A. Termination- Employees who are laid off or discharged for cause shall be paid in full for that which is due them at the time of termination. The Contractor shall also provide the employee with a written statement setting forth the date of lay off or discharge.

### SECTION 8. EMERGENCY WORK SUSPENSION

A Contractor may, if considered necessary for the protection of life and/or safety of employees or others, suspend all or a portion of Program Work. In such instances, employees will be paid for actual time worked, except that when a Contractor requests that employees remain at the job site available for work, employees will be paid for that time at their hourly rate of pay.

### SECTION 9. INJURY/DISABILITY

An employee who, after commencing work, suffers a work-related injury or disability while performing work duties, shall receive no less than 8 hours wages for that day. Further, the employee shall be rehired at such time as able to return to duties provided there is still Program Work available for which the employee is qualified and able to perform.

### SECTION 10. TIME KEEPING

A Contractor may utilize brassing or other systems to check employees in and out. Each employee must check in and out. The Contractor will provide adequate facilities for checking in and out in an expeditious manner.

### SECTION 11. MEAL PERIOD

A Contractor shall schedule an unpaid period of not more than 1/2 hour duration at the work location between the 3rd and 5th hour of the scheduled shift. A Contractor may, for efficiency of operation, establish a schedule which coordinates the meal periods of two or more crafts or which provides for staggered lunch periods within a craft or trade. If an employee is

required to work through the meal period, the employee shall be compensated in a manner established in the applicable Schedule A.

## **SECTION 12. BREAK PERIODS**

There will be no rest periods, organized coffee breaks or other non-working time established during working hours. Individual coffee containers will be permitted at the employee's work location. Where 4/10s are being worked there shall be a morning and an afternoon coffee break.

## **ARTICLE 13 - APPRENTICES**

### **SECTION 1. RATIOS**

Recognizing the need to maintain continuing supportive programs designed to develop adequate numbers of competent workers in the construction industry and to provide craft entry opportunities for minorities, women and economically disadvantaged non-minority males, Contractors will employ apprentices in their respective crafts to perform such work as is within their capabilities and which is customarily performed by the craft in which they are indentured. Contractors may utilize apprentices and such other appropriate classifications in the maximum ratio permitted by the New York State Department of Labor or the maximum allowed per trade. Apprentices and such other classifications as are appropriate shall be employed in a manner consistent with the provisions of the appropriate Schedule A. The parties encourage, as an appropriate source of apprentice recruitment consistent with the rules and operations of the affiliated unions' apprentice-programs, the use of the Edward J. Malloy Initiative for Construction Skills, Non-Traditional Employment for Women and Helmets to Hardhats.

## **ARTICLE 14-SAFETY PROTECTION OF PERSON AND PROPERTY**

### **SECTION 1. SAFETY REQUIREMENTS**



Each Contractor will ensure that applicable OSHA and safety requirements are at all times maintained on the Program Work site and the employees and Unions agree to cooperate fully with these efforts to the extent consistent with their rights and obligations under the law. Employees will cooperate with employer safety policies and will perform their work at all times in a safe manner and protect themselves and the property of the Contractor and Agency from injury or harm, to the extent consistent with their rights and obligations under the law. Failure to do so will be grounds for discipline, including discharge.

### **SECTION 2. CONTRACTOR RULES**

Employees covered by this Agreement shall at all times be bound by the reasonable safety, security, and visitor rules as established by the Contractors and the Construction Manager for this Program Work. Such rules will be published and posted in conspicuous places throughout the Program Work sites. Any site security and access policies established by the Construction Manager or General Contractor intended for specific application to the construction workforce for Program Work and that are not established pursuant to an Agency directive shall be implemented only after notice to the BCTC and its affiliates and an opportunity for negotiation and resolution by the Labor Management Committee.

### **SECTION 3. INSPECTIONS**

The Contractors and Construction Manager retain the right to inspect incoming shipments of equipment, apparatus, machinery and construction materials of every kind.

### **ARTICLE 15 - TEMPORARY SERVICES**

Temporary services, i.e. all temporary heat, water, power and light, shall only be required upon the specific request of the Agency or Construction Manager, and when so requested shall be assigned to the appropriate trade claiming jurisdiction. Temporary system coverage shall be provided by the appropriate Contractors' existing employees during working hours in which a

shift is scheduled for employees of this Contractor. The Agency or Construction Manager may determine the need for temporary system coverage requirements during non-working hours. There shall be no stacking of trades on temporary services. In the event a temporary system is claimed by multiple trades, the matter shall be resolved through the New York Plan for Jurisdictional Disputes.

## **ARTICLE 16 - NO DISCRIMINATION**

### **SECTION 1. COOPERATIVE EFFORTS**

The Contractors and Unions agree that they will not discriminate against any employee or applicant for employment because of creed, race, color, religion, sex, sexual orientation, national origin, marital status, citizenship status, disability, age or any other status provided by law, in any manner prohibited by law or regulation.

### **SECTION 2. LANGUAGE OF AGREEMENT**

The use of the masculine or feminine gender in this Agreement shall be construed as including both genders.

## **ARTICLE 17- GENERAL TERMS**

### **SECTION 1. PROJECT RULES**

A. The Construction Manager and the Contractors shall establish such reasonable Program Work rules that are not inconsistent with this Agreement or rules common in the industry and are reasonably related to the nature of work. These rules will be explained at the pre-job conference and posted at the Program Work sites and may be amended thereafter as necessary. Notice of amendments will be provided to the appropriate Local Union. Failure of an employee to observe these rules and regulations shall be grounds for discipline, including discharge. The fact that no order was posted prohibiting a certain type of misconduct shall not be a defense to an employee disciplined or discharged for such misconduct when the action taken is

for cause.

B. The parties adopt and incorporate the BCTC's Standards of Excellence as annexed hereto as Exhibit "B".

## **SECTION 2. TOOLS OF THE TRADE**

The welding/cutting torch and chain fall are tools of the trade having jurisdiction over the work performed. Employees using these tools shall perform any of the work of the trade. There shall be no restrictions on the emergency use of any tools or equipment by any qualified employee or on the use of any tools or equipment for the performance of work within the employee's jurisdiction.

## **SECTION 3. SUPERVISION**

Employees shall work under the supervision of the craft foreperson or general foreperson.

## **SECTION 4. TRAVEL ALLOWANCES**

There shall be no payments for travel expenses, travel time, subsistence allowance or other such reimbursements or special pay except as expressly set forth in this Agreement.

## **SECTION 5. FULL WORK DAY**

Employees shall be at their work area at the starting time established by the Contractor, provided they are provided access to the work area. The signatories reaffirm their policy of a fair day's work for a fair day's wage.

## **SECTION 6. COOPERATION AND WAIVER**

The Construction Manager, Contractors and the Unions will cooperate in seeking any NYS Department of Labor, or any other government, approvals that may be needed for implementation of any terms of this Agreement. In addition, the Council, on their own behalf and

on behalf of its participating affiliated Local Unions and their individual members, intend the provisions of this Agreement to control to the greatest extent permitted by law, notwithstanding contrary provisions of any applicable prevailing wage, or other, law and intend this Agreement to constitute a waiver of any such prevailing wage, or other, law to the greatest extent permissible only for work within the scope of this Agreement, including specifically, but not limited to those provisions relating to shift, night, and similar differentials and premiums. This Agreement does not, however, constitute a waiver or modification of the prevailing wage schedules applicable to work not covered by this Agreement.

## ARTICLE 18. SAVINGS AND SEPARABILITY

### SECTION 1. THIS AGREEMENT

In the event that the application of any provision of this Agreement is enjoined, on either an interlocutory or permanent basis, or is otherwise determined to be in violation of law, or if such application may cause the loss of Program funding or any New York State Labor Law exemption for all or any part of the Program Work, the provision or provisions involved (and/or its application to particular Program Work, as necessary) shall be rendered, temporarily or permanently, null and void, but where practicable the remainder of the Agreement shall remain in full force and effect to the extent allowed by law (and to the extent no funding or exemption is lost), unless the part or parts so found to be in violation of law or to cause such loss are wholly inseparable from the remaining portions of the Agreement and/or are material to the purposes of the Agreement. In the event a court of competent jurisdiction finds any portion of the Agreement to trigger the foregoing, the parties will immediately enter into negotiations concerning the substance affected by such decision for the purpose of achieving conformity with the court determination and the intent of the parties hereto for contracts to be let in the future.

## SECTION 2. THE BID SPECIFICATIONS

In the event that the Agency's (or Construction Manager's) bid specifications, or other action, requiring that a successful bidder (and subcontractor) become signatory to this Agreement is enjoined, on either an interlocutory or permanent basis, or is otherwise determined to be in violation of law, or may cause the loss of Program funding or any New York State Labor Law exemption for all or any part of the Program Work, such requirement (and/or its application to particular Program Work, as necessary) shall be rendered, temporarily or permanently, null and void, but where practicable the Agreement shall remain in full force and effect to the extent allowed by law and to the extent no funding or exemption is lost). In such event, the Agreement shall remain in effect for contracts already bid and awarded or in construction only where the Agency and Contractor voluntarily accepts the Agreement. The parties will enter into negotiations as to modifications to the Agreement to reflect the court or other action taken and the intent of the parties for contracts to be let in the future.

## SECTION 3. NON-LIABILITY

In the event of an occurrence referenced in Section 1 or Section 2 of this Article, neither the Agency, the Construction Manager, any Contractor, nor any Union shall be liable, directly or indirectly, for any action taken, or not taken, to comply with any court order or injunction, other determination, or in order to maintain funding or a New York State Labor Law exemption for Program Work. Bid specifications will be issued in conformance with court orders then in effect and no retroactive payments or other action will be required if the original court determination is ultimately reversed.

## SECTION 4. NON-WAIVER

Nothing in this Article shall be construed as waiving the prohibitions of Article 7 as to signatory Contractors and signatory Unions.

**ARTICLE 19 - FUTURE CHANGES IN SCHEDULE A AREA CONTRACTS**

**SECTION 1. CHANGES TO AREA CONTRACTS**

A. Schedule A to this Agreement shall continue in full force and effect until the Contractor and/or Union parties to the Area Collective Bargaining Agreements which are the basis for Schedule A notify the Agency and Construction Manager in writing of the hourly rate changes agreed to in that Area Collective Bargaining which are applicable to work covered by this Agreement and their effective dates.

B. It is agreed that any provisions negotiated into Schedule A collective bargaining agreements will not apply to work under this Agreement if such provisions are less favorable to those uniformly required of contractors for construction work normally covered by those agreements; nor shall any provision be recognized or applied on Program Work if it may be construed to apply exclusively, or predominantly, to work covered by this Agreement.

C. Any disagreement between signatories to this Agreement over the incorporation into Schedule A of provisions agreed upon in the renegotiation of Area Collective Bargaining Agreements shall be resolved in accordance with the procedure set forth in Article 9 of this Agreement.

**SECTION 2. LABOR DISPUTES DURING AREA CONTRACT NEGOTIATIONS**

The Unions agree that there will be no strikes, work stoppages, sympathy actions, picketing, slowdowns or other disruptive activity or other violations of Article 7 affecting the Program Work by any Local Union involved in the renegotiation of Area Local Collective Bargaining Agreements nor shall there be any lock-out on such Program Work affecting a Local Union during the course of such renegotiations.

**ARTICLE 20 - WORKERS' COMPENSATION ADR**

**SECTION 1.**

An ADR program may be negotiated and participation in the ADR Program will be optional by trade.

## ARTICLE 21 - HELMETS TO HARDHATS

### Section 1.

The Contractors and the Unions recognize a desire to facilitate the entry into the building and construction trades of veterans who are interested in careers in the building and construction industry. The Contractors and Unions agree to utilize the services of the Center for Military Recruitment, Assessment and Veterans Employment (hereinafter "Center") and the Center's "Helmets to Hardhats" program to serve as a resource for preliminary orientation, assessment of construction aptitude, referral to apprenticeship programs or hiring halls, counseling and mentoring, support network, employment opportunities and other needs as identified by the parties.

### Section 2.

The Unions and Contractors agree to coordinate with the Center to create and maintain an integrated database of veterans interested in working on this Project and of apprenticeship and employment opportunities for this Project. To the extent permitted by law, the Unions will give credit to such veterans for bona fide, provable past experience.

IN WITNESS WHEREOF the parties have caused this Agreement to be executed and effective  
as of the \_\_\_ day of \_\_\_\_\_, \_\_\_\_\_

FOR BUILDING AND CONSTRUCTION TRADES COUNCIL  
OF GREATER NEW YORK AND VICINITY

BY: Gary LaBarbera  
Gary LaBarbera  
President

FOR NEW YORK CITY

BY: \_\_\_\_\_  
Michael R. Bloomberg  
Mayor

APPROVED AS TO FORM:

\_\_\_\_\_  
ACTING CORPORATION COUNSEL  
NEW YORK CITY

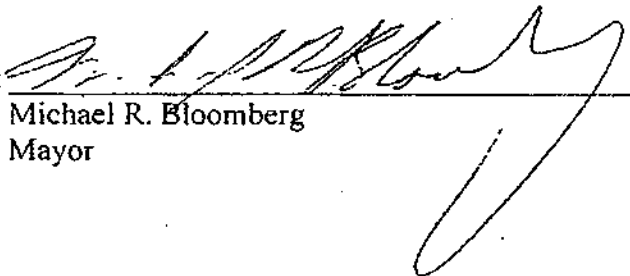


IN WITNESS WHEREOF the parties have caused this Agreement to be executed and effective  
as of the \_\_\_ day of \_\_\_\_\_, \_\_\_\_\_

FOR BUILDING AND CONSTRUCTION TRADES COUNCIL  
OF GREATER NEW YORK AND VICINITY

BY: \_\_\_\_\_  
Gary LaBarbera  
President

FOR NEW YORK CITY

BY:   
Michael R. Bloomberg  
Mayor

APPROVED AS TO FORM:

  
ACTING CORPORATION COUNSEL  
NEW YORK CITY

DEC 1 8 2009

## List of Signatory Unions

Blasterers and Drillers Local #29

Bricklayers Local No. 1

Boiler Makers Local No. 5

Carpenters District Council

Cement Masons No. 780

Derrickmen and Riggers Union No. 197

Concrete Workers District Council No. 16, including Cement and Concrete Workers Nos. 6-A, 18-A, and 20

Electrical Local No. 3

Drywall Tapers 1974

Elevator Constructors No. 1

Heat & Frost Insulators Local Union No. 12A

Heat & Frost Insulators Local Union No. 12

Iron Workers No. 40

Iron Workers District Council

Laborers Local No. 78 Asbestos & Lead Abatement

Iron Workers No. 361

Laborers Construction and General Building No. 79

Laborers Local 731

Lathers Metallic Local No. 46

Local Union 8A Glaziers No. 1281

Mason Tenders District Council

Metal Polishers DC 9

Painters District Council No. 9

Painters Structural Steel No. 806

Ornamental Iron Workers No. 580

Plasters Local Union No. 262

Pavers & Road Builders District Council No. 1

Plumbers No. 1

Sheet Metal Workers Local No. 28

Roofers & Waterproofers No. 8

Sheet Metal Workers Local No. 137

Steamfitters Local Union No. 638; including Metal Trades Division

Teamsters Local Union 813

Teamsters Local Union 814

Tile, Marble & Terrazzo B.A.C. Local Union No. 7

PLA Schedule A

The following Collective Bargaining Agreements, as this Schedule may be amended from time to time in accordance with the Agreement, constitute Schedule A:

- (1) Agreement between the Boilermakers Association of Greater New York, Inc. and the International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers and Helpers AFL-CIO, Lodge No. 5, September 1, 2006 - December 31, 2009.
- (2) Agreement between Association of Cement and Concrete Contractors of New York, Inc. and Cement and Concrete Workers comprised of Local No. 6A, Local No. 18A, Local No. 20 and the Employer, July 1, 2008 - June 30, 2011.
- (3) Agreement between the Cement League and the District Council of Cement and Concrete Workers; Comprised of Local No. 6A, Local No. 18A, Local No. 20; July 1, 2008 - June 30, 2011.
- (4) Agreement between the Cement League and the United Cement Masons' Union Local No. 780, Clarified & Extended from October 23, 1940 to June 30, 2011.
- (5) Building Construction agreement between the Building Contractors Association, Inc. and the District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America, AFL-CIO, July 1, 2006 - June 30, 2011.
- (6) General Contractors Association - Carpenters 2006; Agreement Between Members of the General Contractors Association of New York, Inc. and the District Council of Carpenters of New York City and Vicinity, July 1, 2006 - June 30, 2011.
- (7) Trade Agreement between Drywall Tapers and Pointers of Greater New York Local Union 1974, affiliated with International Union of Painters and Allied Trades, AFL-CIO and Drywall Taping Contractors' Association of Greater New York and the Association of Wall-Ceiling & Carpentry Industry of New York, Inc., September 6, 2006 - June 28, 2011; Independent Agreement between Local Union 1974 and Employer.
- (8) Agreement between Allied Building Metal Industries, Inc. and Local Union Nos. 40 and 361 of the International Association of Bridge, Structural and Ornamental and Reinforcing Iron Workers AFL-CIO, July 1, 2008 - June 30, 2014.
- (9) Agreement between Independent Contractors and Local #46 Metallic Lathers Union and Reinforcing Ironworkers of New York and Vicinity of the International Association of Bridge, Structural, Ornamental and Reinforcing Iron Workers, July 1, 2008 - June 30, 2014.
- (10) Agreement of Working Conditions between the Independent Insulation Contractors Association of New York City Inc. and the International Association of Heat and Frost Insulators and Asbestos Workers Local No. 12 of New York City, 2008-2014.

- (11) Mason Tenders District Council of Greater New York Master Independent Collective Bargaining Agreement, 2008-2011.
- (12) Trade Agreement between District Council No. 9, International Union of Painters and Allied Trades, AFL-CIO and the Association of Master Painters and Decorators of New York, Inc. and the Association of Wall, Ceiling & Carpentry Industries of New York, Inc. and the Window and Plate Glass Dealers Association, May 1, 2005 - April 30, 2011.
- (13) Trade Agreement between Enterprise Association Local Union 638 and Mechanical Contractors Association of New York, Inc., July 1, 2008 - June 30, 2011.
- (14) Agreement between Allied Building Metal Industries Inc. and Architectural and Ornamental Iron Workers Local Union No. 580 AFL-CIO; July 1, 2008 - June 30, 2011.
- (15) Official Working Agreement between Service Contractors Division of the Mechanical Contractors Association of New York and Enterprise Association Metal Trades Branch Local Union 638, July 1, 2007 - June 30, 2010.
- (16) Agreement between Association of Contracting Plumbers of the City of New York, Inc. and Local Union No 1 of the United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada, July 1, 2007 - June 30, 2010.
- (17) Agreement and Working Rules between New York Electrical Contractors Association, Inc. and the Association of Electrical Contractors, Inc. and Local Union No. 3 International Brotherhood of Electrical Workers, AFL-CIO, May 10, 2007 - May 13, 2010.
- (18) Official Working Agreement between Service Contractors Division of the Mechanical Contractors Association of New York, Inc. and Enterprise Association Metal Trades Branch Local Union 638, Refrigeration, Air Conditioning, Air Cooling, Oil Burner and Stoker Service and Maintenance Technicians, July 1, 2007 - June 30, 2010.
- (19) Structural Steel and Bridge Painters of Greater New York, Local Union No. 806, District Council No. 9, International Union of Painters and Allied Trades, AFL-CIO, CLC and New York Structural Steel Painting Contractors Association, Inc.; Collective Bargaining Agreement, October 1, 2005 - September 30, 2011.
- (20) Trade Agreement between United Derrickmen & Riggers Association, Local No. 197 of New York, All-long Island, Westchester and Vicinity and Building Stone and Pre-Case Contractors Association, 2008.
- (21) Agreement between the Greater New York and New Jersey Tile Contractors Association, Inc., and the Tile Setters and Tile Finishers Union of New York and New Jersey, Local Union No. 7 of the International Union of Bricklayers and Allied Craftworkers, June 8, 2009 - June 2, 2013.

(22) Agreement between The Building Contractors Association, Inc. and International Union of Operating Engineers Local 15 and 15 A, July 1, 2006-June 30, 2011.

(23) Agreement dated as of July 1, 2006 between Building Contractors Association and International Union of Operating Engineers Local 14-14B, July 1, 2006-June 30, 2011.

(24) Agreement Between The Building Contractors Association, Inc. and International Union of Operating Engineers Local 15D affiliated with the AFL-CIO, July 1, 2006-June 30, 2011.

(25) Local 282 International Brotherhood of Teamsters High Rise Contract, Building Contractors Association and Independents, 2008-2013.

(26) Building, Concrete, Excavation & Common Laborers Union Local No. 731 Independent Agreement, July 1, 2006-June 30, 2012.

(27) March 17, 2009 Agreement between ThyssenKrupp Elevator Corp. and International Union of Elevator Constructors, Local 1 of NY and NJ, 2009-2014.

(28) Working Agreement Local Union No. 8 United Union of Roofers, Waterproofers and Allied Workers and Roofing and Waterproofing Contractor's Association of New York and Vicinity, July 1, 2009-June 30, 2011.

(29) Standard Form Collective Bargaining Agreement between Sheet Metal Workers' International Association Local Union #137 and the Greater New York Sign Association, July 16, 2007 - July 15, 2010.

(30) Trade Agreement between \_\_\_\_\_ and Local No. 1 New York of the International Union of Bricklayers and Allied Craftworkers, July 1, 2008 - July 30, 2011.

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NYC AGENCY RENOVATION & REHAB CITY OWNED BUILDINGS/STRUCTURES

Project Labor Agreement -- Letter of Assent

Dear:

The undersigned party confirms that it agrees to be a party to and be bound by the New York Agency, Project Labor Agreement as such Agreement may, from time to time, be amended by the parties or interpreted pursuant to its terms. The terms of the Project Labor Agreement, its Schedules, Addenda and Exhibits are hereby incorporated by reference herein.

The undersigned, as a Contractor or Subcontractor (hereinafter Contractor) on the Project known as \_\_\_\_\_ and located at \_\_\_\_\_ (hereinafter PROJECT), for and in consideration of the award to it of a contract to perform work on said PROJECT, and in further consideration of the mutual promises made in the Project Labor Agreement, a copy of which was received and is acknowledged, hereby:

- (1) Accepts and agrees to be bound by the terms and conditions of the Agreement, together with any and all schedules; amendments and supplements now existing or which are later made thereto;
- (2) Agrees to be bound by the legally established collective bargaining agreements and local trust agreements as set forth in the Project Labor Agreement and this Agreement but only to the extent of Program Work and as required by the PLA.
- (3) Authorizes the parties to such local trust agreements to appoint trustees and successor trustees to administer the trust funds and hereby ratifies and accepts the trustees so appointed as if made by the Contractor but only to the extent of Program Work as required by the PLA.
- (4) Certifies that it has no commitments or agreements that would preclude its full and complete compliance with the terms and conditions of said Agreement. The Contractor agrees to employ labor that can work in harmony with all other labor on the Project and shall require labor harmony from every lower tier subcontractor it has engaged or may engage to work on the Project. Labor harmony disputes/issues shall be subject to the Labor Management Committee provisions.
- (5) Agrees to secure from any Contractor(s) (as defined in said Agreement) which is or becomes a Subcontractor (of any tier), to it, a duly executed Agreement to be Bound in from identical to this document.

Dated: \_\_\_\_\_

\_\_\_\_\_  
(Name of Contractor or subcontractor)

\_\_\_\_\_  
(Name of CM; GC; Contractor or  
Higher Level Subcontractor)

\_\_\_\_\_  
(Authorized Officer & Title)

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(Phone) (Fax)

\_\_\_\_\_  
Contractor's State License

# \_\_\_\_\_

Sworn to before me this  
\_\_\_\_ day of \_\_\_\_\_, 2009

\_\_\_\_\_  
Notary Public



### STANDARDS OF EXCELLENCE

The purpose of this Standard of Excellence is to reinforce the pride of every construction worker and the commitment to be the most skilled, most productive and safest workforce available to construction employers and users in the City of New York. It is the commitment of every affiliated local union to use our training and skills to produce the highest quality work and to exercise safe and productive work practices.

The rank and file members represented by the affiliated local unions acknowledge and adopt the following standards:

- *Provide a full days work for a full days pay;*
- *Safely work towards the timely completion of the job;*
- *Arrive to work on time and work until the contractual quitting time;*
- *Adhere to contractual lunch and break times;*
- *Promote a drug and alcohol free work site;*
- *Work in accordance with all applicable safety rules and procedures;*
- *Allow union representatives to handle job site disputes and grievances without resort to slowdowns, or unlawful job disruptions;*
- *Respect management directives that are safe, reasonable and legitimate;*
- *Respect the rights of co-workers;*
- *Respect the property rights of the owner, management and contractors.*

The Unions affiliated with the New York City Building and Construction Trades Council will expect the signatory contractors to safely and efficiently manage their jobs and the unions see this as a corresponding obligation of the contractors under this Standard of Excellence. The affiliated unions will expect the following from its signatory contractors:

- *Management adherence to the collective bargaining agreements;*
- *Communication and cooperation with the trade foremen and stewards;*
- *Efficient, safe and sanitary management of the job site;*
- *Efficient job scheduling to mitigate and minimize unproductive time;*
- *Efficient and adequate staffing by properly trained employees by trade;*
- *Efficient delivery schedules and availability of equipment and tools to ensure efficient job progress;*
- *Ensure proper blueprints, specifications and layout instructions and material are available in a timely manner*
- *Promote job site dispute resolution and leadership skills to mitigate such disputes;*
- *Treatment of all employees in a respectful and dignified manner acknowledging their contributions to a successful project.*

The affiliated unions and their signatory contractors shall ensure that both the rank and file members and the management staff shall be properly trained in the obligations undertaken in the Standard of Excellence.

**NOTICE TO CONTRACTORS**  
**CONTRACTS SUBJECT TO A NYC PROJECT LABOR**  
**AGREEMENT (PLA)**

**Contractors are reminded:**

1. All subcontractors, prior to request for agency approval, must sign the PLA Letter of Assent [Article 2, Section 8] and that the Letter of Assent must accompany the request for agency approval.
2. Contractors and all subcontractors must provide certified payrolls as required by NYS Labor Law 220 and in Article 37 of the Standard Construction Contract using the form issued by the NYC Comptroller. The words '**Project under [Renovation or New Construction or DEP] PLA**' must be marked at either the top or the bottom of each form to avoid confusion by auditors and/or other compliance oversight agencies.
3. Pursuant to all NYC PLAs, there is a union referral system related to hiring [Article 4, Section 2].
4. Any person working in a trade capacity under a PLA, whether for the contractor or a subcontractor, that is not a member of the affiliated Building Trades Unions, must be registered with the appropriate union benefit fund [Article 11, Section 2]; and are subject to an agency shop fee [Article 4, Section 6].
5. NYS DOL maximum permitted apprentice ratios apply. Contractors and subcontractors should contact the appropriate unions as to the availability of apprentices [Article 13].
6. In the event of a grievance [Article 7, Section 4 and/or Article 9 Sections 1 and 3] that requires a second step notification, **and for this purpose only**, the 'construction manager/agency representative is: [Place name and contact info of the Project Executive of the CM firm when applicable. For 'in house' construction managed project consult with senior agency officials and MOCS OR name John C. Spavins, NYC Mayor's Office of Contract Services, 253 Broadway 9<sup>th</sup> Floor, NY, NY 10007 [jspavins@cityhall.nyc.gov](mailto:jspavins@cityhall.nyc.gov) 212-442-6360.]

The following procedures are to be followed by all contractors and subcontractors to assist Labor/Management Committee [Article 8] and to insure compliance with Articles 4, 5 and 11:

1. Whenever workers of a particular local union first arrive at the project site, the contractor is to identify whether these workers are working directly for the contractor or a subcontractor and report [for entry into the project log]—the total number of trade workers—the number that are union members and the number



that are agency shop fee payers—when applicable. This entry should also note the number of apprentices—when applicable and the name of the union local shop steward.

2. The notification [for entry into project log] to the project manager/resident engineer of any union official visitation to the site.
3. The notification [for entry into project log] to the project manager/resident engineer of any change in union stewards on the project.
4. That a 'trade worker census' is to be done the first week of every month during active construction by the contractor and given to the project manager/resident engineer for project records. This census is to include all of the information listed in item #1 above as well as a further breakdown of any agency shop dues payers as to whether these workers are under being employed pursuant to: Article 4, Section 2 A [Non availability of union referrals]; Article 4, Section 2 B ["12%"]; Article 4 Sections B and C [Special provisions for certified MWBE]; Article 4, Section 4 [Non availability of union referrals related to minority and women employment goals when applicable].

**Contractor Note: The agency directives as to daily or shift trade worker counts remain in effect as do all other contractor employee reporting requirements.**



# NOTICE TO BIDDERS

**Please be advised that the City of New York has issued a new Standard Construction Contract. The new Contract, which is incorporated in this bid, is significantly different from the 2008 version previously used by the City. A listing of some of the significant changes is provided below. This notice is only a partial listing. Please refer to the Contract itself for a full understanding of the changes and the actual text of the changes that were made. The text of the revised Standard Construction Contract is the controlling document should there be any discrepancies between this notice and the Standard Construction Contract.**

**Significant changes include the following:**

## **ARTICLE 11            DAMAGES CAUSED BY DELAYS**

In 2008, the City embarked on a pilot project to test the use of new construction contract language altering the allocation of the risk of project delays, as between the City and the contractor. The City has determined to make the pilot project language the standard language for all City construction contracts. Accordingly, there is now one Standard City Construction Contract that it to be used by all agencies for all bids released after the release of the new contract. The damages for delay language is Article 11. Please note that changes have been made to the damages for delay provisions from the pilot to the adopted version.

## **ARTICLE 22            INSURANCE**

Changes have been made to the insurance provisions, including incorporating requirements that the insurance provided comply with recent NYC Department of Buildings regulations specifying required dollar limits for CGL insurance for certain projects and requiring proof of builder's risk insurance prior to Work commencing rather than within 10 days of award.

**ARTICLE 26        EXTRA WORK**

The percentage paid for overhead for Extra Work pursuant to Section 26.1.11 is increased from 10% to 12% and the calculation of Worker's Compensation insurance costs reimbursed for Extra Work has been clarified.

**ARTICLE 37        LABOR LAW REQUIREMENTS**  
**ARTICLE 38        PAYROLL REPORTS**

The provisions governing Labor Law provisions have been tightened, including requirements the employee identification cards include a photo (unless the requirement is waived), a prohibition on cash payments to employees and subcontractors, and clear enforcement authority requirements.

**ARTICLE 70        ELECTRONIC FILING**

A provision is added to make mandatory the electronic filing of certain alteration permits with the Department of Buildings.

**Other significant changes include the following:**

**ARTICLE 7        INDEMNIFICATION**

Changes have been made to the indemnification provisions.

**ARTICLE 14        FINAL ACCEPTANCE OF WORK**  
**ARTICLE 44        SUBSTANTIAL COMPLETION PAYMENT**

The Commissioner is no longer required to issue a substantial completion determination in addition to the already existing requirement that the Engineer issue a substantial completion determination and reach an agreement on a punch list of remaining work. Now, the Engineer, when issuing the punch list to the Contractor, must also include a proposed schedule for the completion of the punch list. The Contractor may propose an alternative schedule that is subject to the approval of the Engineer. If the Contractor fails to respond to the Engineer's proposed schedule, the Engineer's schedule is deemed accepted.

**ARTICLE 15        LIQUIDATED DAMAGES**

The contract is revised to match Schedule A to provide that liquidated damages are available only until substantial completion.

**ARTICLE 17            SUBCONTRACTS**

The requirements for prior approval of subcontractors, and for contractors to be responsible for the actions of their subcontractors, have been tightened. The requirement that the Contractor list subcontractors in the City's Payee Information Portal has been added; the provision was previously attached as a rider.

**ARTICLE 19            SECURITY DEPOSIT**

The provisions governing the return of bid deposits are clarified.

**ARTICLE 20            PAYMENT GUARANTEE**

The Payment Guaranty provisions, which apply when the City does not require the Contractor to obtain payment bonds, has been significantly revised to track the requirements of State Finance law 137.

**ARTICLE 28            RECORDKEEPING FOR EXTRA OR DISPUTED WORK**

The recordkeeping requirement that currently apply to payments for Time & Materials for extra work are expressly made applicable to regular work that is paid for on a T & M basis.

**ARTICLE 35            EMPLOYEES**

The whistleblower provisions of local law are added to the construction contract. They previously have been attached as a rider.

**ARTICLE 38            PAYROLL REPORTS**  
**ARTICLE 77            RECORDS RETENTION**

Requirements that records be maintained for six years and directions on how such records must be made available.

**ARTICLE 42            PARTIAL PAYMENTS**

Increased flexibility has been provided for when contractors may submit invoices.

**ARTICLE 62            TAX EXEMPTION**

The provisions identifying the State tax exemption for municipalities are revised to more clearly describe State law.



**CITY OF NEW YORK**  
**DEPARTMENT OF**  
**DESIGN AND CONSTRUCTION**  
**DIVISION OF PUBLIC BUILDINGS**

**INFORMATION FOR BIDDERS**

**December 2013**



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## INFORMATION FOR BIDDERS

### 1. Description and Location of Work

The description and location of the work for which bids are requested are specified in Attachment 1, "Bid Information". Attachment 1 is included in the Bid Booklet.

### 2. Time and Place for Receipt of Bids

Sealed bids shall be received on or before the date and hour specified in Attachment 1, at which time they will be publicly opened and read aloud in the presence of the Commissioner or his or her representative, and any bidders who may desire to be present.

### 3. Definitions

The definitions set forth in the Procurement Policy Board Rules shall apply to this Invitation For Bids.

### 4. Invitation For Bids and Contract Documents

(A) Except for titles, sub-titles, headings, running headlines, tables of contents and indices (all of which are printed herein merely for convenience) the following, except for such portions thereof as may be specifically excluded, shall be deemed to be part of the Contract and the Invitation for Bids.

- (1) All provisions required by law to be inserted in this Contract, whether actually inserted or not
- (2) The Contract Drawings and Specifications
- (3) The General Conditions, the General Requirements and the Special Conditions, if any
- (4) The Contract
- (5) The Information for Bidders; Request for Proposals; Notice of Solicitation and Proposal For Bids; Bid or Proposal, and, if used, the Bid Booklet
- (6) The Budget Director's Certificate; all Addenda issued prior to the receipt of the bids; the Notice of Award; Performance and Payment Bonds, if required; and the Notice to Proceed with the Work.

(B) For particulars as to this procurement, including quantity and quality of the purchase, extent of the work or labor to be performed, delivery and performance schedule, and any other special instructions, prospective bidders are referred to the Invitation For Bids Documents. A copy of such documents can be obtained at the location set forth in Attachment 1.

(C) Deposit for Copy of Invitation For Bids Documents: Prospective bidders may obtain a copy of the Invitation For Bids Documents by complying with the conditions set forth in the Notice of Solicitation. The deposit must be in the form of a check or money order made payable to the City of New York, and drawn upon a state or national bank or trust company, or a check of such bank or trust company signed by a duly authorized officer thereof.

(D) Return of Invitation For Bids Documents: All Invitation For Bids Documents must be returned to the Department upon request. If the bidder elects not to submit a bid thereunder, the Invitation For Bids Documents shall be returned to the Department, along with a statement that no bid will be submitted.

(E) Return of Deposit: Such deposit will be returned within 30 days after the award of the contract or the rejection of all bids as set forth in the advertisement, provided the Invitation For Bids Documents are returned to the location specified in Attachment 1, in physical condition satisfactory to the Commissioner.

(F) Additional Copies: Additional copies of the Invitation For Bids Documents may be obtained, subject to the conditions set forth in the advertisement for bids.

5. Pre-Bid Conference

A pre-bid conference shall be held as set forth in Attachment 1. Nothing stated at the pre-bid conference shall change the terms or conditions of the Invitation For Bids Documents, unless a change is made by written amendment as provided in Section 9 below. Failure to attend a mandatory pre-bid conference shall constitute grounds for the rejection of the bid.

6. Agency Contact

Any questions or correspondence relating to this bid solicitation shall be addressed to the Agency Contact person specified in Attachment 1.

7. Bidder's Oath

(A) The bid shall be properly signed by an authorized representative of the bidder and the bid shall be verified by the written oath of the authorized representative who signed the bid, that the several matters stated and information furnished therein are in all aspects true.

(B) A materially false statement willfully or fraudulently made in connection with the bid or any of the forms completed and submitted with the bid may result in the termination of any Contract between the City and the Bidder. As a result, the Bidder may be barred from participating in future City contracts as well as be subject to possible criminal prosecution.

8. Examination and Viewing of Site, Consideration of Other Sources of Information and Changed Conditions

(A) Pre-Bidding (Investigation) Viewing of Site - Bidders must carefully view and examine the site of the proposed work, as well as its adjacent area, and seek other usual sources of information, for they will be conclusively presumed to have full knowledge of any and all conditions on, about or above the site relating to or affecting in any way the performance of the work to be done under the Contract which were or should have been indicated to a reasonably prudent bidder. To arrange a date for visiting the work site, bidders are to contact the Agency Contact person specified in Attachment 1.

(B) Should the contractor encounter during the progress of the work subsurface conditions at the site materially differing from any shown on the Contract Drawings or indicated in the Specifications or such subsurface conditions as could not reasonably have been anticipated by the contractor and were not anticipated by the City, which conditions will materially affect the cost of the work to be done under the Contract, the attention of the Commissioner must be called immediately to such conditions before they are disturbed. The Commissioner shall thereupon promptly investigate the conditions. If he finds that they do so materially differ, or that they could not reasonably have been anticipated by the contractor and were not anticipated by the City, the Contract may be modified with his written approval.

9. Examination of Proposed Contract

(A) Request for Interpretation or Correction: Prospective bidders must examine the Contract Documents carefully and before bidding must request the Commissioner in writing for an interpretation or correction of every patent ambiguity, inconsistency or error therein which should have been discovered by a reasonably prudent bidder. Such interpretation or correction, as well as any additional contract provisions the Commissioner may decide to include, will be issued in writing by the Commissioner as an addendum to the Contract, which will be transmitted to each person recorded as having received a copy of the Contract Documents from the Department. Transmission of such addendum will be by mail, e-mail, facsimile or hand delivery. Such addendum will also be posted at the place where the Contract Documents are available for the inspection of prospective bidders. Upon transmission as provided for herein, such addendum shall become a part of the Contract Documents, and binding on all bidders, whether or not actual notice of such addendum is shown.

(B) Only Commissioner's Interpretation or Correction Binding: Only the written interpretation or correction so given by the Commissioner shall be binding, and prospective bidders are warned that no other officer, agent or employee of the City is authorized to give information concerning, or to explain or interpret, the Contract.

(C) Documents given to a subcontractor for the purpose of soliciting the subcontractor's bid shall include either a copy of the bid cover sheet or a separate information sheet setting forth the project name, the Contract number (if available), the contracting agency and the Project's location.

10. Form of Bid

Each bid must be submitted upon the prescribed form and must contain: a) the name, residence and place of business of the person or persons making the same; b) the names of all persons interested therein, and if no other person is so interested, such fact must be distinctly stated; c) a statement to the effect that it is made without any connection with any other person making a bid for the same purpose and that it is in all respects fair and without collusion or fraud; d) a statement that no Council member or other officer or employee or person whose salary is payable in whole or part from the City Treasury is directly or indirectly interested therein or in the supplies, materials or equipment and work or labor to which it relates, or in any portion of the profits thereof; e) a statement that the bidder is not in arrears to the City or to any agency upon a debt or contract or taxes, and is not a defaulter as surety or otherwise upon any obligation to the City to any agency thereof, except as set forth in the bid.

THE BID SHALL BE TYPEWRITTEN OR WRITTEN LEGIBLY IN INK. THE BID SHALL BE SIGNED IN INK. ERASURES OR ALTERATIONS SHALL BE INITIALED BY THE SIGNER IN INK. FAILURE TO CONFORM TO THE REQUIREMENTS OF THIS SECTION 10 SHALL RESULT IN THE REJECTION OF THE BID.

11. Irrevocability of Bid

The prices set forth in the bid cannot be revoked and shall be effective until the award of the Contract, unless the bid is withdrawn as provided for in Sections 15 and 18 below.

12. Acknowledgment of Amendments

The receipt of any amendment to the Contract Documents shall be acknowledged by the bidder in its bid submission.

13. Bid Samples and Descriptive Literature

Bid samples and descriptive literature shall not be submitted by the bidder, unless expressly requested elsewhere in the Contract or Contract Documents. Any unsolicited bid samples or descriptive literature which are submitted shall not be examined or tested and shall not be deemed to vary any of the provisions of this Contract.

14. Proprietary Information/Trade Secrets

(A) The bidder shall identify those portions of the bid which it deems to be confidential, proprietary information or trade secrets, and provide justification why such materials shall not be disclosed by the City. All such materials shall be clearly indicated by stamping the pages on which such information appears, at the top and bottom thereof with the word "Confidential". Such materials stamped "Confidential" must be easily separable from the non-confidential sections of the bid.

(B) All such materials so indicated shall be reviewed by the Agency and any decision not to honor a request for confidentiality shall be communicated in writing to the bidder. For those bids which are unsuccessful, all such confidential materials shall be returned to the bidder. Prices, makes and model or catalog numbers of the items offered, deliveries, and terms of payment shall be publicly available after bid opening, regardless of any designation of confidentiality made by the bidder.

15. Pre-Opening Modification or Withdrawal of Bids

Bids may be modified or withdrawn by written notice received in the office designated in Attachment 1, before the time and date set for the bid opening. If a bid is withdrawn in accordance with this Section, the bid security, if any, shall be returned to the bidder.

16. Bid Evaluation and Award

In accordance with the New York City Charter, the Procurement Policy Board Rules and the terms and conditions of this Invitation For Bids, this Contract shall be awarded, if at all, to the responsible bidder whose bid meets the requirements and evaluation criteria set forth in the Invitation For Bids, and whose bid price is either the most favorable bid price or, if the Invitation For Bids so states, the most favorable evaluated bid price. A bid may not be evaluated for any requirement or criterion that is not disclosed in the Invitation For Bids.

Restriction: No negotiations with any bidder shall be allowed to take place except under the circumstances and in the manner set forth in Section 21. Nothing in this Section shall be deemed to permit a contract award to a bidder submitting a higher quality item than that designated in the Invitation For Bids, if that bid is not also the most favorable bid.

17. Late Bids, Late Withdrawals and Late Modifications

Any bid received at the place designated in the solicitation after the time and date set for receipt of bids is late and shall not be considered. Any request for withdrawal or modification received at the place designated in the solicitation after the time and date set for receipt of bids is late and shall not be considered. The exception to this provision is that a late modification of a successful bid that makes the bid terms more favorable to the City shall be considered at any time it is received.

18. Withdrawal of Bids.

Except as provided for in Section 15, above, a bidder may not withdraw its bid before the expiration of forty-five (45) days after the date of the opening of bids; thereafter, a bidder may withdraw its bid only in writing and in advance of an actual award. If within sixty (60) days after the execution of the Contract, the Commissioner fails to fix the date for commencement of work by written notice to the bidder, the bidder, at his option, may ask to be relieved of his obligation to perform the work called for by written notice to the Commissioner. If such notice is given to the Commissioner, and the request to withdraw is granted, the bidder waives all claims in connection with this Contract.

19. Mistake in Bids

(A) Mistake Discovered Before Bid Opening: A bidder may correct mistakes discovered before the time and date set for bid opening by withdrawing or correcting the bid as provided in Section 15 above.

(B) Mistakes Discovered Before Award

(1) In accordance with General Municipal Law (Section 103, subdivision 11), where a unilateral error or mistake is discovered in a bid, such bid may be withdrawn upon written approval of the Agency Chief Contracting Officer if the following conditions are met:

- (a) The mistake is known or made known to the agency prior to the awarding of the Contract or within 3 days after the opening of the bid, whichever period is shorter; and
- (b) The price bid was based upon an error of such magnitude that enforcement would be unconscionable; and

- (c) The bid was submitted in good faith and the bidder submits credible evidence that the mistake was a clerical error as opposed to a judgment error; and
- (d) The error in the bid is actually due to an unintentional and substantial arithmetic error or an unintentional omission of a substantial quantity of work, labor, material or services made directly in the compilation of the bid, which unintentional arithmetic error or unintentional omission can be clearly shown by objective evidence drawn from inspection of the original work paper, documents, or materials used in the preparation of the bid sought to be withdrawn; and
- (e) It is possible to place the agency in the same position as existed prior to the bid.

(2) Unless otherwise required by law, the sole remedy for a bid mistake in accordance with this Article shall be withdrawal of the bid, and the return of the bid bond or other security, if any, to the bidder. Thereafter, the agency may, in its discretion, award the Contract to the next lowest bidder or rebid the Contract. Any amendment to or reformation of a bid or a Contract to rectify such an error or mistake therein is strictly prohibited.

(3) If the mistake and the intended correct bid are clearly evident on the face of the bid document, the bid shall be corrected to the intended correct bid and may not be withdrawn. Examples of mistakes that may be corrected are typographical errors, errors in extending unit prices, transposition errors and arithmetical errors.

## 20. Low Tie Bids

(A) When two or more low responsive bids from responsible bidders are identical in price, meeting all the requirements and criteria set forth in the Invitation For Bids, the Agency Chief Contracting Officer will break the tie in the following manner and order of priority:

- (1) Award to a certified New York City small, minority or woman-owned business entity bidder;
- (2) Award to a New York City bidder;
- (3) Award to a certified New York State small, minority or woman-owned business bidder;
- (4) Award to a New York State bidder.

(B) If two or more bidders still remain equally eligible after application of paragraph (A) above, award shall be made by a drawing by lot limited to those bidders. The bidders involved shall be invited to attend the drawing. A witness shall be present to verify the drawing and shall certify the results on the bid tabulation sheet.

## 21. Rejection of Bids

(A) Rejection of Individual Bids: The Agency may reject a bid if:

- (1) The bidder fails to furnish any of the information required pursuant to Section 24 or 28 hereof; or if
- (2) The bidder is determined to be not responsible pursuant to the Procurement Policy Board Rules; or if
- (3) The bid is determined to be non-responsive pursuant to the Procurement Policy Board Rules; or if
- (4) The bid, in the opinion of the Agency Chief Contracting Officer, contains unbalanced bid prices and is thus non-responsive, unless the bidder can show that the prices are not unbalanced for the probable required quantity of items, or if the imbalance is corrected pursuant to Section 15.

(B) Rejection of All Bids: The Agency, upon written approval by the Agency Chief Contracting Officer, may reject all bids and may elect to resolicit bids if in its sole opinion it shall deem it in the best interest of the City so to do.

(C) Rejection of All Bids and Negotiation With All Responsible Bidders: The Agency Head may determine that it is appropriate to cancel the Invitation For Bids after bid opening and before award and to complete the acquisition by negotiation. This determination shall be based on one of the following reasons:

- (1) All otherwise acceptable bids received are at unreasonable prices, or only one bid is received and the Agency Chief Contracting Officer cannot determine the reasonableness of the bid price, or no responsive bid has been received from a responsible bidder; or
- (2) In the judgment of the Agency Chief Contracting Officer, the bids were not independently arrived at in open competition, were collusive, or were submitted in bad faith.

(D) When the Agency has determined that the Invitation for Bids is to be canceled and that use of negotiation is appropriate to complete the acquisition, the contracting officer may negotiate and award the Contract without issuing a new solicitation, subject to the following conditions:

- (1) prior notice of the intention to negotiate and a reasonable opportunity to negotiate have been given by the contracting officer to each responsible bidder that submitted a bid in response to the Invitation for Bids;
- (2) the negotiated price is the lowest negotiated price offered by a responsible bidder; and
- (3) the negotiated price is lower than the lowest rejected bid price of a responsible bidder that submitted a bid in response to the Invitation for Bids.

22. Right to Appeal Determinations of Non-Responsiveness or Non-Responsibility and Right to Protest Solicitations and Award

The bidder has the right to appeal a determination of non-responsiveness or non-responsibility and has the right to protest a solicitation and award. For further information concerning these rights, the bidder is directed to the Procurement Policy Board Rules.

23. Affirmative Action and Equal Employment Opportunity

This Invitation For Bids is subject to applicable provisions of Federal, State and Local Laws and executive orders requiring affirmative action and equal employment opportunity.

24. VENDEX Questionnaires

(A) Requirement: Pursuant to Administrative Code Section 6-116.2 and the PPB Rules, bidders may be obligated to complete and submit VENDEX Questionnaires. Generally, if this bid is \$100,000 or more, or if this bid when added to the sum total of all contracts, concessions and franchises the bidder has received from the City and any subcontracts received from City contractors over the past twelve months, equals or exceeds \$100,000, Vendex Questionnaires must be completed. If required, Vendex Questionnaires must be completed and submitted before any award of contract may be made or before approval is given for a proposed subcontractor. Non-compliance with these submission requirements may result in the disqualification of the bid, disapproval of a subcontractor, subsequent withdrawal of approval for the use of an approved subcontractor, or the cancellation of the contract after its award.

(B) Submission: Vendex Questionnaires must be submitted directly to the Mayor's Office of Contract Services, ATTN: Vendex, 253 Broadway, 9<sup>th</sup> Floor, New York, New York 10007. In addition, the bidder must submit a Confirmation of Vendex Compliance to the agency. A form for this confirmation is set forth in the Bid Booklet.

(C) Obtaining Forms: Vendex Questionnaires, as well as detailed instructions, may be obtained at [www.nyc.gov/vendex](http://www.nyc.gov/vendex). The bidder may also obtain Vendex forms and instructions by contacting the Agency Chief Contracting Officer or the contact person for this contract.

25. Complaints About the Bid Process

The New York City Comptroller is charged with the audit of contracts in New York City. Any vendor who believes that there has been unfairness, favoritism or impropriety in the bid process should inform the Comptroller, Office of Contract Administration, One Centre Street, Room 835, New York, New York; telephone number (212)669-2797.

26. Bid, Performance and Payment Security

(A) Bid Security: Each bid must be accompanied by bid security in an amount and type specified in Attachment 1. The bid security shall assure the City of New York of the adherence of the bidder to its proposal, the execution of the Contract, and the furnishing of Performance and Payment Bonds by the bidder, if required in Attachment 1. Bid security shall be returned to the bidder as follows:

- (1) Within ten (10) days after the bid opening, the Comptroller will be notified to return the deposits of all but the three (3) lowest bidders. Within five (5) days after the award, the Comptroller will be notified to return the deposits of the remaining two unsuccessful bidders.
- (2) Within five (5) days after the execution of the Contract and acceptance of the Contractor's bonds, the Comptroller will be notified to return the bid security of the successful bidder or, if performance and payment bonds are not required, only after the sum retained under Article 21 of the Contract equals the amount of the bid security.
- (3) Where all bids are rejected, the Comptroller will be notified to return the deposit of the three (3) lowest bidders at the time of rejection.

(B) Performance and Payment Security: Performance and Payment Security must be provided in an amount and type specified in Attachment 1. The performance and payment security shall be delivered by the contractor prior to or at the time of execution of the Contract. If a contractor fails to deliver the required performance and payment security, its bid security shall be enforced, and an award of Contract may be made to the next lowest responsible and responsive bidder, or the contract may be rebid.

(C) Acceptable Types of Security: Acceptable types of security for bids, performance, and payment shall be limited to the following:

- (1) a one-time bond in a form satisfactory to the City;
- (2) a bank certified check or money order;
- (3) obligations of the City of New York; or
- (4) other financial instruments as determined by the Office of Construction in consultation with the Comptroller.

Whenever the successful bidder deposits obligations of the City of New York as performance and payment security, the Comptroller may sell and use the proceeds thereof for any purpose for which the principal or surety on such bond would be liable under the terms of the Contract. If the money is deposited with the Comptroller, the successful bidder shall not be entitled to receive interest on such money from the City.

(D) Form of Bonds: Security provided in the form of bonds must be prepared on the form of bonds authorized by the City of New York. Forms for bid, performance, and payment bonds are included in the Invitation for Bids Documents. Such bonds must have as surety thereunder such surety company or companies as are: (1) approved by the City of New York; (2) authorized to do business in the State of New York, and (3) approved by the Department of the Treasury of the United States. Premiums for any required bonds must be included in the base bid.

The bidder is advised that submission of a bid bond where the surety on such bond fails to meet the criteria set forth herein, shall result in the rejection of the bid as non-responsive.



The Department of the Treasury of the United States advises that information concerning approved surety companies may be obtained as follows: (1) from the Government Printing Office at 202-512-1800; (2) through the Internet at <http://www.fms.treas.gov/c570/index.html>, and (3) through a computerized public bulletin board, which can be accessed by using your computer modem and dialing 202-874-6887.

(E) Power of Attorney: Attorneys in fact who sign bid, performance, or payment bonds must file with each bond a certified copy of their power of attorney to sign said bonds.

27. Failure to Execute Contract

In the event of failure of the successful bidder to execute the Contract and furnish the required security within ten (10) days after notice of the award of the Contract, the deposit of the successful bidder or so much thereof as shall be applicable to the amount of the award made shall be retained by the City, and the successful bidder shall be liable for and hereby agrees to pay on demand the difference between the price bid and the price for which such Contract shall be subsequently awarded, including the cost of any required reletting and less the amount of such deposit. No plea of mistake in such accepted bid shall be available to the bidder for the recovery of the deposit or as a defense to any action based upon such accepted bid. Further, should the bidder's failure to comply with this Section cause any funding agency, body or group (Federal, State, City, Public, Private, etc.) to terminate, cancel or reduce the funding on this project, the bidder in such event shall be liable also to the City for the amount of actual funding withdrawn by such agency on this project, less the amount of the forfeited deposit.

28. Bidder Responsibilities and Qualifications

(A) Bidders must include with their bids all information necessary for a determination of bidder responsibility, as set forth in the Specifications.

(B) The Agency may require any bidder or prospective bidder to furnish all books of account, records, vouchers, statements or other information concerning the bidder's financial status for examination as may be required by the Agency to ascertain the bidder's responsibility and capability to perform the Contract. If required, a bidder must also submit a sworn statement setting forth such information as the Agency may require concerning present and proposed plant and equipment, the personnel and qualifications of his working organizations, prior experience and performance record.

(C) Oral Examination on Qualifications: In addition thereto, and when directed by the Agency, the bidder, or a responsible officer, agent or employee of the bidder, must submit to an oral examination to be conducted by the Agency in relation to his proposed tentative plan and schedule of operations, and such other matters as the Agency may deem necessary in order to determine the bidder's ability and responsibility to perform the work in accordance with the Contract. Each person so examined must sign and verify a stenographic transcript of such examination noting thereon such corrections as such person may desire to make.

(D) If the bidder fails or refuses to supply any of the documents or information set forth in paragraph (B) hereof or fails to comply with any of the requirements thereof, the Agency may reject the bid.

29. Employment Report

In accordance with Executive Order No. 50 (1980) as modified by Executive Order 108 (1986), the filing of a completed Employment Report (ER) is a requirement of doing business with the City of New York for construction contractors with contracts of \$1,000,000 or more and subcontractors with construction subcontracts of \$750,000 or more. The required forms and information are included in the Bid Booklet.

30. Labor Law Requirements

(A) General: The successful bidder will be required to comply strictly with all Federal, State and local labor laws and regulations.

(B) New York State Labor Law: This Contract is subject to New York State Labor Law Section 220, which requires that construction workers on the site be paid prevailing wages and supplements. The Contractor is reminded that all wage provisions of this Contract will be enforced strictly and failure to comply will be considered when evaluating performance. Noncompliance may result in the contractor being debarred by the City from future contracts. Complaints filed with the Comptroller may result in decisions which may debar a contractor from bidding contracts with any state governmental entity and other political subdivisions.

(C) Records: The Contractor is expected to submit accurate payroll reports and other required documents and verify attendance and job classifications being utilized in compliance with the law, Contract provisions and agency procedures.

31. Insurance

(A) Bidders are advised that the insurance requirements contained herein are regarded as material terms of the Contract. As required by Article 22 of the Contract, the contractor must effect and maintain with companies licensed and authorized to do business in the State of New York, the types of insurance set forth therein, when required by and in the amounts set forth in Schedule A of the General Conditions. Such required insurance must be provided from the date the contractor is ordered to commence work and up to the date of final acceptance of all required work.

(B) The contractor must, within ten days of receipt of the notice of award, submit the following insurance documentation: (a) original certificate of insurance for general liability in the amount required by Schedule A of the General Conditions, and (b) original certificates of insurance or other proof of coverage for workers' compensation and disability benefits, as required by Section 57 of the New York State Workers' Compensation Law and Section 220 of the Disability Benefits Law.

32. Lump Sum Contracts

(A) Comparison of Bids: Bids on Lump Sum Contracts will be compared on the basis of the lump sum price bid, adjusted for alternate prices bid, if any.

(B) Lump Sum Bids for "General Construction Work" which include excavation shall include all necessary excavation work defined in the Specifications as being included in the lump sum bid. The bidder shall also bid a unit price for the additional cost of excavating material which is defined in the Specifications as excavation for which additional payment will be made. The total estimated additional cost of removing such material will be taken as the quantity set forth in the Engineer's Estimate multiplied by the unit price bid. This total estimated cost of additional excavation shall be added to the lump sum bid for the General Construction Work for the purpose of comparing bids to determine the low bidder.

(C) Variations from Engineer's Estimate: The Engineer's Estimate of the quantity of excavation for which additional payment will be made is approximate only and is given solely to be used as a uniform basis for the comparison of bids and such estimate is not to be considered as part of this contract. The quantities actually required to complete the contract work may be more or less than the quantities in the Engineer's Estimate and, if so, no action for damages or for loss of profits shall accrue to the contractor by reason thereof.

33. Unit Price Contracts

(A) Comparison of Bids: Bids on Unit Price Contracts will be compared on the basis of a total estimated price, arrived at by taking the sum of the estimated quantities of such items, in accordance with the Engineer's Estimate of Quantities set forth in the Bid Form, multiplied by the corresponding unit prices, and including any lump sum bids on individual items.

(B) Variations from Engineer's Estimate: Bidders are warned that the Engineer's Estimate of Quantities on the various items of work and materials is approximate only, given solely to be used as a uniform basis for the comparison of bids, and is not to be considered part of this contract. The quantities actually required to complete the contract work may be less or more than so estimated, and if so, no action for damages or for loss of profits shall accrue to the contractor by reason thereof.

(C) Overruns: The terms and conditions applicable to overruns of unit price items are set forth in Article 26 of the Contract.

34. Excise Tax

Bidders are referred to the Specifications for information on Federal Excise Tax exemptions.

35. Licenses and Permits

The successful bidder will be required to obtain all necessary licenses and permits necessary to perform the work.

36. Multiple Prime Contractors

If more than one prime contractor will be involved on this project, all contractors are required to examine the Invitation for Bid packages for all other parts of the project.

37. Locally Based Enterprise Requirements (LBE)

This Contract is subject to the requirements of Administrative Code, Section 6-108.1, and the regulations promulgated thereunder. No construction contract will be awarded unless and until these requirements have been complied with in their entirety. The bidder is advised of the provisions set forth below, as well as the provisions with respect to the Locally Based Enterprise Program contained in Article 67 of the Contract. The contractor is advised that:

(A) If any portion of the Contract is subcontracted, not less than ten percent of the total dollar amount of the contract shall be awarded to locally based enterprises ("LBEs"); except, where less than ten percent of the total dollar amount of the Contract is subcontracted, such lesser percentage shall be so awarded.

(B) No contractor shall require performance and payment bonds from LBE subcontractors.

(C) No Contract shall be awarded unless the contractor first identifies in its bid:

- (1) the percentage, dollar amount and type of work to be subcontracted; and
- (2) the percentage, dollar amount and type of work to be subcontracted to LBEs.

(D) Within ten calendar days after notification of low bid, the apparent low bidder shall submit an "LBE Participation Schedule" to the contracting agency. If such schedule does not identify sufficient LBE subcontractors to meet the requirements of Administrative Code Section 6-108.1, the apparent low bidder shall submit documentation of its good faith efforts to meet such requirements.

(1) The "LBE Participation Schedule" shall include:

- (a) the name and address of each LBE that will be given a subcontract,
- (b) the percentage, dollar amount and type of work to be subcontracted to the LBE, and
- (c) the dates when the LBE subcontract work will commence and end.

- (2) The following documents shall be attached to the "LBE Participation Schedule":
- (a) verification letters from each subcontractor listed in the "LBE Participation Schedule" stating that the LBE will enter into a formal agreement for work,
  - (b) certification documents of any proposed LBE subcontractor which is not on the LBE certified list, and
  - (c) copies of the certification letter of any proposed subcontractor which is an LBE.
- (3) Documentation of good faith efforts to achieve the required LBE percentage shall include as appropriate but not limited to the following:
- (a) attendance at prebid meetings, when scheduled by the agency, to advise bidders of contract requirements;
  - (b) advertisement where appropriate in general circulation media, trade association publications and small business media of the specific subcontracts that would be at least equal to the percentage goal for LBE utilization specified by the contractor;
  - (c) written notification to association of small, minority and women contractors soliciting specific subcontractors;
  - (d) written notification by certified mail to LBE firms that their interest in the contract is solicited for specific work items and their estimated values;
  - (e) demonstration of efforts made to select portions of the work for performance by LBE firms in order to increase the likelihood of achieving the stated goal;
  - (f) documented efforts to negotiate with LBE firms for specific subcontracts, including at a minimum:
    - (i) The names, address and telephone numbers of LBE firms that are contacted;
    - (ii) A description of the information provided to LBE firms regarding the plans and specifications for portions of the work to be performed;
    - (iii) Documentation showing that no reasonable price can be obtained from LBE firms;
    - (iv) A statement of why agreements with LBE firms were not reached;
  - (g) a statement of the reason for rejecting any LBE firm which the contractor deemed to be unqualified; and
  - (h) documentation of efforts made to assist the LBE firms contacted that needed assistance in obtaining required insurance.

(E) Unless otherwise waived by the Commissioner with the approval of the Office of Economic and Financial Opportunity, failure of a proposed contractor to provide the information required by paragraphs (C) and (D) above may render the bid non-responsive and the Contract may not be awarded to the bidder. If the contractor states that it will subcontract a specific portion of the work, but can demonstrate despite good faith efforts it cannot achieve its required LBE percentage for subcontracted work until after award of Contract, the Contract may be awarded, subject to a letter of compliance from the contractor stating that it will comply with Administrative Code Section 6-108.1 and subject to approval by the Commissioner. If the contractor has not met its required LBE percentage prior to award, the contractor shall demonstrate that a good faith effort has been made subsequent to award to obtain LBEs on each subcontract until it meets the required percentage.

(F) When a bidder indicates prior to award that no work will be subcontracted, no work may be subcontracted without the prior written approval of the Commissioner, which shall be granted only if the contractor in good faith seeks LBE subcontractors at least six weeks prior to the start of work.

(G) The contractor may not substitute or change any LBE which was identified prior to award of the contract without the written permission of the Commissioner. The contractor shall make a written application to the Commissioner for permission to make such substitution or change, explaining why the contractor needs to change its LBE subcontractor and how the contractor will meet its LBE subcontracting requirement. Copies of such application must be served on the originally identified LBE by certified mail return receipt requested, as well as the proposed substitute LBE. The Commissioner shall determine whether or not to grant the contractor's request for substitution.

38. Bid Submission Requirements

The Bid Submission Requirements are set forth on page 2 of the Bid Booklet.

39. Comptroller's Certificate

This Contract shall not be binding or of any force unless it is registered by the Comptroller in accordance with Section 328 of the City Charter and the Procurement Policy Board Rules. This Contract shall continue in force only after annual appropriation of funds by the City of New York and certification as hereinabove set forth.

40. Procurement Policy Board Rules

This Invitation For Bids is subject to the Rules of the Procurement Policy Board of the City of New York. In the event of a conflict between said Rules and a provision of this Invitation For Bids, the Rules shall take precedence.

41. DDC Safety Requirements

The DDC Safety Requirements apply to the work to be performed pursuant to the Contract. The DDC Safety Requirements are set forth on the following pages.

**CITY OF NEW YORK**  
**DEPARTMENT OF DESIGN AND CONSTRUCTION**  
**SAFETY REQUIREMENTS**

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THE DDC SAFETY REQUIREMENTS INCLUDE THE FOLLOWING SECTIONS:

- I. POLICY ON SITE SAFETY
- II. PURPOSE
- III. DEFINITIONS
- IV. RESPONSIBILITIES
- V. SAFETY QUESTIONNAIRE
- VI. SAFETY PROGRAM AND SITE SAFETY PLAN
- VII. KICK-OFF/PRE-CONSTRUCTION MEETINGS AND SAFETY REVIEW
- VIII. EVALUATION DURING WORK IN PROGRESS
- IX. SAFETY PERFORMANCE EVALUATION

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## I. POLICY ON SITE SAFETY

The City of New York Department of Design and Construction (DDC) is committed to a policy of injury and illness prevention and risk management for construction work that will ensure the safety and health of the workers engaged in the projects and the protection of the general public. Therefore, it is DDC's policy that work carried out by Contractors on DDC jobsites must, at a minimum, comply with applicable federal, state and city laws, rules and regulations, including without limitation:

- ❑ U. S. Department of Labor 29 Code of Federal Regulations (CFR) Part 1926 and applicable Sub-parts of Part 1910 – U.S. Occupational Safety and Health Administration (OSHA) including, but not limited to "Respiratory Protection" (29 CFR 1910.134), "Permit-Required Confined Spaces" (29 CFR 1910.146), and "Hazard Communication" (29 CFR 1910.1200);
- ❑ New York State Department of Labor Industrial Code Rule 23 – Protection in Construction, Demolition and Excavation;
- ❑ New York City Construction Codes, Title 28
- ❑ NYC Department of Transportation Title 34 Chapter 2 – Highway Rules
- ❑ New York State Department of Labor Industrial Code Rule 753
- ❑ NYC Local Law No. 113 (2005) Noise Control Code

In addition, all regulations promulgated by the NYC Department of Transportation, including requirements for Maintenance and Protection of Traffic (MPT), are applicable when contained in contract specifications. While MPT is a significant component of work in our Infrastructure Division, it does not supersede or exempt Contractors from complying with other applicable health and safety standards (for example, excavating and trenching standards, operation of heavy equipment and compliance with City environmental and noise regulations).

## I. PURPOSE

The purpose of this policy is to ensure that Contractors perform their work and supervise their employees in accordance with all applicable federal, state and city rules and regulations. Further, Contractors will be expected to minimize or eliminate jobsite and public hazard, through a planning, inspection, auditing and corrective action process. The goal is to control risks so that injuries, illnesses and accidents to contractors' employees, DDC employees and the general public, as well as damage to city-owned and private property, are reduced to the lowest level feasible.

## III. DEFINITIONS

**Agency Chief Contracting Officer (ACCO):** The ACCO shall mean the person delegated authority by the Commissioner to organize and supervise the procurement activity of subordinate Agency staff in conjunction with the CCPO.

**Competent Person:** As defined by OSHA, an individual who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees or the general public, and who has authorization to take prompt corrective measures to eliminate them.

**Construction Safety Auditor:** A representative of the QACS Construction Safety Unit who provides inspection and assessment services to enhance health and safety on all DDC construction projects. The activities of the Construction Safety Auditor include performing site surveys, reviewing health and safety plans, reviewing construction permits, and rendering technical advice and assistance to DDC Resident Engineers and Project Managers.

**Construction Safety Unit:** A part of QACS within the Division of Technical Support that assesses contractor safety on DDC jobsites and advises responsible parties of needed corrective actions.



**Construction Superintendent:** A representative of the contractor responsible for overseeing performance of the required construction work. This individual must engage in sound construction practices, and is responsible to maintain a safe work site. In the case of a project involving the demolition, alteration or new construction of buildings, the Construction Superintendent must be licensed by the NYC Department of Buildings.

**Contractor:** For purposes of these Safety Requirements, the term "Contractor" shall mean any person or entity that enters into a contract for the performance of construction work on a DDC project. The term "Contractor" shall include any person or entity which enters into any of the following types of contracts: (1) a prime construction contract for a specific project, (2) a prime construction contract using the Job Order Contracting System ("JOCS Contract"), and (3) a subcontract with a CM/Builder ("First Tier Subcontract").

**Director - Quality Assurance and Construction Safety (QACS):** Responsible for the operations of the QACS Construction Safety Unit and the DDC Site Safety management programs.

**Job Hazard Assessment (JHA):** A process of identifying site-specific hazards that may be present during construction and establishing the means and methods to reduce or eliminate those hazards.

**Jobsite Safety Coordinator:** A person designated by the Contractor to be onsite during all activities. This individual shall have received, at a minimum, the OSHA 10-hour construction safety program. Other examples of acceptable training are the 30-hour OSHA Safety and Health Standards for the Construction Industry training program (OSHA 510) or a degree/certificate in a safety and health from a college-level curriculum. This person does not necessarily have to be dedicated full-time to site safety, but must have sufficient experience and authority to undertake corrective action and must qualify to be a competent person. For certain projects, as defined in NYC Construction Codes – Title 28, this person may be required to have a Site Safety Manager's License issued by the NYC DOB.

**Qualified Person:** As defined by OSHA, an individual who, by possession of a recognized degree, certificate, license or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his or her ability to solve problems relating to the subject matter, the work, or the project. Qualified Persons are required under regulation to address issues pertaining, but without limit, to fall protection, scaffold design and trenching and shoring, among others.

**Resident Engineer (RE) / Construction Project Manager (CPM):** Representative of the Commissioner duly designated by the Commissioner to be his/her representative at the site of the work. (The RE/CPM may be a third-party consultant, including a CM, retained by DDC.)

**Safety Program:** Established by the Contractor that covers all operations of that Contractor and establishes the Contractor's overall safety policy, regulatory compliance plan and minimum safety standards. The Safety Program must be submitted prior to the commencement of work at the site and is subject to review and acceptance by the Construction Safety Unit.

**Safety Questionnaire:** Used by DDC to evaluate Contractor's current and past safety performance. It is required to be completed by all Contractors initially when submitting bids for Construction work, or when being pre-qualified and updated annually or as requested by the DDC.

**Site Safety Plan:** A site-specific safety plan developed by the Contractor for a specific project. The Site Safety Plan must identify hazards associated with the project, and include specific safety precautions and training appropriate and necessary to complete the work. The Site Safety Plan must be submitted prior to the commencement of work at the site and is subject to review and acceptance by the Construction Safety Unit.

**Unsafe or Unhealthy Condition:** A condition that could be potentially hazardous to the health and safety of personnel or the public, and/or damaging to equipment, machinery, property or the environment.

**Weekly Safety Meetings:** Weekly documented jobsite safety meetings, given to all jobsite personnel by contractor, with the purpose of discussing general safety topics and job specific requirements encountered at the DDC work site.

#### IV. RESPONSIBILITIES

All persons who manage, perform, and provide support for construction projects shall conduct operations in compliance with the requirements identified in this Policy and all applicable governing regulatory agency requirements and guidelines pertaining to safety in construction.

##### A. Resident Engineer / Construction Project Manager / Construction Manager

- Monitors the issuance of safety-related permits, approvals and drawings and maintains copies on site.
- Monitors construction-related work activities to confirm that they are conducted in accordance with DDC policies and all applicable regulations that pertain to construction safety.
- Maintains documentation and periodically attends weekly safety meeting.
- Notifies the Construction Safety Unit and the ACCO's Insurance and Risk Management Unit of project-related accidents and emergencies, as per DDC's Construction Safety Emergency Protocol.
- Gathers facts related to all accidents and prepares DDC Accident Reports.
- Notifies the Construction Safety Unit of outside regulatory agency inspections and forwards a copy of the inspection report within three days of its receipt.
- Monitors the conditions at the site for conformance with the Site Safety Plan and DDC construction documents.
- Notifies the contractor and DDC in the event that any condition or activity exists that is not in compliance with the Site Safety Plan, applicable federal, state or local codes or any condition that presents a potential risk of injury to the public or workers or possible damage to property.
- Notifies DDC of any emergency condition and directs the contractor to provide such labor, materials, equipment and supervision to abate such conditions.
- Reports gross safety violations to the Construction Safety Unit immediately.

##### A. Contractors

- Complete a Safety Questionnaire and submit with its bid or as part of a pre-qualification package.
- Provide a Written Job Hazard Assessment (JHA) that identifies expected safety issues of the work to be performed. JHA shall be included with the Site Safety Plan submitted by the contractor.
- Submit a Site Safety Plan and Safety Program within 15 days of issuance of the Notice to Proceed, or as otherwise directed. The Site Safety Plan and Safety Program are subject to review and acceptance by the Construction Safety Unit prior to the commencement of work at the site. The Site Safety Plan shall be revised and updated as necessary.
- Ensure that all employees are aware of the hazards associated with the project through formal and informal training and/or other communications. Conduct and document weekly safety meetings for the duration of the project. Documentation to be provided to the RE/CPM/CM on a monthly basis.
- Name a Construction Superintendent, if required.
- Name a Job Site Safety Coordinator. The Contractor will be required to identify the Job Site Safety Coordinator in the Site Safety Plan.
- Comply with all mandated federal, state and local safety and health rules and regulations.
- Comply with all provisions of the Site Safety Plan.
- As part of the Site Safety Plan, prepare a site specific MPT (if not otherwise provided in the contract documents) and comply with all of its provisions.
- Conduct and document site-specific safety orientation for Contractor personnel to review the hazards associated with the project as identified in the Site Safety Plan and the specific safety procedures and controls that will be used to protect workers, the general public and property. The Job Site Safety Coordinator will conduct this training prior to mobilization and provide documentation to the RE/CPM/CM.
- Provide, replace and adequately maintain at or around the project site, suitable and sufficient signage, lights, barricades and enclosures (fences, sidewalk sheds, netting, bracing, etc.).
- Report unsafe conditions or hazards to the DDC RE/CPM/CM as soon as practical, but no more than 24 hours after discovery, and take action to remove or abate such conditions.

- Report any accident involving injuries to workers or the general public, as well as property damage, to the DDC RE/CPM/CM within two (2) hours.
- Notify the DDC RE/CPM/CM within two (2) hours of the start of an inspection by any regulatory agency personnel, including OSHA.
- Maintain all records pertaining to all required compliance documents and accident and injury reports.
- Respond to DDC recommendations on safety, which shall in no way relieve the Contractor of its responsibilities for safety on the project. The Contractor has sole responsibility for safety.

## V. SAFETY QUESTIONNAIRE

DDC requires that all Contractors provide information regarding their current and past safety and environmental performance and programs. This will be accomplished by the use of the DDC Safety Questionnaire. As a part of the bid submittal package, the contractor must submit a completed DDC Safety Questionnaire listing their workers' compensation experience modification rating and OSHA Incidence Rates for the three (3) years prior to the date of the bid opening. DDC may request a Contractor to update its Questionnaire at any time or to provide more detailed information. The Contractor must provide the requested update within 30 days.

The following criteria will be used by DDC in reviewing the Contractor's responsibility, which will be based on the information provided on the questionnaire:

- Criteria 1: OSHA Injury and Illness Rates (I&IR) are no greater than the average for the industry (based on the most current Bureau of Labor Statistics data for the Contractors SIC code); and
- Criteria 2: Insurance workers compensation Experience Modification Rate (EMR) equal to or less than 1.0; and
- Criteria 3: Any willful violations issued by OSHA or NYC DOB within the last three years; and
- Criteria 4: A fatality (worker or member of public) experienced on or near Contractor's worksite within the last three (3) years; and
- Criteria 5: An unacceptable rating by QACS based on past performance on DDC projects; and
- Criteria 6: Contractor has in place an acceptable corporate safety program and its employees shall have completed all documented relative safety training; and
- Criteria 7: Contractor shall provide OSHA Injury Records (currently OSHA 300 Log) for the last three (3) years.

If the Contractor fails to meet the basic criteria listed above, the Construction Safety Unit may request, through the ACCO, more detail concerning the Contractor's safety experience. DDC may request the Contractor to provide copies of, among other things, OSHA records, OSHA and DOB citations, EPA citations and written Safety Programs.

## VI. SAFETY PROGRAM AND SITE SAFETY PLAN

Within fifteen (15) days of issuance of the Notice to Proceed, or as otherwise directed, the Contractor shall submit the following: (1) Safety Program, and (2) Site Safety Plan. The Safety Program shall set forth the Contractor's overall safety policy, regulatory compliance plan and minimum safety standard, and the Site Safety Plan shall identify hazards associated with the project, and include specific safety precautions and training appropriate and necessary to complete the work. The Safety Program and the Site Safety Plan are subject to review and acceptance by the Construction Safety Unit prior to the commencement of work at the site. Failure by the contractor to submit an acceptable Site Safety Plan and Safety Program shall be grounds for default.

The Site Safety Plan shall apply to all Contractor and subcontractor operations, and shall have at a minimum, the following elements. Each element shall be described in a separate section in the written document. It may be necessary to modify the basic format for certain unique or high-risk projects (such as tunnels or high-rise construction). The basic elements are as follows:

1. **Responsibility and Organization:** Identify the person or persons with authority and responsibility for implementing the Site Safety Plan. Provide an organization chart and define levels of authority and responsibility. Identify the Competent Person, the Construction Superintendent (if required), the Job Safety Coordinator and the Qualified Person required for this project.
2. **Communication:** Establish a system for communicating with employees and subcontractors on matters relating to worker and public safety and health and environmental protection, including provisions designed to encourage employees to inform the employer of hazards at the worksite without fear of reprisal. An emergency response notification protocol is to be established that also includes after hours contact numbers. The plan must also include provisions for weekly safety meetings held by the Job Site Safety Coordinator.
3. **Job Hazard Assessment:** A written document submitted by the contractor, used to identify expected job hazards and public safety risks and state the specific means and methods to reduce, control or eliminate those hazards. This part of the Site Safety Plan must also include how on-going evaluations of those risks and hazards will be carried out, including plans for periodic inspections to identify unsafe conditions, work practices and public safety hazards.
4. **Accident/Exposure Investigation:** Establish a procedure to investigate and report occupational and public injury or illness, property damage, vehicle accidents or other mishaps.
5. **Hazard Correction:** Establish means, methods and/or procedures for correcting unsafe or unhealthy conditions that might be exposing both the public and workers to hazards. Corrective actions must be taken immediately when observed or discovered. Should an imminent hazard exist which cannot be immediately abated without endangering employees, the public and/or property, remove or restrict all exposed persons from the area except those necessary to correct the existing condition. Employees necessary to correct the hazardous condition shall be provided the necessary safeguards. When corrective actions cannot be taken immediately, temporary measures should be taken until such time permanent measures are taken to eliminate the potential risks or hazards
6. **Training:** Describe site-specific hazard training programs. In addition to the required safety orientation, additional site specific training, in the form of required weekly safety meetings, will be required. Contractors must also initiate training when: a) new employees are hired; b) employees are given new job assignments for which training has not been previously received; c) new substances, processes, procedures or equipment are introduced that might represent a new public or worker hazard; d) the employee is made aware of a new or previously unrecognized hazard; e) new supervisors are assigned to familiarize themselves with the safety and health hazards to which employees under their immediate direction and control may be exposed; and f) after a jobsite incident or accident has occurred.
7. **Recordkeeping:** Establish procedures to maintain records of scheduled and periodic inspections, weekly safety meetings, and training records. Updated records shall be maintained at the jobsite, accessible to the Construction Safety Auditors and/or Quality Assurance Auditors/RE/CPM, and retained in accordance with DDC policy.

The most critical component of the Site Safety Plan is the Job Hazard Assessment section. This section must address specific hazards that are anticipated throughout the project. Each Site Safety Plan must address, at a minimum:

- Public and pedestrian safety
- Fall protection
- Electrical hazards
- Scaffolding
- Fire protection
- Emergency notification & response
- Housekeeping / debris removal
- Dust control
- Maintenance and protection of traffic
- Trenching and excavating
- Heavy equipment operations
- Material / equipment storage
- Environmental contamination
- Sheeting and shoring
- Alcohol and Drug Abuse Policy

The following additional hazards must be addressed, if applicable, based on the contract safety specifications and/or the results of the JHA (the list is not all-inclusive):

- Basic Personal Protective Equipment
- Compressed Air
- Compressed Gas Cylinders
- Cranes, Derricks and Hoists
- Demolition
- Electrical safety
- Excavations and Trenching
- Fall Protection – Floor openings/Stairways
- Fall Protection – Guardrails Toe boards etc
- Fall Protection – Leading Edge
- Fall Protection – Personal Fall Protection Devices
- Fire Protection and Fire Prevention
- Hazard Communication (RIGHT TO KNOW)
- Hazardous Energy & Lock Out / Tag Out
- Housekeeping/ Sanitation
- Maintenance and Protection of Traffic (MPT)
- Man Lifts /Aerial Lifts
- Marine Operations
- Motor Vehicle Safety
- Overhead Power lines
- Permit Required Confined Space
- Portable Ladders
- Powered Actuated Tools
- Powered Material Handling Equipment
- Scaffolds – Mobile
- Scaffolds – Stationary
- Scaffolds – Suspended
- Slings
- Steel Erection
- Welding and Cutting (Hot Work)
- Airborne Contaminants – Particulates – General
- Asbestos
- Blood borne Pathogens
- Hearing Protection
- Lead in Construction
- Mercury in Construction
- PCB's
- Respiratory Protection
- Silica
- Thermal Stress
- West Nile Virus
- Rodents and Vermin
- Noise Mitigation Plan

Certain DDC programs, such as Job Order Contracting System (JOCS), may not necessarily require Site Safety Plans. The JOCS contractor will be required to submit a Safety Program. In addition, certain DDC Operating Units may establish program or client-specific safety requirements. The contractor's Site Safety Plan must address such program or client specific safety requirements.

## VII. KICK-OFF MEETINGS/PRE-CONSTRUCTION AND SAFETY REVIEW

As part of the construction kick-off meeting, a Site Safety Plan review will be part of the agenda. A QACS representative will participate in this meeting with the contractor prior to the start of the project for the purpose of:

- A. Reviewing the safety issues detailed in the contract.
- B. Reviewing the Site Safety Plan.
- C. Reviewing any new issues or information that was not previously addressed.
- D. Discussing planned inspections and audits of the site by DDC personnel.

## VIII. EVALUATION DURING WORK IN PROGRESS

The Contractor's adherence to these Safety Requirements will be monitored throughout the project. This will be accomplished by the following:

- A. Use of a safety checklist by a representative of the Construction Safety Unit or other designated DDC representative or Consultant during regular, unannounced inspections of the job site. Field Exit Conferences will be held with the RE/CPM, Contractor Superintendents or Safety Representatives.
- B. The RE/CPM will continually monitor the safety and environmental performance of the contractor's employees and work methods. Deficiencies shall be brought to the attention of the contractor's representative on site for immediate correction. The DDC representative will maintain a written record of these deficiencies and forward them to the Construction Safety Unit on a weekly basis. Any critical deficiencies shall be immediately reported to QACS phone# (718) 391-1624 or (718) 391-1911.
- C. If the Contractor's safety performance during the project is not up to DDC standards (safety performance measure, accident/incident rate, etc.) the Director- QACS, or designee will meet with the Contractor's safety representative, the DDC project manager, the RE/CPM, or the DDC Environmental Specialist (if environmental issues are involved ). The purpose of this meeting is to 1) determine the level of non-compliance; 2) explain and clarify the safety/environmental provisions; 3) agree on a future course of action to correct the deficiencies.
- D. If the deficiencies continue to occur with inadequate attention by the contractor, this shall, among other remedies available, be grounds for default.
- E. The contractor shall inform the Construction Safety Unit and ACCO Insurance and Risk Management Unit of all medical injuries or illnesses that require doctors' treatment resulting from an on-the-job incident within 24 hours of the occurrence. The Construction Safety Unit shall also be immediately informed of all fatalities, catastrophic accidents with more than one employee hospitalized, any injuries to members of the general public and major equipment damage (e.g., property damage, equipment rollovers, loads dropped from crane). QACS shall maintain a record of all contractor injuries and illnesses during the project and provide regular reports to the Agency.
- F. The Construction Safety Unit shall be immediately notified at the start of any NYS-DOL/ NYC-COSH/ OSHA/ EPA inspections. The Director of Quality Assurance & Construction Safety shall maintain a log of all contractor OSHA/EPA inspections and citations during the project.

## IX. SAFETY PERFORMANCE EVALUATION

The contractor's safety record, including all DDC inspection results, will be considered as part of the Contractor's performance evaluation at the conclusion of the project. Poor safety performance during the course of the project shall be a reason to rate a Contractor unsatisfactory which will be reflected in the City's Vendex system and will be considered for future procurement actions as set forth in the City's Procurement Policy Board Rules.

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**CITY OF NEW YORK**  
**STANDARD CONSTRUCTION CONTRACT**

**December 2013**





CITY OF NEW YORK  
STANDARD CONSTRUCTION CONTRACT

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*CITY OF NEW YORK*  
*STANDARD CONSTRUCTION CONTRACT*

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WITNESSETH:

The parties, in consideration of the mutual agreements contained herein, agree as follows:

CHAPTER I  
THE CONTRACT AND DEFINITIONS

ARTICLE 1. THE CONTRACT

1.1 Except for titles, subtitles, headings, running headlines, tables of contents and indices (all of which are printed herein merely for convenience), the following, except for such portions thereof as may be specifically excluded, shall be deemed to be part of this Contract:

1.1.1 All provisions required by law to be inserted in this Contract, whether actually inserted or not;

1.1.2 The Contract Drawings and Specifications;

1.1.3 The General Conditions and Special Conditions, if any;

1.1.4 The Contract;

1.1.5 The Information for Bidders; Request for Proposals; Notice of Solicitation and Proposal For Bids; Bid or Proposal, and, if used, the Bid Booklet;

1.1.6 All Addenda issued prior to the receipt of the bids; the Notice of Award; Performance and Payment Bonds, if required; and the Notice to Proceed or the Order to Work.

1.2 Should any conflict occur in or between the Drawings and Specifications, the Contractor shall be deemed to have estimated the most expensive way of doing the Work, unless the Contractor shall have asked for and obtained a decision in writing from the Commissioner of the Agency that is entering into this Contract, before the submission of its bid, as to what shall govern.

ARTICLE 2. DEFINITIONS

2.1 The following words and expressions, or pronouns used in their stead, shall, wherever they appear in this Contract, be construed as follows, unless a different meaning is clear from the context:

2.1.1 "Addendum" or "Addenda" shall mean the additional Contract provisions and/or technical clarifications issued in writing by the Commissioner prior to the receipt of bids.

2.1.2 "Agency" shall mean a city, county, borough or other office, position, department, division, bureau, board or commission, or a corporation, institution or agency of government, the expenses of which are paid in whole or in part from the City treasury.

2.1.3 "Agency Chief Contracting Officer" (ACCO) shall mean a person delegated authority by the Commissioner to organize and supervise the procurement activity of subordinate Agency staff in conjunction with the CCPO, or his/her duly authorized representative.

2.1.4 "Allowance" shall mean a sum of money which the Agency may include in the total amount of the Contract for such specific contingencies as the Agency believes may be necessary to complete the Work, e.g., lead or asbestos remediation, and for which the Contractor will be paid on the basis of stipulated unit prices or a formula set forth in the Contract or negotiated between the parties provided, however, that if the Contractor is not directed to use the Allowance, the Contractor shall have no right to such money and it shall be deducted from the total amount of the Contract.

2.1.5 "City" shall mean the City of New York.

2.1.6 "City Chief Procurement Officer" (CCPO) shall mean a person delegated authority by the Mayor to coordinate and oversee the procurement activity of Mayoral agency staff, including the ACCO and any offices which have oversight responsibility for the procurement of construction, or his/her duly authorized representative.

2.1.7 "Commissioner" shall mean the head of the Agency that has entered into this Contract, or his/her duly authorized representative.

2.1.8 "Comptroller" shall mean the Comptroller of the City of New York.

2.1.9 "Contract" or "Contract Documents" shall mean each of the various parts of the contract referred to in Article 1 hereof, both as a whole and severally.

2.1.10 "Contract Drawings" shall mean only those drawings specifically entitled as such and listed in the Specifications or in any Addendum, or any drawings furnished by the Commissioner, pertaining or supplemental thereto.

2.1.11 "Contract Work" shall mean everything required to be furnished and done by the Contractor by any one or more of the parts of the Contract referred to in Article 1, except Extra Work as hereinafter defined.

2.1.12 "Contractor" shall mean the entity which executed this Contract, whether a corporation, firm, partnership, joint venture, individual, or any combination thereof, and its, their, his/her successors, personal representatives, executors, administrators, and assigns, and any person, firm, partnership, joint venture, individual, or corporation which shall at any time be substituted in the place of the Contractor under this Contract.

2.1.13 "Days" shall mean calendar days, except where otherwise specified.

2.1.14 "Engineer" or "Architect" or "Project Manager" shall mean the person so designated in writing by the Commissioner in the Notice to Proceed or the Order to Work to act as such in relation to this Contract, including a private Architect or Engineer or Project Manager, as the case may be. Subject to written approval by the Commissioner, the Engineer, Architect or Project Manager may designate an authorized representative.

2.1.15 "Engineering Audit Officer" (EAO) shall mean the person so designated by the Commissioner to perform responsible auditing functions hereunder.

2.1.16 "Extra Work" shall mean Work other than that required by the Contract at the time of award which is authorized by the Commissioner pursuant to Chapter VI of this Contract.

2.1.17 "Federal-Aid Contract" shall mean a contract in which the United States (federal) Government provides financial funding as so designated in the Information for Bidders.

- 2.1.18 **"Final Acceptance"** shall mean final written acceptance of all the Work by the Commissioner, a copy of which shall be sent to the Contractor.
- 2.1.19 **"Final Approved Punch List"** shall mean a list, approved pursuant to Article 14.2.2, specifying those items of Work to be completed by the Contractor after Substantial Completion and dates for the completion of each item of Work.
- 2.1.20 **"Law"** or **"Laws"** shall mean the Constitution of the State of New York, the New York City Charter, the New York City Administrative Code, a statute of the United States or of the State of New York, a local law of the City of New York, any ordinance, rule or regulation having the force of law, or common law.
- 2.1.21 **"Materialman"** shall mean any corporation, firm, partnership, joint venture, or individual, other than employees of the Contractor, who or which contracts with the Contractor or any Subcontractor, to fabricate or deliver, or who actually fabricates or delivers, plant, materials or equipment to be incorporated in the Work.
- 2.1.22 **"Means and Methods of Construction"** shall mean the labor, materials, temporary structures, tools, plant, and construction equipment, and the manner and time of their use, necessary to accomplish the result intended by this Contract.
- 2.1.23 **"Notice to Proceed"** or **"Order to Work"** shall mean the written notice issued by the Commissioner specifying the time for commencement of the Work and the Engineer, Architect or Project Manager.
- 2.1.24 **"Other Contractor(s)"** shall mean any contractor (other than the entity which executed this Contract or its Subcontractors) who or which has a contract with the City for work on or adjacent to the building or Site of the Work.
- 2.1.25 **"Payroll Taxes"** shall mean State Unemployment Insurance (SUI), Federal Unemployment Insurance (FUI), and payments pursuant to the Federal Insurance Contributions Act (FICA).
- 2.1.26 **"Project"** shall mean the public improvement to which this Contract relates.
- 2.1.27 **"Procurement Policy Board"** (PPB) shall mean the Agency of the City of New York whose function is to establish comprehensive and consistent procurement policies and rules which shall have broad application throughout the City.
- 2.1.28 **"Required Quantity"** in a unit price Contract shall mean the actual quantity of any item of Work or materials which is required to be performed or furnished in order to comply with the Contract.
- 2.1.29 **"Resident Engineer"** shall mean the representative of the Commissioner duly designated by the Commissioner to be his/her representative at the site of the Work.
- 2.1.30 **"Site"** shall mean the area upon or in which the Contractor's operations are carried on, and such other areas adjacent thereto as may be designated as such by the Engineer.
- 2.1.31 **"Small Tools"** shall mean items that are ordinarily required for a worker's job function, including but not limited to, equipment that ordinarily has no licensing, insurance



or substantive storage costs associated with it; such as circular and chain saws, impact drills, threaders, benders, wrenches, socket tools, etc.

2.1.32 "Specifications" shall mean all of the directions, requirements, and standards of performance applying to the Work as hereinafter detailed and designated under the Specifications.

2.1.33 "Subcontractor" shall mean any person, firm or corporation, other than employees of the Contractor, who or which contracts with the Contractor or with its subcontractors to furnish, or actually furnishes labor, or labor and materials, or labor and equipment, or superintendence, supervision and/or management at the Site. Wherever the word Subcontractor appears, it shall also mean sub-Subcontractor.

2.1.34 "Substantial Completion" shall mean the written determination by the Engineer that the Work required under this Contract is substantially, but not entirely, complete and the approval of the Final Approved Punch List.

2.1.35 "Work" shall mean all services required to complete the Project in accordance with the Contract Documents, including without limitation, labor, material, superintendence, management, administration, equipment, and incidentals, and obtaining any and all permits, certifications and licenses as may be necessary and required to complete the Work, and shall include both Contract Work and Extra Work.

## CHAPTER II THE WORK AND ITS PERFORMANCE

### ARTICLE 3. CHARACTER OF THE WORK

3.1 Unless otherwise expressly provided in the Contract Drawings, Specifications, and Addenda, the Work shall be performed in accordance with the best modern practice, utilizing, unless otherwise specified in writing, new and unused materials of standard first grade quality and workmanship and design of the highest quality, to the satisfaction of the Commissioner.

### ARTICLE 4. MEANS AND METHODS OF CONSTRUCTION

4.1 Unless otherwise expressly provided in the Contract Drawings, Specifications, and Addenda, the Means and Methods of Construction shall be such as the Contractor may choose; subject, however, to the Engineer's right to reject the Means and Methods of Construction proposed by the Contractor which in the opinion of the Engineer:

4.1.1 Will constitute or create a hazard to the Work, or to persons or property; or

4.1.2 Will not produce finished Work in accordance with the terms of the Contract; or

4.1.3 Will be detrimental to the overall progress of the Project.

4.2 The Engineer's approval of the Contractor's Means and Methods of Construction, or his/her failure to exercise his/her right to reject such means or methods, shall not relieve the Contractor of its obligation to complete the Work as provided in this Contract; nor shall the exercise of such right to reject create a cause of action for damages.

## ARTICLE 5. COMPLIANCE WITH LAWS

5.1 The Contractor shall comply with all Laws applicable to this Contract and to the Work to be done hereunder.

5.2 Procurement Policy Board Rules: This Contract is subject to the Rules of the PPB ("PPB Rules") in effect at the time of the bid opening for this Contract. In the event of a conflict between the PPB Rules and a provision of this Contract, the PPB Rules shall take precedence.

5.3 Noise Control Code provisions.

5.3.1 In accordance with the provisions of Section 24-216(b) of the Administrative Code of the City ("Administrative Code"), Noise Abatement Contract Compliance, devices and activities which will be operated, conducted, constructed or manufactured pursuant to this Contract and which are subject to the provisions of the City Noise Control Code shall be operated, conducted, constructed, or manufactured without causing a violation of the Administrative Code. Such devices and activities shall incorporate advances in the art of noise control development for the kind and level of noise emitted or produced by such devices and activities, in accordance with regulations issued by the Commissioner of the City Department of Environmental Protection.

5.3.2 The Contractor agrees to comply with Section 24-219 of the Administrative Code and implementing rules codified at 15 Rules of the City of New York ("RCNY") Section 28-100 *et seq.* In accordance with such provisions, the Contractor, if the Contractor is the responsible party under such regulations, shall prepare and post a Construction Noise Mitigation Plan at each Site, in which the Contractor shall certify that all construction tools and equipment have been maintained so that they operate at normal manufacturers operating specifications. If the Contractor cannot make this certification, it must have in place an Alternative Noise Mitigation Plan approved by the City Department of Environmental Protection. In addition, the Contractor's certified Construction Noise Mitigation Plan is subject inspection by the City Department of Environmental Protection in accordance with Section 28-101 of Title 15 of RCNY. No Contract Work may take place at a Site unless there is a Construction Noise Mitigation Plan or approved Alternative Noise Mitigation Plan in place. In addition, the Contractor shall create and implement a noise mitigation training program. Failure to comply with these requirements may result in fines and other penalties pursuant to the applicable provisions of the Administrative Code and RCNY.

5.4 Ultra Low Sulfur Diesel Fuel: In accordance with the provisions of Section 24-163.3 of the Administrative Code, the Contractor specifically agrees as follows:

5.4.1 Definitions. For purposes of this Article 5.4, the following definitions apply:

5.4.1(a) "Contractor" means any person or entity that enters into a Public Works Contract with a City Agency, or any person or entity that enters into an agreement with such person or entity, to perform work or provide labor or services related to such Public Works Contract.

5.4.1(b) "Motor Vehicle" means any self-propelled vehicle designed for transporting persons or property on a street or highway.

5.4.1(c) "Nonroad Engine" means an internal combustion engine (including the fuel system) that is not used in a Motor Vehicle or a vehicle used solely for competition, or that is not subject to standards promulgated under Section 7411 or Section 7521 of

Title 42 of the United States Code, except that this term shall apply to internal combustion engines used to power generators, compressors or similar equipment used in any construction program or project.

5.4.1(d) "Nonroad Vehicle" means a vehicle that is powered by a Nonroad Engine, fifty (50) horsepower and greater, and that is not a Motor Vehicle or a vehicle used solely for competition, which shall include, but not be limited to, excavators, backhoes, cranes, compressors, generators, bulldozers, and similar equipment, except that this term shall not apply to horticultural maintenance vehicles used for landscaping purposes that are powered by a Nonroad Engine of sixty-five (65) horsepower or less and that are not used in any construction program or project.

5.4.1(e) "Public Works Contract" means a contract with a **City Agency** for a construction program or project involving the construction, demolition, restoration, rehabilitation, repair, renovation, or abatement of any building, structure, tunnel, excavation, roadway, park or bridge; a contract with a **City Agency** for the preparation for any construction program or project involving the construction, demolition, restoration, rehabilitation, repair, renovation, or abatement of any building, structure, tunnel, excavation, roadway, park or bridge; or a contract with a **City Agency** for any final work involved in the completion of any construction program or project involving the construction, demolition, restoration, rehabilitation, repair, renovation, or abatement of any building, structure, tunnel, excavation, roadway, park or bridge.

5.4.1(f) "Ultra Low Sulfur Diesel Fuel" means diesel fuel that has a sulfur content of no more than fifteen parts per million (15 ppm).

#### 5.4.2 Ultra Low Sulfur Diesel Fuel

5.4.2(a) All **Contractors** shall use Ultra Low Sulfur Diesel Fuel in diesel-powered Nonroad Vehicles in the performance of this Contract.

5.4.2(b) Notwithstanding the requirements of Article 5.4.2(a), **Contractors** may use diesel fuel that has a sulfur content of no more than thirty parts per million (30 ppm) to fulfill the requirements of this Article 5.4.2, where the Commissioner of the City Department of Environmental Protection ("DEP Commissioner") has issued a determination that a sufficient quantity of Ultra Low Sulfur Diesel Fuel is not available to meet the needs of **Agencies** and **Contractors**. Any such determination shall expire after six (6) months unless renewed.

5.4.2(c) **Contractors** shall not be required to comply with this Article 5.4.2 where the **City Agency** letting this Contract makes a written finding, which is approved, in writing, by the DEP Commissioner, that a sufficient quantity of Ultra Low Sulfur Diesel Fuel, or diesel fuel that has a sulfur content of no more than thirty parts per million (30 ppm) is not available to meet the requirements of Section 24-163.3 of the Administrative Code, provided that such **Contractor** in its fulfillment of the requirements of this Contract, to the extent practicable, shall use whatever quantity of Ultra Low Sulfur Diesel Fuel or diesel fuel that has a sulfur content of no more than thirty parts per million (30 ppm) is available. Any finding made pursuant to this Article 5.4.2(c) shall expire after sixty (60) Days, at which time the requirements of this Article 5.4.2 shall be in full force and effect unless the **City Agency** renews the finding in writing and such renewal is approved by the DEP Commissioner.

5.4.2(d) **Contractors** may check on determinations and approvals issued by the DEP Commissioner pursuant to Section 24-163.3 of the Administrative Code, if any, at [www.dep.nyc.gov](http://www.dep.nyc.gov) or by contacting the City Agency letting this **Contract**.

5.4.2(e) The requirements of this Article 5.4.2 do not apply where they are precluded by federal or State funding requirements or where the **Contract** is an emergency procurement.

#### 5.4.3 Best Available Technology

5.4.3(a) All **Contractors** shall utilize the best available technology for reducing the emission of pollutants for diesel-powered Nonroad Vehicles in the performance of this **Contract**. For determinations of best available technology for each type of diesel-powered Nonroad Vehicle, **Contractors** shall comply with the regulations of the City Department of Environmental Protection, as and when adopted, Chapter 14 of Title 15 of the Rules of the City of New York (RCNY). The **Contractor** shall fully document all steps in the best available technology selection process and shall furnish such documentation to the City Agency or the DEP Commissioner upon request. The **Contractor** shall retain all documentation generated in the best available technology selection process for as long as the selected best available technology is in use.

5.4.3(b) No **Contractor** shall be required to replace best available technology for reducing the emission of pollutants or other authorized technology utilized for a diesel-powered Nonroad Vehicle in accordance with the provisions of this Article 5.4.3 within three (3) years of having first utilized such technology for such vehicle.

5.4.3(c) This Article 5.4.3 shall not apply to any vehicle used to satisfy the requirements of a specific Public Works Contract for fewer than twenty (20) Days.

5.4.3(d) The **Contractor** shall not be required to comply with this Article 5.4.3 with respect to a diesel-powered Nonroad Vehicle under the following circumstances:

5.4.3(d)(i) Where the City Agency makes a written finding, which is approved, in writing, by the DEP Commissioner, that the best available technology for reducing the emission of pollutants as required by this Article 5.4.3 is unavailable for such vehicle, the **Contractor** shall use whatever technology for reducing the emission of pollutants, if any, is available and appropriate for such vehicle.

5.4.3(d)(ii) Where the DEP Commissioner has issued a written waiver based upon the **Contractor** having demonstrated to the DEP Commissioner that the use of the best available technology for reducing the emission of pollutants might endanger the operator of such vehicle or those working near such vehicle, due to engine malfunction, the **Contractor** shall use whatever technology for reducing the emission of pollutants, if any, is available and appropriate for such vehicle, which would not endanger the operator of such vehicle or those working near such vehicle.

5.4.3(d)(iii) In determining which technology to use for the purposes of Articles 5.4.3(d)(i) and 5.4.3(d)(ii) above, the **Contractor** shall primarily consider the reduction in emissions of particulate matter and secondarily consider the reduction in emissions of nitrogen oxides associated with the use of such

technology, which shall in no event result in an increase in the emissions of either such pollutant.

5.4.3(d)(iv) The Contractor shall submit requests for a finding or a waiver pursuant to this Article 5.4.3(d) in writing to the DEP Commissioner, with a copy to the ACCO of the City Agency letting this Contract. Any finding or waiver made or issued pursuant to Articles 5.4.3(d)(i) and 5.4.3(d)(ii) above shall expire after one hundred eighty (180) Days, at which time the requirements of Article 5.4.3(a) shall be in full force and effect unless the City Agency renews the finding, in writing, and the DEP Commissioner approves such finding, in writing, or the DEP Commissioner renews the waiver, in writing.

5.4.3(e) The requirements of this Article 5.4.3 do not apply where they are precluded by federal or State funding requirements or where the Contract is an emergency procurement.

5.4.4 Section 24-163 of the Administrative Code. The Contractor shall comply with Section 24-163 of the Administrative Code related to the idling of the engines of motor vehicles while parking.

#### 5.4.5 Compliance

5.4.5(a) The Contractor's compliance with Article 5.4 may be independently monitored. If it is determined that the Contractor has failed to comply with any provision of Article 5.4, any costs associated with any independent monitoring incurred by the City shall be reimbursed by the Contractor.

5.4.5(b) Any Contractor who violates any provision of Article 5.4, except as provided in Article 5.4.5(c) below, shall be liable for a civil penalty between the amounts of one thousand (\$1,000) and ten thousand (\$10,000) dollars, in addition to twice the amount of money saved by such Contractor for failure to comply with Article 5.4.

5.4.5(c) No Contractor shall make a false claim with respect to the provisions of Article 5.4 to a City Agency. Where a Contractor has been found to have done so, such Contractor shall be liable for a civil penalty of twenty thousand (\$20,000) dollars, in addition to twice the amount of money saved by such Contractor in association with having made such false claim.

#### 5.4.6 Reporting

5.4.6(a) For all Public Works Contracts covered by this Article 5.4, the Contractor shall report to the City Agency the following information:

5.4.6(a)(i) The total number of diesel-powered Nonroad Vehicles used to fulfill the requirements of this Public Works Contract;

5.4.6(a)(ii) The number of such Nonroad Vehicles that were powered by Ultra Low Sulfur Diesel Fuel;

5.4.6(a)(iii) The number of such Nonroad Vehicles that utilized the best available technology for reducing the emission of pollutants, including a breakdown by vehicle model and the type of technology;

5.4.6(a)(iv) The number of such Nonroad Vehicles that utilized such other authorized technology in accordance with Article 5.4.3, including a breakdown by vehicle model and the type of technology used for each such vehicle;

5.4.6(a)(v) The locations where such Nonroad Vehicles were used; and

5.4.6(a)(vi) Where a determination is in effect pursuant to Article 5.4.2(b) or 5.4.2(c), detailed information concerning the Contractor's efforts to obtain Ultra Low Sulfur Diesel Fuel or diesel fuel that has a sulfur content of no more than thirty parts per million (30 ppm).

5.4.6(b) The Contractor shall submit the information required by Article 5.4.6(a) at the completion of Work under the Public Works Contract and on a yearly basis no later than August 1 throughout the term of the Public Works Contract. The yearly report shall cover Work performed during the preceding fiscal year (July 1 - June 30).

5.5 Ultra Low Sulfur Diesel Fuel. In accordance with the Coordinated Construction Act for Lower Manhattan, as amended:

5.5.1 Definitions. For purposes of this Article 5.5, the following definitions apply:

5.5.1(a) "Lower Manhattan" means the area to the south of and within the following lines: a line beginning at a point where the United States pierhead line in the Hudson River as it exists now or may be extended would intersect with the southerly line of West Houston Street in the Borough of Manhattan extended, thence easterly along the southerly side of West Houston Street to the southerly side of Houston Street, thence easterly along the southerly side of Houston Street to the southerly side of East Houston Street, thence northeasterly along the southerly side of East Houston Street to the point where it would intersect with the United States pierhead line in the East River as it exists now or may be extended, including tax lots within or immediately adjacent thereto.

5.5.1(b) "Lower Manhattan Redevelopment Project" means any project in Lower Manhattan that is funded in whole or in part with federal or State funding, or any project intended to improve transportation between Lower Manhattan and the two air terminals in the City known as LaGuardia Airport and John F. Kennedy International Airport, or between Lower Manhattan and the air terminal in Newark known as Newark Liberty International Airport, and that is funded in whole or in part with federal funding.

5.5.1(c) "Nonroad Engine" means an internal combustion engine (including the fuel system) that is not used in a Motor Vehicle or a vehicle used solely for competition, or that is not subject to standards promulgated under Section 7411 or Section 7521 of Title 42 of the United States Code, except that this term shall apply to internal combustion engines used to power generators, compressors or similar equipment used in any construction program or project.

5.5.1(d) "Nonroad Vehicle" means a vehicle that is powered by a Nonroad Engine, fifty (50) horsepower (HP) and greater, and that is not a Motor Vehicle or a vehicle used solely for competition, which shall include, but not be limited to, excavators, backhoes, cranes, compressors, generators, bulldozers, and similar equipment, except

that this terms shall not apply to horticultural maintenance vehicles used for landscaping purposes that are powered by a Nonroad Engine of sixty-five (65) HP or less and that are not used in any construction program or project.

5.5.1(e) "Ultra Low Sulfur Diesel Fuel" means diesel fuel that has a sulfur content of no more than fifteen parts per million (15 ppm).

5.5.2 Requirements. **Contractors and Subcontractors** are required to use only Ultra Low Sulfur Diesel Fuel to power the diesel-powered Nonroad Vehicles with engine HP rating of fifty (50) HP and above used on a Lower Manhattan Redevelopment Project and, where practicable, to reduce the emission of pollutants by retrofitting such Nonroad Vehicles with oxidation catalysts, particulate filters, or technology that achieves lowest particulate matter emissions.

5.6 Pesticides. In accordance with Section 17-1209 of the Administrative Code, to the extent that the **Contractor** or any **Subcontractor** applies pesticides to any property owned or leased by the **City**, the **Contractor**, and any **Subcontractor** shall comply with Chapter 12 of the Administrative Code.

5.7 Waste Treatment, Storage, and Disposal Facilities and Transporters. In connection with the **Work**, the **Contractor** and any **Subcontractor** shall use only those waste treatment, storage, and disposal facilities and waste transporters that possess the requisite license, permit or other governmental approval necessary to treat, store, dispose, or transport the waste, materials or hazardous substances.

5.8 Environmentally Preferable Purchasing. The **Contractor** shall ensure that products purchased or leased by the **Contractor** or any **Subcontractor** for the **Work** that are not specified by the **City** or are submitted as equivalents to a product specified by the **City** comply with the requirements of the New York City Environmentally Preferable Purchasing Program contained in Chapter 11 of Title 43 of the RCNY, pursuant to Chapter 3 of Title 6 of the Administrative Code.

## ARTICLE 6. INSPECTION

6.1 During the progress of the **Work** and up to the date of **Final Acceptance**, the **Contractor** shall at all times afford the representatives of the **City** every reasonable, safe, and proper facility for inspecting all **Work** done or being done at the **Site** and also for inspecting the manufacture or preparation of materials and equipment at the place of such manufacture or preparation.

6.2 The **Contractor's** obligation hereunder shall include the uncovering or taking down of finished **Work** and its restoration thereafter; provided, however, that the order to uncover, take down and restore shall be in writing, and further provided that if **Work** thus exposed proves satisfactory, and if the **Contractor** has complied with Article 6.1, such uncovering or taking down and restoration shall be considered an item of **Extra Work** to be paid for in accordance with the provisions of Article 26. If the **Work** thus exposed proves unsatisfactory, the **City** has no obligation to compensate the **Contractor** for the uncovering, taking down or restoration.

6.3 Inspection and approval by the **Commissioner**, the **Engineer**, **Project Manager**, or **Resident Engineer**, of finished **Work** or of **Work** being performed, or of materials and equipment at the place of manufacture or preparation, shall not relieve the **Contractor** of its obligation to perform the **Work** in strict accordance with the **Contract**. Finished or unfinished **Work** not found to be in strict accordance with the **Contract** shall be replaced as directed by the **Engineer**, even though such **Work** may have been previously approved and paid for. Such corrective **Work** is **Contract Work** and shall not be deemed **Extra Work**.

6.4 Rejected Work and materials shall be promptly taken down and removed from the Site, which must at all times be kept in a reasonably clean and neat condition.

**ARTICLE 7. PROTECTION OF WORK AND OF PERSONS  
AND PROPERTY; NOTICES AND INDEMNIFICATION**

7.1 During the performance of the Work and up to the date of Final Acceptance, the Contractor shall be under an absolute obligation to protect the finished and unfinished Work against any damage, loss, injury, theft and/or vandalism and in the event of such damage, loss, injury, theft and/or vandalism, it shall promptly replace and/or repair such Work at the Contractor's sole cost and expense, as directed by the Resident Engineer. The obligation to deliver finished Work in strict accordance with the Contract prior to Final Acceptance shall be absolute and shall not be affected by the Resident Engineer's approval of, or failure to prohibit, the Means and Methods of Construction used by the Contractor.

7.2 During the performance of the Work and up to the date of Final Acceptance, the Contractor shall take all reasonable precautions to protect all persons and the property of the City and of others from damage, loss or injury resulting from the Contractor's, and/or its Subcontractors' operations under this Contract. The Contractor's obligation to protect shall include the duty to provide, place or replace, and adequately maintain at or about the Site suitable and sufficient protection such as lights, barricades, and enclosures.

7.3 The Contractor shall comply with the notification requirements set forth below in the event of any loss, damage or injury to Work, persons or property, or any accidents arising out of the operations of the Contractor and/or its Subcontractors under this Contract.

7.3.1 The Contractor shall make a full and complete report in writing to the Resident Engineer within three (3) Days after the occurrence.

7.3.2 The Contractor shall also send written notice of any such event to all insurance carriers that issued potentially responsive policies (including commercial general liability insurance carriers for events relating to the Contractor's own employees) no later than twenty (20) days after such event and again no later than twenty (20) days after the initiation of any claim and/or action resulting therefrom. Such notice shall contain the following information: the number of the insurance policy, the name of the Named Insured, the date and location of the incident, and the identity of the persons injured or property damaged. For any policy on which the City and/or the Engineer, Architect, or Project Manager are Additional Insureds, such notice shall expressly specify that "this notice is being given on behalf of the City of New York as Additional Insured, such other Additional Insureds, as well as the Named Insured."

7.3.2(a) Whenever such notice is sent under a policy on which the City is an Additional Insured, the Contractor shall provide copies of the notice to the Comptroller, the Commissioner and the City Corporation Counsel. The copy to the Comptroller shall be sent to the Insurance Unit, NYC Comptroller's Office, 1 Centre Street - Room 1222, New York, New York, 10007. The copy to the Commissioner shall be sent to the address set forth in Schedule A of the General Conditions. The copy to the City Corporation Counsel shall be sent to Insurance Claims Specialist, Affirmative Litigation Division, New York City Law Department, 100 Church Street, New York, New York 10007.



7.3.2(b) If the Contractor fails to provide any of the foregoing notices to any appropriate insurance carrier(s) in a timely and complete manner, the Contractor shall indemnify the City for all losses, judgments, settlements, and expenses, including reasonable attorneys' fees, arising from an insurer's disclaimer of coverage citing late notice by or on behalf of the City.

7.4 To the fullest extent permitted by law, the Contractor shall defend, indemnify, and hold the City, its employees, and officials (the "Indemnitees") harmless against any and all claims (including but not limited to claims asserted by any employee of the Contractor and/or its Subcontractors) and costs and expenses of whatever kind (including but not limited to payment or reimbursement of attorneys' fees and disbursements) allegedly arising out of or in any way related to the operations of the Contractor and/or its Subcontractors in the performance of this Contract or from the Contractor's and/or its Subcontractors' failure to comply with any of the provisions of this Contract or of the Law. Such costs and expenses shall include all those incurred in defending the underlying claim and those incurred in connection with the enforcement of this Article 7.4 by way of cross-claim, third-party claim, declaratory action or otherwise. The parties expressly agree that the indemnification obligation hereunder contemplates (1) full indemnity in the event of liability imposed against the Indemnitees without negligence and solely by reason of statute, operation of Law or otherwise; and (2) partial indemnity in the event of any actual negligence on the part of the Indemnitees either causing or contributing to the underlying claim (in which case, indemnification will be limited to any liability imposed over and above that percentage attributable to actual fault whether by statute, by operation of Law, or otherwise). Where partial indemnity is provided hereunder, all costs and expenses shall be indemnified on a pro rata basis.

7.4.1 Indemnification under Article 7.4 or any other provision of the Contract shall operate whether or not Contractor or its Subcontractors have placed and maintained the insurance specified under Article 22.

7.5 The provisions of this Article 7 shall not be deemed to create any new right of action in favor of third parties against the Contractor or the City.

### **CHAPTER III TIME PROVISIONS**

#### **ARTICLE 8. COMMENCEMENT AND PROSECUTION OF THE WORK**

8.1 The Contractor shall commence the Work on the date specified in the Notice to Proceed or the Order to Work. The time for performance of the Work under the Contract shall be computed from the date specified in the Notice to Proceed or the Order to Work. **TIME BEING OF THE ESSENCE** to the City, the Contractor shall thereafter prosecute the Work diligently, using such Means and Methods of Construction as are in accord with Article 4 herein and as will assure its completion not later than the date specified in this Contract, or on the date to which the time for completion may be extended.

#### **ARTICLE 9. PROGRESS SCHEDULES**

9.1 To enable the Work to be performed in an orderly and expeditious manner, the Contractor, within fifteen (15) Days after the Notice to Proceed or Order to Work, unless otherwise directed by the Engineer, shall submit to the Engineer a proposed progress schedule based on the Critical Path Method in the form of a bar graph or in such other form as specified by the Engineer, and monthly cash flow requirements, showing:

9.1.1 The anticipated time of commencement and completion of each of the various operations to be performed under this Contract; and

9.1.2 The sequence and interrelation of each of these operations with the others and with those of other related contracts; and

9.1.3 The estimated time required for fabrication or delivery, or both, of all materials and equipment required for the Work, including the anticipated time for obtaining required approvals pursuant to Article 10; and

9.1.4 The estimated amount in dollars the Contractor will claim on a monthly basis.

9.2 The proposed schedule shall be revised as directed by the Engineer, until finally approved by the Engineer, and after such approval, subject to the provisions of Article 11, shall be strictly adhered to by the Contractor.

9.3 If the Contractor shall fail to adhere to the approved progress schedule, or to the schedule as revised pursuant to Article 11, it shall promptly adopt such other or additional Means and Methods of Construction, at its sole cost and expense, as will make up for the time lost and will assure completion in accordance with the approved progress schedule. The approval by the City of a progress schedule which is shorter than the time allotted under the Contract shall not create any liability for the City if the approved progress schedule is not met.

9.4 The Contractor will not receive any payments until the proposed progress schedule is submitted.

#### ARTICLE 10. REQUESTS FOR INFORMATION OR APPROVAL

10.1 From time to time as the Work progresses and in the sequence indicated by the approved progress schedule, the Contractor shall submit to the Engineer a specific request in writing for each item of information or approval required by the Contractor. These requests shall state the latest date upon which the information or approval is actually required by the Contractor, and shall be submitted in a reasonable time in advance thereof to provide the Engineer a sufficient time to act upon such submissions, or any necessary re-submissions thereof.

10.2 The Contractor shall not have any right to an extension of time on account of delays due to the Contractor's failure to submit requests for the required information or the required approval in accordance with the above requirements.

#### ARTICLE 11. NOTICE OF CONDITIONS CAUSING DELAY AND DOCUMENTATION OF DAMAGES CAUSED BY DELAY

11.1 After the commencement of any condition which is causing or may cause a delay in completion of the Work, including conditions for which the Contractor may be entitled to an extension of time, the following notifications and submittals are required:

11.1.1 Within seven (7) Days after the commencement of such condition, the Contractor must notify the Engineer in writing of the existence, nature and effect of such condition upon the approved progress schedule and the Work, and must state why and in what respects, if any, the condition is causing or may cause a delay.

11.1.2 If the **Contractor** shall claim to be sustaining damages for delay as provided for in this Article 11, within forty-five (45) **Days** from the time such damages are first incurred, and every thirty (30) **Days** thereafter for as long as such damages are being incurred, the **Contractor** shall submit to the **Commissioner** verified written statements of the details and the amounts of such damages, together with documentary evidence of such damages, ("statement of delay damages") as further detailed in Article 11.6. The **Contractor** may submit any of the above statements within such additional time as may be granted by the **Commissioner** in writing upon written request therefor. On failure of the **Contractor** to strictly comply with all of the foregoing provisions, such claims shall be deemed waived and no right to recover on such claims shall exist. Damages that the **Contractor** may claim in any action arising under or by reason of this **Contract** shall not be different from or in excess of the statements made and documentation provided pursuant to this Article 11.

11.1.3 Within 60 days of submission of the final verified statement of claims pursuant to Article 44, the **Commissioner** shall make a determination as to whether a compensable delay has occurred and, if so, the amount of compensation due the **Contractor**. Notwithstanding the above, the **Commissioner** may make a determination as to whether a compensable delay has occurred at any time after the **Contractor's** first submission of a statement of delay damages provided, however, that the amount of compensation due to the **Contractor** will not be determined until the **Commissioner** determines that the **Work** is delayed after the date set for substantial completion.

11.2 Failure of the **Contractor** to strictly comply with the requirements of Article 11.1.1 may, in the discretion of the **Commissioner**, be deemed sufficient cause to deny any extension of time on account of delay arising out of such condition. Failure of the **Contractor** to strictly comply with the requirements of Articles 11.1.1 and 11.1.2 shall be deemed a conclusive waiver by the **Contractor** of any and all claims for damages for delay arising from such condition and no right to recover on such claims shall exist.

11.3 When appropriate and directed by the **Engineer**, the progress schedule shall be revised by the **Contractor** until finally approved by the **Engineer**. The revised progress schedule must be strictly adhered to by the **Contractor**.

#### 11.4 Compensable Delays

11.4.1 The **Contractor** agrees to make claim only for additional costs attributable to delay in the performance of this **Contract** necessarily extending the time for completion of the **Work** or resulting from acceleration directed by the **Commissioner** and required to maintain the **Project** schedule, occasioned solely by any act or omission to act of the **City** listed below. The **Contractor** also agrees that delay from any other cause shall be compensated, if at all, solely by an extension of time to complete the performance of the **Work**.

11.4.1.1 The failure of the **City** to take reasonable measures to coordinate and progress the **Work**, except that the **City** shall not be responsible for the **Contractor's** obligation to coordinate and progress the **Work** of its **Subcontractors**.

11.4.1.2 Extended delays attributable to the **City** in the review or issuance of change orders, in shop drawing reviews and approvals or as a result of the cumulative impact of multiple change orders, which have a verifiable impact on **Project** costs.

11.4.1.3 The unavailability of the **Site** for an extended period of time that significantly affects the scheduled completion of the **Contract**.

- 11.4.1.4 The issuance by the **Engineer** of a stop work order relative to a substantial portion of the **Work** for a period exceeding thirty (30) **Days**, that was not brought about through any action or omission of the **Contractor**;
- 11.4.1.5 Differing site conditions that were neither known nor reasonably ascertainable on a pre-bid inspection of the **Site** or review of the bid documents or other publicly available sources, and that are not ordinarily encountered in the **Project's** geographical area or neighborhood or in the type of **Work** to be performed.
- 11.4.1.6 Delays caused by the **City's** bad faith or its willful, malicious, or grossly negligent conduct;
- 11.4.1.7 Delays not contemplated by the parties;
- 11.4.1.8 Delays so unreasonable that they constitute an intentional abandonment of the **Contract** by the **City**; and
- 11.4.1.9 Delays resulting from the **City's** breach of a fundamental obligation of the **Contract**.

11.4.2 No claim may be made for any alleged delay in **Substantial Completion** of the **Work** by a date earlier than the date of **Substantial Completion** provided for in Schedule A unless there is a provision in the **Contract** providing for additional compensation for early completion. No claim may be made for any alleged delay in **Substantial Completion** of the **Work** if the work is substantially completed by the date of **Substantial Completion** provided for in Schedule A unless acceleration has been directed by the **Commissioner** to meet the date of **Substantial Completion** set forth in Schedule A.

11.4.3 The provisions of this Article 11 apply only to claims for additional costs attributable to delay and do not preclude determinations by the **Commissioner** allowing reimbursements for additional costs for **Extra Work** pursuant to Articles 25 and 26 of this **Contract**. To the extent that any cost attributable to delay is reimbursed as part of a change order, no additional claim for compensation under this Article 11 shall be allowed.

11.5 **Non-Compensable Delays.** The **Contractor** agrees to make no claim for, and is deemed to have included in its bid prices for the various items of the **Contract**, the extra/additional costs attributable to any delays caused by or attributable to the items set forth below. For such items, the **Contractor** shall be compensated, if at all, solely by an extension of time to complete the performance of the **Work**, in accordance with the provisions of Article 13. Such extensions of time will be granted, if at all, pursuant to the grounds set forth in Article 13.3.

11.5.1 The acts or omissions of any third parties, including but not limited to **Other Contractors**, public/ governmental bodies (other than **City Agencies**), utilities or private enterprises, who are disclosed in the **Contract Documents** or are ordinarily encountered or generally recognized as related to the **Work**;

11.5.2 Any situation which was within the contemplation of the parties at the time of entering into the **Contract**, including any delay indicated or disclosed in the **Contract Documents** or generally recognized as related to the nature of the **Work**, and/or the existence of any facility or appurtenance owned, operated or maintained by any third party, as indicated or disclosed in the **Contract Documents** or ordinarily encountered or generally recognized as related to the nature of the **Work**;

11.5.3 Restraining orders, injunctions or judgments issued by a court which were caused by a **Contractor's** submission, action or inaction or by a **Contractor's Means and Methods** of

**Construction**, or by third parties, unless such order, injunction or judgment was the result of an action or omission by the **City**;

11.5.4 Any labor boycott, strike, picketing, lockout or similar situation;

11.5.5 Any shortages of supplies or materials, or unavailability of equipment, required by the **Contract Work**;

11.5.6 Climatic conditions, storms, floods, droughts, tidal waves, fires, hurricanes, earthquakes, landslides or other catastrophes or acts of God, or acts of war or of the public enemy or terrorist acts, including the **City's** reasonable responses thereto; and

11.5.7 **Extra Work** which does not significantly affect the overall completion of the **Contract**, reasonable delays in the review or issuance of change orders or field orders and/or in shop drawing reviews or approvals.

#### 11.6 Required Content of Submission of Statement of Delay Damages

11.6.1 In the verified written statement of delay damages required by Article 11.1.2, the following information shall be provided by the **Contractor**:

11.6.1.1 For each delay, the start and end dates of the claimed periods of delay and, in addition, a description of the operations that were delayed, an explanation of how they were delayed, and the reasons for the delay, including identifying the applicable act or omission of the **City** listed in Article 11.4.

11.6.1.2 A detailed factual statement of the claim providing all necessary dates, locations and items of **Work** affected by the claim.

11.6.1.3 The amount of additional compensation sought and a breakdown of that amount into categories as described in Article 26.2, subject to the limitations set forth in Article 11.7.

11.6.1.4 Any additional information requested by the **Commissioner**.

#### 11.7 Recoverable Costs

11.7.1 Delay damages may be recoverable for the following costs actually and necessarily incurred in the performance of the **Work**:

11.7.1.1 Direct labor, including payroll taxes (subject to statutory wage caps) and supplemental benefits, based on time and materials records;

11.7.1.2 Necessary materials (including transportation to the **Site**), based on time and material records;

11.7.1.3 Reasonable rental value of necessary plant and equipment other than small tools, plus fuel/energy costs according to the applicable formula set forth in Articles 26.2.4 and/or 26.2.8, based on time and material records;

11.7.1.4 Insurance and bond costs;

11.7.1.5 Extended field office costs;

11.7.1.6 Extended **Site** overhead; and

11.7.1.7 Extended home office overhead.

11.7.2 Recoverable Subcontractor Costs. When the **Work** is performed by a **Subcontractor**, the **Contractor** may be paid the actual and necessary costs of such subcontracted **Work** as outlined above in Articles 11.7.1.1 through 11.7.1.6, and an

additional overhead of five (5%) percent of the costs outlined in Articles 11.7.1.1 through 11.7.1.3.

11.7.3 Non-Recoverable Costs. The parties agree that the City will have no liability for the following items and the Contractor agrees it shall make no claim for the following items:

11.7.3.1 Profit, or loss of anticipated or unanticipated profit;

11.7.3.2 Consequential damages, including but not limited to interest on monies in dispute, including interest which is paid on such monies, loss of bonding capacity, bidding opportunities, or interest in investment, or any resulting insolvency;

11.7.3.3 Indirect costs or expenses of any nature;

11.7.3.4 Direct or indirect costs attributable to performance of Work where the Contractor, because of situations or conditions within its control, has not progressed the Work in a satisfactory manner; and

11.7.3.5 Attorneys' fees and dispute and claims preparation expenses.

11.8 Determinations under this Article 11 are not subject to the jurisdiction of the Contract Dispute Resolution Board pursuant to the dispute resolution process set forth in Article 27.

11.9 If the parties agree, pursuant to Article 11.1.3 above, that a compensable delay has occurred and agree on the amount of compensation, payment may be made pursuant to a written change order. Payment pursuant to such change order is subject to pre-audit by the Engineering Audit Officer, and may be post-audited by the Comptroller and/or the Agency.

## ARTICLE 12. COORDINATION WITH OTHER CONTRACTORS

12.1 During the progress of the Work, Other Contractors may be engaged in performing other work or may be awarded other contracts for additional work on this Project. In that event, the Contractor shall coordinate the Work to be done hereunder with the work of such Other Contractors and the Contractor shall fully cooperate with such Other Contractors and carefully fit its own Work to that provided under other contracts as may be directed by the Engineer. The Contractor shall not commit or permit any act which will interfere with the performance of work by any Other Contractors.

12.2 If the Engineer determines that the Contractor is failing to coordinate its Work with the work of Other Contractors as the Engineer has directed, then the Commissioner shall have the right to withhold any payments otherwise due hereunder until the Contractor completely complies with the Engineer's directions.

12.3 The Contractor shall notify the Engineer in writing if any Other Contractor on this Project is failing to coordinate its work with the Work of this Contract. If the Engineer finds such charges to be true, the Engineer shall promptly issue such directions to the Other Contractor with respect thereto as the situation may require. The City shall not, however, be liable for any damages suffered by any Other Contractor's failure to coordinate its work with the Work of this Contract or by reason of the Other Contractor's failure to promptly comply with the directions so issued by the Engineer, or by reason of any Other Contractor's default in performance, it being understood that the City does not guarantee the responsibility or continued efficiency of any contractor. The Contractor agrees to make no claim against

the City for any damages relating to or arising out of any directions issued by the Engineer pursuant to this Article 12 (including but not limited to the failure of any Other Contractor to comply or promptly comply with such directions), or the failure of the Engineer to issue any directions, or the failure of any Other Contractor to coordinate its work, or the default in performance of any Other Contractor.

12.4 The Contractor shall indemnify and hold the City harmless from any and all claims or judgments for damages and from costs and expenses to which the City may be subjected or which it may suffer or incur by reason of the Contractor's failure to comply with the Engineer's directions promptly; and the Comptroller shall have the right to exercise the powers reserved in Article 23 with respect to any claims which may be made for damages due to the Contractor's failure to comply with the Engineer's directions promptly. Insofar as the facts and Law relating to any claim would preclude the City from being completely indemnified by the Contractor, the City shall be partially indemnified by the Contractor to the fullest extent provided by Law.

12.5 Should the Contractor sustain any damage through any act or omission of any Other Contractor having a contract with the City for the performance of work upon the Site or of work which may be necessary to be performed for the proper prosecution of the Work to be performed hereunder, or through any act or omission of a subcontractor of such Other Contractor, the Contractor shall have no claim against the City for such damage, but shall have a right to recover such damage from the Other Contractor under the provision similar to the following provisions which apply to this Contract and have been or will be inserted in the contracts with such Other Contractors:

12.5.1 Should any Other Contractor having or who shall hereafter have a contract with the City for the performance of work upon the Site sustain any damage through any act or omission of the Contractor hereunder or through any act or omission of any Subcontractor of the Contractor, the Contractor agrees to reimburse such Other Contractor for all such damages and to defend at its own expense any action based upon such claim and if any judgment or claim (even if the allegations of the action are without merit) against the City shall be allowed the Contractor shall pay or satisfy such judgment or claim and pay all costs and expenses in connection therewith and agrees to indemnify and hold the City harmless from all such claims. Insofar as the facts and Law relating to any claim would preclude the City from being completely indemnified by the Contractor, the City shall be partially indemnified by the Contractor to the fullest extent provided by Law.

12.6 The City's right to indemnification hereunder shall in no way be diminished, waived or discharged by its recourse to assessment of liquidated damages as provided in Article 15, or by the exercise of any other remedy provided for by Contract or by Law.

### **ARTICLE 13. EXTENSION OF TIME FOR PERFORMANCE**

13.1 If performance by the Contractor is delayed for a reason set forth in Article 13.3, the Contractor may be allowed a reasonable extension of time in conformance with this Article 13 and the PPB Rules.

13.2 Any extension of time may be granted only by the ACCO or by the Board for the Extension of Time (hereafter "Board") (as set forth below) upon written application by the Contractor.

13.3 Grounds for Extension: If such application is made, the Contractor shall be entitled to an extension of time for delay in completion of the Work caused solely:

13.3.1 By the acts or omissions of the City, its officials, agents or employees; or

13.3.2 By the act or omissions of **Other Contractors** on this **Project**; or

13.3.3 By supervening conditions entirely beyond the control of either party hereto (such as, but not limited to, acts of God or the public enemy, excessive inclement weather, war or other national emergency making performance temporarily impossible or illegal, or strikes or labor disputes not brought about by any act or omission of the **Contractor**).

13.3.4 The **Contractor** shall, however, be entitled to an extension of time for such causes only for the number of **Days** of delay which the **ACCO** or the **Board** may determine to be due solely to such causes, and then only if the **Contractor** shall have strictly complied with all of the requirements of **Articles 9 and 10**.

13.4 The **Contractor** shall not be entitled to receive a separate extension of time for each of several causes of delay operating concurrently, but, if at all, only for the actual period of delay in completion of the **Work** as determined by the **ACCO** or the **Board**, irrespective of the number of causes contributing to produce such delay. If one of several causes of delay operating concurrently results from any act, fault or omission of the **Contractor** or of its **Subcontractors** or **Materialmen**, and would of itself (irrespective of the concurrent causes) have delayed the **Work**, no extension of time will be allowed for the period of delay resulting from such act, fault or omission.

13.5 The determination made by the **ACCO** or the **Board** on an application for an extension of time shall be binding and conclusive on the **Contractor**.

13.6 The **ACCO** or the **Board** acting entirely within their discretion may grant an application for an extension of time for causes of delay other than those herein referred.

13.7 Permitting the **Contractor** to continue with the **Work** after the time fixed for its completion has expired, or after the time to which such completion may have been extended has expired, or the making of any payment to the **Contractor** after such time, shall in no way operate as a waiver on the part of the **City** of any of its rights under this **Contract**.

**13.8 Application for Extension of Time:**

13.8.1 Before the **Contractor's** time extension request will be considered, the **Contractor** shall notify the **ACCO** of the condition which allegedly has caused or is causing the delay, and shall submit a written application to the **ACCO** identifying:

13.8.1(a) The **Contractor**; the registration number; and **Project** description;

13.8.1(b) Liquidated damage assessment rate, as specified in the **Contract**;

13.8.1(c) Original total bid price;

13.8.1(d) The original **Contract** start date and completion date;

13.8.1(e) Any previous time extensions granted (number and duration); and

13.8.1(f) The extension of time requested.

13.8.2 In addition, the application for extension of time shall set forth in detail:

13.8.2(a) The nature of each alleged cause of delay in completing the **Work**;



13.8.2(b) The date upon which each such cause of delay began and ended and the number of **Days** attributable to each such cause;

13.8.2(c) A statement that the **Contractor** waives all claims except for those delineated in the application, and the particulars of any claims which the **Contractor** does not agree to waive. For time extensions for **Substantial Completion** and final completion payments, the application shall include a detailed statement of the dollar amounts of each element of claim item reserved; and

13.8.2(d) A statement indicating the **Contractor's** understanding that the time extension is granted only for purposes of permitting continuation of **Contract** performance and payment for **Work** performed and that the **City** retains its right to conduct an investigation and assess liquidated damages as appropriate in the future.

### 13.9 Analysis and Approval of Time Extensions:

13.9.1 For time extensions for partial payments, a written determination shall be made by the **ACCO** who may, for good and sufficient cause, extend the time for the performance of the **Contract** as follows:

13.9.1(a) If the **Work** is to be completed within six (6) months, the time for performance may be extended for sixty (60) **Days**;

13.9.1(b) If the **Work** is to be completed within less than one (1) year but more than six (6) months, an extension of ninety (90) **Days** may be granted;

13.9.1(c) If the **Contract** period exceeds one (1) year, besides the extension granted in Article 13.9.1(b), an additional thirty (30) **Days** may be granted for each multiple of six (6) months involved beyond the one (1) year period; or

13.9.1(d) If exceptional circumstances exist, the **ACCO** may extend the time for performance beyond the extensions in Articles 13.9.1(a), 13.9.1(b), and 13.9.1(c). In that event, the **ACCO** shall file with the Mayor's Office of Contract Services a written explanation of the exceptional circumstances.

13.9.2 For extensions of time for **Substantial Completion** and final completion payments, the **Engineer**, in consultation with the **ACCO**, shall prepare a written analysis of the delay (including a preliminary determination of the causes of delay, the beginning and end dates for each such cause of delay, and whether the delays are excusable under the terms of this **Contract**). The report shall be subject to review by and approval of the Board, which shall have authority to question its analysis and determinations and request additional facts or documentation. The report as reviewed and made final by the Board shall be made a part of the **Agency** contract file. Neither the report itself nor anything contained therein shall operate as a waiver or release of any claim the **City** may have against the **Contractor** for either actual or liquidated damages.

13.9.3 Approval Mechanism for Time Extensions for **Substantial Completion** or Final Completion Payments: An extension shall be granted only with the approval of the Board which is comprised of the **ACCO** of the **Agency**, the **City Corporation Counsel**, and the **Comptroller**, or their authorized representatives.

13.9.4 Neither the granting of any application for an extension of time to the Contractor or any Other Contractor on this Project nor the papers, records or reports related to any application for or grant of an extension of time or determination related thereto shall be referred to or offered in evidence by the Contractor or its attorneys in any action or proceeding.

13.10 No Damage for Delay: The Contractor agrees to make no claim for damages for delay in the performance of this Contract occasioned by any act or omission to act of the City or any of its representatives, except as provided for in Article 11.

#### **ARTICLE 14. COMPLETION AND FINAL ACCEPTANCE OF THE WORK**

14.1 Date for Substantial Completion: The Contractor shall substantially complete the Work within the time fixed in Schedule A of the General Conditions, or within the time to which such Substantial Completion may be extended.

14.2 Determining the Date of Substantial Completion: The Work will be deemed to be substantially complete when the two conditions set forth below have been met.

14.2.1 Inspection: The Engineer has inspected the Work and has made a written determination that it is substantially complete.

14.2.2 Approval of Final Approved Punch List and Date for Final Acceptance: Following inspection of the Work, the Engineer shall furnish the Contractor with a final punch list, specifying all items of Work to be completed and proposing dates for the completion of each specified item of Work. The Contractor shall then submit in writing to the Engineer within ten (10) Days of the Engineer furnishing the final punch list either acceptance of the dates or proposed alternative dates for the completion of each specified item of Work. If the Contractor proposes alternative dates, then, within a reasonable time after receipt, the Engineer, in a written notification to the Contractor, shall approve the Contractor's completion dates or, if they are unable to agree, the Engineer shall establish dates for the completion of each item of Work. If the Contractor neither accepts the dates nor proposes alternative dates within ten (10) Days, the schedule proposed by the Engineer shall be deemed accepted. The latest completion date specified shall be the date for Final Acceptance of the Work.

14.3 Date of Substantial Completion. The date of approval of the Final Approved Punch List, shall be the date of Substantial Completion. The date of approval of the Final Approved Punch List shall be either (a) if the Contractor approves the final punch list and proposed dates for completion furnished by the Engineer, the date of the Contractor's approval; or (b) if the Contractor neither accepts the dates nor proposes alternative dates, ten (10) Days after the Engineer furnishes the Contractor with a final punch list and proposed dates for completion; or (c) if the Contractor proposes alternative dates, the date that the Engineer sends written notification to the Contractor either approving the Contractor's proposed alternative dates or establishing dates for the completion for each item of Work.

14.4 Determining the Date of Final Acceptance: The Work will be accepted as final and complete as of the date of the Engineer's inspection if, upon such inspection, the Engineer finds that all items on the Final Approved Punch List are complete and no further Work remains to be done. The Commissioner will then issue a written determination of Final Acceptance.

14.5 Request for Inspection: Inspection of the Work by the Engineer for the purpose of Substantial Completion or Final Acceptance shall be made within ten (10) Days after receipt of the Contractor's written request therefor.

14.6 Request for Re-inspection: If upon inspection for the purpose of Substantial Completion or Final Acceptance, the Engineer determines that there are items of Work still to be performed, the Contractor shall promptly perform them and then request a re-inspection. If upon re-inspection, the Engineer determines that the Work is substantially complete or finally accepted, the date of such re-inspection shall be the date of Substantial Completion or Final Acceptance. Re-inspection by the Engineer shall be made within ten (10) Days after receipt of the Contractor's written request therefor.

14.7 Initiation of Inspection by the Engineer: If the Contractor does not request inspection or re-inspection of the Work for the purpose of Substantial Completion or Final Acceptance, the Engineer may initiate such inspection or re-inspection.

#### ARTICLE 15. LIQUIDATED DAMAGES

15.1 In the event the Contractor fails to substantially complete the Work within the time fixed for such Substantial Completion in Schedule A of the General Conditions, plus authorized time extensions, or if the Contractor, in the sole determination of the Commissioner, has abandoned the Work, the Contractor shall pay to the City the sum fixed in Schedule A of the General Conditions, for each and every Day that the time consumed in substantially completing the Work exceeds the time allowed therefor; which said sum, in view of the difficulty of accurately ascertaining the loss which the City will suffer by reason of delay in the Substantial Completion of the Work hereunder, is hereby fixed and agreed as the liquidated damages that the City will suffer by reason of such delay, and not as a penalty. This Article 15 shall also apply to the Contractor whether or not the Contractor is defaulted pursuant to Chapter X of this Contract. Neither the failure to assess liquidated damages nor the granting of any time extension shall operate as a waiver or release of any claim the City may have against the Contractor for either actual or liquidated damages.

15.2 Liquidated damages received hereunder are not intended to be nor shall they be treated as either a partial or full waiver or discharge of the City's right to indemnification, or the Contractor's obligation to indemnify the City, or to any other remedy provided for in this Contract or by Law.

15.3 The Commissioner may deduct and retain out of the monies which may become due hereunder, the amount of any such liquidated damages; and in case the amount which may become due hereunder shall be less than the amount of liquidated damages suffered by the City, the Contractor shall be liable to pay the difference.

#### ARTICLE 16. OCCUPATION OR USE PRIOR TO COMPLETION

16.1 Unless otherwise provided for in the Specifications, the Commissioner may take over, use, occupy or operate any part of the Work at any time prior to Final Acceptance, upon written notification to the Contractor. The Engineer shall inspect the part of the Work to be taken over, used, occupied, or operated, and will furnish the Contractor with a written statement of the Work, if any, which remains to be performed on such part. The Contractor shall not object to, nor interfere with, the Commissioner's decision to exercise the rights granted by Article 16. In the event the Commissioner takes over, uses, occupies, or operates any part of the Work:

16.1.1 the Engineer shall issue a written determination of Substantial Completion with respect to such part of the Work;

16.1.2 the Contractor shall be relieved of its absolute obligation to protect such part of the unfinished Work in accordance with Article 7;

16.1.3 the Contractor's guarantee on such part of the Work shall begin on the date of such use by the City; and;

16.1.4 the Contractor shall be entitled to a return of so much of the amount retained in accordance with Article 21 as it relates to such part of the Work, except so much thereof as may be retained under Articles 24 and 44.

#### CHAPTER IV SUBCONTRACTS AND ASSIGNMENTS

##### ARTICLE 17. SUBCONTRACTS

17.1 The Contractor shall not make subcontracts totaling an amount more than the percentage of the total Contract price fixed in Schedule A of the General Conditions, without prior written permission from the Commissioner. All subcontracts made by the Contractor shall be in writing. No Work may be performed by a Subcontractor prior to the Contractor entering into a written subcontract with the Subcontractor and complying with the provisions of this Article 17.

17.2 Before making any subcontracts, the Contractor shall submit a written statement to the Commissioner giving the name and address of the proposed Subcontractor; the portion of the Work and materials which it is to perform and furnish; the cost of the subcontract; the VENDEX questionnaire if required; the proposed subcontract if requested by the Commissioner; and any other information tending to prove that the proposed Subcontractor has the necessary facilities, skill, integrity, past experience, and financial resources to perform the Work in accordance with the terms and conditions of this Contract.

17.3 In addition to the requirements in Article 17.2, Contractor is required to list the Subcontractor in the web based Subcontractor Reporting System through the City's Payee Information Portal (PIP), available at [www.nyc.gov/pip](http://www.nyc.gov/pip).<sup>1</sup> For each Subcontractor listed, Contractor is required to provide the following information: maximum contract value, description of Subcontractor's Work, start and end date of the subcontract and identification of the Subcontractor's industry. Thereafter, Contractor will be required to report in the system the payments made to each Subcontractor within 30 days of making the payment. If any of the required information changes throughout the Term of the Contract, Contractor will be required to revise the information in the system.

Failure of the Contractor to list a Subcontractor and/or to report Subcontractor payments in a timely fashion may result in the Commissioner declaring the Contractor in default of the Contract and will subject Contractor to liquidated damages in the amount of \$100 per day for each day that the Contractor fails to identify a Subcontractor along with the required information about the Subcontractor and/or fails to report payments to a Subcontractor, beyond the time frames set forth herein or in the notice from the City. Article 15 shall govern the issue of liquidated damages.

<sup>1</sup> In order to use the new system, a PIP account will be required. Detailed instructions on creating a PIP account and using the new system are also available at [www.nyc.gov/pip](http://www.nyc.gov/pip). Additional assistance with PIP may be obtained by emailing the Financial Information Services Agency Help Desk at [pip@fisa.nyc.gov](mailto:pip@fisa.nyc.gov).

17.4 If an approved **Subcontractor** elects to subcontract any portion of its subcontract, the proposed sub-subcontract shall be submitted in the same manner as directed above.

17.5 The **Commissioner** will notify the **Contractor** in writing whether the proposed **Subcontractor** is approved. If the proposed **Subcontractor** is not approved, the **Contractor** may submit another proposed **Subcontractor** unless the **Contractor** decides to do the **Work**. No **Subcontractor** shall be permitted to enter or perform any work on the **Site** unless approved.

17.6 Before entering into any subcontract hereunder, the **Contractor** shall provide the proposed **Subcontractor** with a complete copy of this document and inform the proposed **Subcontractor** fully and completely of all provisions and requirements of this **Contract** relating either directly or indirectly to the **Work** to be performed and the materials to be furnished under such subcontract, and every such **Subcontractor** shall expressly stipulate that all labor performed and materials furnished by the **Subcontractor** shall strictly comply with the requirements of this **Contract**.

17.7 Documents given to a prospective **Subcontractor** for the purpose of soliciting the **Subcontractor's** bid shall include either a copy of the bid cover or a separate information sheet setting forth the **Project** name, the **Contract** number (if available), the **Agency** (as noted in Article 2.1.6), and the **Project's** location.

17.8 The **Commissioner's** approval of a **Subcontractor** shall not relieve the **Contractor** of any of its responsibilities, duties, and liabilities hereunder. The **Contractor** shall be solely responsible to the **City** for the acts or defaults of its **Subcontractor** and of such **Subcontractor's** officers, agents, and employees, each of whom shall, for this purpose, be deemed to be the agent or employee of the **Contractor** to the extent of its subcontract.

17.9 If the **Subcontractor** fails to maintain the necessary facilities, skill, integrity, past experience, and financial resources (other than due to the **Contractor's** failure to make payments where required) to perform the **Work** in accordance with the terms and conditions of this **Contract**, the **Contractor** shall promptly notify the **Commissioner** and replace such **Subcontractor** with a newly approved **Subcontractor** in accordance with this Article 17.

17.10 The **Contractor** shall be responsible for ensuring that all **Subcontractors** performing **Work** at the **Site** maintain all insurance required by **Law**.

17.11 The **Contractor** shall promptly, upon request, file with the **Engineer** a conformed copy of the subcontract and its cost. The subcontract shall provide the following:

17.11.1 **Payment to Subcontractors:** The agreement between the **Contractor** and its **Subcontractor** shall contain the same terms and conditions as to method of payment for **Work**, labor, and materials, and as to retained percentages, as are contained in this **Contract**.

17.11.2 **Prevailing Rate of Wages:** The agreement between the **Contractor** and its **Subcontractor** shall include the prevailing wage rates and supplemental benefits to be paid in accordance with **Labor Law Section 220**.

17.11.3 **Section 6-123 of the Administrative Code:** Pursuant to the requirements of **Section 6-123** of the **Administrative Code**, every agreement between the **Contractor** and a **Subcontractor** in excess of fifty thousand (\$50,000) dollars shall include a provision that the **Subcontractor** shall not engage in any unlawful discriminatory practice as defined in **Title VIII** of the **Administrative Code** (**Section 8-101 et seq.**).

17.11.4 All requirements required pursuant to federal and/or state grant agreement(s), if applicable to the Work.

17.12 The Commissioner may deduct from the amounts certified under this Contract to be due to the Contractor, the sum or sums due and owing from the Contractor to the Subcontractors according to the terms of the said subcontracts, and in case of dispute between the Contractor and its Subcontractor, or Subcontractors, as to the amount due and owing, the Commissioner may deduct and withhold from the amounts certified under this Contract to be due to the Contractor such sum or sums as may be claimed by such Subcontractor, or Subcontractors, in a sworn affidavit, to be due and owing until such time as such claim or claims shall have been finally resolved.

17.13 On contracts where performance bonds and payment bonds are executed, the Contractor shall include on each requisition for payment the following data: Subcontractor's name, value of the subcontract, total amount previously paid to Subcontractor for Work previously requisitioned, and the amount, including retainage, to be paid to the Subcontractor for Work included in the requisition.

17.14 On Contracts where performance bonds and payment bonds are not executed, the Contractor shall include with each requisition for payment submitted hereunder, a signed statement from each and every Subcontractor and/or Materialman for whom payment is requested in such requisition. Such signed statement shall be on the letterhead of the Subcontractor and/or Materialman for whom payment is requested and shall (i) verify that such Subcontractor and/or Materialman has been paid in full for all Work performed and/or material supplied to date, exclusive of any amount retained and any amount included on the current requisition, and (ii) state the total amount of retainage to date, exclusive of any amount retained on the current requisition.

#### ARTICLE 18. ASSIGNMENTS

18.1 The Contractor shall not assign, transfer, convey or otherwise dispose of this Contract, or the right to execute it, or the right, title or interest in or to it or any part thereof, or assign, by power of attorney or otherwise any of the monies due or to become due under this Contract, unless the previous written consent of the Commissioner shall first be obtained thereto, and the giving of any such consent to a particular assignment shall not dispense with the necessity of such consent to any further or other assignments.

18.2 Such assignment, transfer, conveyance or other disposition of this Contract shall not be valid until filed in the office of the Commissioner and the Comptroller, with the written consent of the Commissioner endorsed thereon or attached thereto.

18.3 Failure to obtain the previous written consent of the Commissioner to such an assignment, transfer, conveyance or other disposition, may result in the revocation and annulment of this Contract. The City shall thereupon be relieved and discharged from any further liability to the Contractor, its assignees, transferees or sublessees, who shall forfeit and lose all monies therefor earned under the Contract, except so much as may be required to pay the Contractor's employees.

18.4 The provisions of this clause shall not hinder, prevent, or affect an assignment by the Contractor for the benefit of its creditors made pursuant to the Laws of the State of New York.

18.5 This Contract may be assigned by the City to any corporation, agency or instrumentality having authority to accept such assignment.

CHAPTER V  
CONTRACTOR'S SECURITY AND GUARANTEE

ARTICLE 19. SECURITY DEPOSIT

19.1 If performance and payment bonds are required, the City shall retain the bid security to ensure that the successful bidder executes the Contract and furnishes the required payment and performance security within ten (10) Days after notice of the award of the Contract. If the successful bidder fails to execute the Contract and furnish the required payment and performance security, the City shall retain such bid security as set forth in the Information for Bidders. If the successful bidder executes the Contract and furnishes the required payment and performance security, the City shall return the bid security within a reasonable time after the furnishing of such bonds and execution of the Contract by the City.

19.2 If performance and payment bonds are not required, the bid security shall be retained by the City as security for the Contractor's faithful performance of the Contract. If partial payments are provided, the bid security will be returned to the Contractor after the sum retained under Article 21 equals the amount of the bid security, subject to other provisions of this Contract. If partial payments are not provided, the bid security will be released when final payment is certified by the City for payment.

19.3 If the Contractor is declared in default under Article 48 prior to the return of the deposit, or if any claim is made such as referred to in Article 23, the amount of such deposit, or so much thereof as the Comptroller may deem necessary, may be retained and then applied by the Comptroller:

19.3.1 To compensate the City for any expense, loss or damage suffered or incurred by reason of or resulting from such default, including the cost of re-letting and liquidated damages; or

19.3.2 To indemnify the City against any and all claims.

ARTICLE 20. PAYMENT GUARANTEE

20.1 On Contracts where one hundred (100%) percent performance bonds and payment bonds are executed, this Article 20 does not apply.

20.2 In the event the terms of this Contract do not require the Contractor to provide a payment bond or where the Contract does not require a payment bond for one hundred (100%) percent of the Contract price, the City shall, in accordance with the terms of this Article 20, guarantee payment of all lawful claims for:

20.2.1 Wages and compensation for labor performed and/or services rendered; and

20.2.2 Materials, equipment, and supplies provided, whether incorporated into the Work or not, when demands have been filed with the City as provided hereinafter by any person, firm, or corporation which furnished labor, material, equipment, supplies, or any combination thereof, in connection with the Work performed hereunder (hereinafter referred to as the "beneficiary") at the direction of the City or the Contractor.

20.3 The provisions of Article 20.2 are subject to the following limitations and conditions:

20.3.1 If the Contractor provides a payment bond for a value that is less than one hundred (100%) percent of the value of the Contract Work, the payment bond provided by the Contractor shall be primary (and non-contributing) to the payment guarantee provided under this Article 20.

20.3.2 The guarantee is made for the benefit of all beneficiaries as defined in Article 20.2 provided that those beneficiaries strictly adhere to the terms and conditions of Article 20.3.4 and 20.3.5.

20.3.3 Nothing in this Article 20 shall prevent a beneficiary providing labor, services or material for the Work from suing the Contractor for any amounts due and owing the beneficiary by the Contractor.

20.3.4 Every person who has furnished labor or material, to the Contractor or to a Subcontractor of the Contractor, in the prosecution of the Work and who has not been paid in full therefor before the expiration of a period of ninety (90) Days after the date on which the last of the labor was performed or material was furnished by him/her for which the claim is made, shall have the right to sue on this payment guarantee in his/her own name for the amount, or the balance thereof, unpaid at the time of commencement of the action; provided, however, that a person having a direct contractual relationship with a Subcontractor of the Contractor but no contractual relationship express or implied with the Contractor shall not have a right of action upon the guarantee unless he/she shall have given written notice to the Contractor within one hundred twenty (120) Days from the date on which the last of the labor was performed or the last of the material was furnished, for which his/her claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the material was furnished or for whom the labor was performed. The notice shall be served by delivering the same personally to the Contractor or by mailing the same by registered mail, postage prepaid, in an envelope addressed to the Contractor at any place where it maintains an office or conducts its business; provided, however, that where such notice is actually received by the Contractor by other means, such notice shall be deemed sufficient.

20.3.5 Except as provided in Labor Law Section 220-g, no action on this payment guarantee shall be commenced after the expiration of the one-year limitations period set forth in Section 137(4)(b) of the State Finance Law.

20.3.6 The Contractor shall promptly forward to the City any notice or demand received pursuant to Article 20.3.4. The Contractor shall inform the City of any defenses to the notice or demand and shall forward to the City any documents the City requests concerning the notice or demand.

20.3.7 All demands made against the City by a beneficiary of this payment guarantee shall be presented to the Engineer along with all written documentation concerning the demand which the Engineer deems reasonably appropriate or necessary, which may include, but shall not be limited to: the subcontract; any invoices presented to the Contractor for payment; the notarized statement of the beneficiary that the demand is due and payable, that a request for payment has been made of the Contractor and that the demand has not been paid by the Contractor within the time allowed for such payment by the subcontract; and copies of any correspondence between the beneficiary and the Contractor concerning such demand. The City shall notify the Contractor that a demand has been made. The Contractor shall inform the City of any defenses to the demand and shall forward to the City any documents the City requests concerning the demand.



20.3.8 The City shall make payment only if, after considering all defenses presented by the Contractor, it determines that the payment is due and owing to the beneficiary making the demand.

20.3.9 No beneficiary shall be entitled to interest from the City, or to any other costs, including, but not limited to, attorneys' fees, except to the extent required by State Finance Law Section 137.

20.4 Upon the receipt by the City of a demand pursuant to this Article 20, the City may withhold from any payment otherwise due and owing to the Contractor under this Contract an amount sufficient to satisfy the demand.

20.4.1 In the event the City determines that the demand is valid, the City shall notify the Contractor of such determination and the amount thereof and direct the Contractor to immediately pay such amount to the beneficiary. In the event the Contractor, within seven (7) Days of receipt of such notification from the City, fails to pay the beneficiary, such failure shall constitute an automatic and irrevocable assignment of payment by the Contractor to the beneficiary for the amount of the demand determined by the City to be valid. The Contractor, without further notification or other process, hereby gives its unconditional consent to such assignment of payment to the beneficiary and authorizes the City, on its behalf, to take all necessary actions to implement such assignment of payment, including without limitation the execution of any instrument or documentation necessary to effectuate such assignment.

20.4.2 In the event that the amount otherwise due and owing to the Contractor by the City is insufficient to satisfy such demand, the City may, at its option, require payment from the Contractor of an amount sufficient to cover such demand and exercise any other right to require or recover payment which the City may have under Law or Contract.

20.4.3 In the event the City determines that the demand is invalid, any amount withheld pending the City's review of such demand shall be paid to the Contractor; provided, however, no lien has been filed. In the event a claim or an action has been filed, the terms and conditions set forth in Article 23 shall apply. In the event a lien has been filed, the parties will be governed by the provisions of the Lien Law of the State of New York.

20.5 The provisions of this Article 20 shall not prevent the City and the Contractor from resolving disputes in accordance with the PPB Rules, where applicable.

20.6 In the event the City determines that the beneficiary is entitled to payment pursuant to this Article 20, such determination and any defenses and counterclaims raised by the Contractor shall be taken into account in evaluating the Contractor's performance.

20.7 Nothing in this Article 20 shall relieve the Contractor of the obligation to pay the claims of all persons with valid and lawful claims against the Contractor relating to the Work.

20.8 The Contractor shall not require any performance, payment or other bonds of any Subcontractor if this Contract does not require such bonds of the Contractor.

20.9 The payment guarantee made pursuant to this Article 20 shall be construed in a manner consistent with Section 137 of the State Finance Law and shall afford to persons furnishing labor or materials to the Contractor or its Subcontractors in the prosecution of the Work under this Contract all of the rights and remedies afforded to such persons by such section, including but not limited to, the right

to commence an action against the City on the payment guarantee provided by this Article 20 within the one-year limitations period set forth in Section 137(4)(b).

#### ARTICLE 21. RETAINED PERCENTAGE

21.1 If this Contract requires one hundred (100%) percent performance and payment security, then as further security for the faithful performance of this Contract, the Commissioner shall deduct, and retain until the substantial completion of the Work, five (5%) percent of the value of Work certified for payment in each partial payment voucher.

21.2 If this Contract does not require one hundred (100%) percent performance and payment security and if the price for which this Contract was awarded does not exceed one million (\$1,000,000) dollars, then as further security for the faithful performance of this Contract, the Commissioner shall deduct, and retain until the substantial completion of the Work, five (5%) percent of the value of Work certified for payment in each partial payment voucher.

21.3 If this Contract does not require one hundred (100%) percent performance and payment security and if the price for which this Contract was awarded exceeds one million (\$1,000,000) dollars, then as further security for the faithful performance of this Contract, the Commissioner shall deduct, and retain until the substantial completion of the Work, up to ten (10%) percent of the value of Work certified for payment in each partial payment voucher. The percentage to be retained is set forth in Schedule A of the General Conditions.

#### ARTICLE 22. INSURANCE

22.1 Types of Insurance: The Contractor shall procure and maintain the following types of insurance if, and as indicated, in Schedule A of the General Conditions (with the minimum limits and special conditions specified in Schedule A). Such insurance shall be maintained from the date the Contractor is required to provide Proof of Insurance pursuant to Article 22.3.1 through the date of completion of all required Work (including punch list work as certified in writing by the Resident Engineer), except for insurance required pursuant to Article 22.1.4, which may terminate upon Substantial Completion of the Contract. All insurance shall meet the requirements set forth in this Article 22. Wherever this Article requires that insurance coverage be "at least as broad" as a specified form (including all ISO forms), there is no obligation that the form itself be used, provided that the Contractor can demonstrate that the alternative form or endorsement contained in its policy provides coverage at least as broad as the specified form.

22.1.1 Commercial General Liability Insurance: The Contractor shall provide Commercial General Liability Insurance covering claims for property damage and/or bodily injury, including death, which may arise from any of the operations under this Contract. Coverage under this insurance shall be at least as broad as that provided by the latest edition of Insurance Services Office ("ISO") Form CG 0001. Such insurance shall be "occurrence" based rather than "claims-made" and include, without limitation, the following types of coverage: premises operations; products and completed operations; contractual liability (including the tort liability of another assumed in a contract); broad form property damage; independent contractors; explosion, collapse and underground (XCU); construction means and methods; and incidental malpractice. Such insurance shall contain a "per project" aggregate limit, as specified in Schedule A, that applies separately to operations under this Contract.

22.1.1(a) Such Commercial General Liability Insurance shall name the City as an Additional Insured. Coverage for the City shall specifically include the City's officials and employees, be at least as broad as the latest edition of ISO Form CG 20 10 and provide completed operations coverage at least as broad as the latest edition of ISO Form CG 20 37.

22.1.1(b) Such Commercial General Liability Insurance shall name all other entities designated as additional insureds in Schedule A but only for claims arising from the Contractor's operations under this Contract, with coverage at least as broad as the latest edition of ISO Form CG 20 26.

22.1.1(c) If the Work requires a permit from the Department of Buildings pursuant to 1 RCNY Section 101-08, at [http://www.nyc.gov/html/dob/downloads/rules/1\\_RCNY\\_101-08.pdf](http://www.nyc.gov/html/dob/downloads/rules/1_RCNY_101-08.pdf), the Contractor shall provide Commercial General Liability Insurance with limits of at least those required by 1 RCNY section 101-08. If the Work does not require such a permit, the minimum limits shall be those provided for in Schedule A.

22.1.1(d) If any of the Work includes repair of a waterborne vessel owned by or to be delivered to the City, such Commercial General Liability shall include, or be endorsed to include, Ship Repairer's Legal Liability Coverage to protect against, without limitation, liability arising from navigation of such vessels prior to delivery to and acceptance by the City.

22.1.2 Workers' Compensation Insurance, Employers' Liability Insurance, and Disability Benefits Insurance: The Contractor shall provide, and shall cause its Subcontractors to provide, Workers Compensation Insurance, Employers' Liability Insurance, and Disability Benefits Insurance in accordance with the Laws of the State of New York on behalf of all employees providing services under this Contract (except for those employees, if any, for which the Laws require insurance only pursuant to Article 22.1.3).

22.1.3 United States Longshoremen's and Harbor Workers Act and/or Jones Act Insurance: If specified in Schedule A of the General Conditions or if required by Law, the Contractor shall provide insurance in accordance with the United States Longshoremen's and Harbor Workers Act and/or the Jones Act, on behalf of all qualifying employees providing services under this Contract.

22.1.4 Builders Risk Insurance: If specified in Schedule A of the General Conditions, the Contractor shall provide Builders Risk Insurance on a completed value form for the total value of the Work through Substantial Completion of the Work in its entirety. Such insurance shall be provided on an All Risk basis and include coverage, without limitation, for windstorm (including named windstorm), storm surge, flood and earth movement. Unless waived by the Commissioner, it shall include coverage for ordinance and law, demolition and increased costs of construction, debris removal, pollutant clean up and removal, and expediting costs. Such insurance shall cover, without limitation, (a) all buildings and/or structures involved in the Work, as well as temporary structures at the Site, and (b) any property that is intended to become a permanent part of such building or structure, whether such property is on the Site, in transit or in temporary storage. Policies shall name the Contractor as Named Insured and list the City as both an Additional Insured and a Loss Payee as its interest may appear.

22.1.4(a) Policies of such insurance shall specify that, in the event a loss occurs at an occupied facility, occupancy of such facility is permitted without the consent of the issuing insurance company.

22.1.4(b) Such insurance may be provided through an Installation Floater, at the Contractor's option, if it otherwise conforms with the requirements of this Article 22.1.4.

22.1.5 Commercial Automobile Liability Insurance: The Contractor shall provide Commercial Automobile Liability Insurance for liability arising out of ownership, maintenance or use of any owned (if any), non-owned and hired vehicles to be used in connection with this Contract. Coverage shall be at least as broad as the latest edition of ISO Form CA0001. If vehicles are used for transporting hazardous materials, the Automobile Liability Insurance shall be endorsed to provide pollution liability broadened coverage for covered vehicles (endorsement CA 99 48) as well as proof of MCS 90.

22.1.6 Contractors Pollution Liability Insurance: If specified in Schedule A of the General Conditions, the Contractor shall maintain, or cause the Subcontractor doing such Work to maintain, Contractors Pollution Liability Insurance covering bodily injury and property damage. Such insurance shall provide coverage for actual, alleged or threatened emission, discharge, dispersal, seepage, release or escape of pollutants (including asbestos), including any loss, cost or expense incurred as a result of any cleanup of pollutants (including asbestos) or in the investigation, settlement or defense of any claim, action, or proceedings arising from the operations under this Contract. Such insurance shall be in the Contractor's name and list the City as an Additional Insured and any other entity specified in Schedule A. Coverage shall include, without limitation, (a) loss of use of damaged property or of property that has not been physically injured, (b) transportation, and (c) non-owned disposal sites.

22.1.6(a) Coverage for the City as Additional Insured shall specifically include the City's officials and employees and be at least as broad as provided to the Contractor for this Project.

22.1.6(b) If such insurance is written on a claims-made policy, such policy shall have a retroactive date on or before the effective date of this Contract, and continuous coverage shall be maintained, or an extended discovery period exercised, for a period of not less than three (3) years from the time the Work under this Contract is completed.

22.1.7 Marine Insurance:

22.1.7(a) Marine Protection and Indemnity Insurance: If specified in Schedule A of the General Conditions or if the Contractor engages in marine operations in the execution of any part of the Work, the Contractor shall maintain, or cause the Subcontractor doing such Work to maintain, Marine Protection and Indemnity Insurance with coverage at least as broad as Form SP-23. The insurance shall provide coverage for the Contractor or Subcontractor (whichever is doing this Work) and for the City (together with its officials and employees) and any other entity specified in Schedule A as an Additional Insured for bodily injury and property damage arising from marine operations under this Contract. Coverage shall include, without limitation, injury or death of crew members (if not fully provided through other insurance), removal of wreck, damage to piers, wharves and other fixed or floating objects and loss of or damage to any other vessel or craft, or to property on such other vessel or craft.

22.1.7(b) Hull and Machinery Insurance: If specified in Schedule A of the General Conditions or if the Contractor engages in marine operations in the execution of any part of the Work, the Contractor shall maintain, or cause the Subcontractor doing such Work to maintain, Hull and Machinery Insurance with coverage for the Contractor or Subcontractor (whichever is doing this Work) and for the City (together with its officials and employees) as Additional Insured at least as broad as the latest edition of American Institute Tug Form for all tugs used under this Contract and Collision Liability at least as broad as the latest edition of American Institute Hull Clauses.

22.1.7(c) Marine Pollution Liability Insurance: If specified in Schedule A of the General Conditions or if the Contractor engages in marine operations in the execution of any part of the Work, the Contractor shall maintain, or cause the Subcontractor doing such Work to maintain, Marine Pollution Liability Insurance covering itself (or the Subcontractor doing such Work) as Named Insured and the City (together with its officials and employees) and any other entity specified in Schedule A as an Additional Insured. Coverage shall be at least as broad as that provided by the latest edition of Water Quality Insurance Syndicate Form and include, without limitation, liability arising from the discharge or substantial threat of a discharge of oil, or from the release or threatened release of a hazardous substance including injury to, or economic losses resulting from, the destruction of or damage to real property, personal property or natural resources.

22.1.8 The Contractor shall provide such other types of insurance, at such minimum limits and with such conditions, as are specified in Schedule A of the General Conditions.

## 22.2 General Requirements for Insurance Coverage and Policies:

22.2.1 All required insurance policies shall be maintained with companies that may lawfully issue the required policy and have an A.M. Best rating of at least A-/VII or a Standard and Poor's rating of at least A, unless prior written approval is obtained from the City Corporation Counsel.

22.2.2 The Contractor shall be solely responsible for the payment of all premiums for all required policies and all deductibles and self-insured retentions to which such policies are subject, whether or not the City is an insured under the policy.

22.2.3 In his/her sole discretion, the Commissioner may, subject to the approval of the Comptroller and the City Corporation Counsel, accept Letters of Credit and/or custodial accounts in lieu of required insurance.

22.2.4 The City's limits of coverage for all types of insurance required pursuant to Schedule A of the General Conditions shall be the greater of (i) the minimum limits set forth in Schedule A or (ii) the limits provided to the Contractor as Named Insured under all primary, excess, and umbrella policies of that type of coverage.

22.2.5 The Contractor may satisfy its insurance obligations under this Article 22 through primary policies or a combination of primary and excess/umbrella policies, so long as all policies provide the scope of coverage required herein.

22.2.6 Policies of insurance provided pursuant to this Article 22 shall be primary and non-contributing to any insurance or self-insurance maintained by the City.

### 22.3 Proof of Insurance:

22.3.1 For all types of insurance required by Article 22.1 and Schedule A, except for insurance required by Articles 22.1.4 and 22.1.7, the Contractor shall file proof of insurance in accordance with this Article 22.3 within ten (10) Days of award. For insurance provided pursuant to Articles 22.1.4 and 22.1.7, proof shall be filed by a date specified by the Commissioner or ten (10) Days prior to the commencement of the portion of the Work covered by such policy, whichever is earlier.

22.3.2 For Workers' Compensation Insurance provided pursuant to Article 22.1.2, the Contractor shall submit one of the following forms: C-105.2 Certificate of Workers' Compensation Insurance; U-26.3 - State Insurance Fund Certificate of Workers' Compensation Insurance; Request for WC/DB Exemption (Form CE-200); equivalent or successor forms used by the New York State Workers' Compensation Board; or other proof of insurance in a form acceptable to the Commissioner. For Disability Benefits Insurance provided pursuant to Article 22.1.2, the Contractor shall submit DB-120.1 - Certificate Of Insurance Coverage Under The NYS Disability Benefits Law, Request for WC/DB Exemption (Form CE-200); equivalent or successor forms used by the New York State Workers' Compensation Board; or other proof of insurance in a form acceptable to the Commissioner. ACORD forms are not acceptable.

22.3.3 For policies provided pursuant to all of Article 22.1 other than Article 22.1.2, the Contractor shall submit one or more Certificates of Insurance on forms acceptable to the Commissioner. All such Certificates of Insurance shall certify (a) the issuance and effectiveness of such policies of insurance, each with the specified minimum limits (b) for insurance secured pursuant to Article 22.1.1 that the City and any other entity specified in Schedule A is an Additional Insured with coverage at least as broad as the most recent edition of ISO Forms CG 20 10, CG 20 37, and CG 20 26, as applicable; (c) in the event insurance is required pursuant to Article 22.1.6 and/or Article 22.1.7, that the City is an Additional Insured thereunder; (d) the company code issued to the insurance company by the National Association of Insurance Commissioners (the NAIC number); and (e) the number assigned to the Contract by the City. All such Certificates of Insurance shall be accompanied by either a duly executed "Certification by Broker" in the form contained in Part III of Schedule A or copies of all policies referenced in such Certificate of Insurance as certified by an authorized representative of the issuing insurance carrier. If any policy is not available at the time of submission, certified binders may be submitted until such time as the policy is available, at which time a certified copy of the policy shall be submitted.

22.3.4 Documentation confirming renewals of insurance shall be submitted to the Commissioner prior to the expiration date of coverage of policies required under this Contract. Such proofs of insurance shall comply with the requirements of Articles 22.3.2 and 22.3.3.

22.3.5 The Contractor shall be obligated to provide the City with a copy of any policy of insurance provided pursuant to this Article 22 upon the demand for such policy by the Commissioner or the City Corporation Counsel.

### 22.4 Operations of the Contractor:

22.4.1 The Contractor shall not commence the Work unless and until all required certificates have been submitted to and accepted by the Commissioner. Acceptance by the Commissioner of a certificate does not excuse the Contractor from securing insurance

consistent with all provisions of this Article 22 or of any liability arising from its failure to do so.

22.4.2 The Contractor shall be responsible for providing continuous insurance coverage in the manner, form, and limits required by this Contract and shall be authorized to perform Work only during the effective period of all required coverage.

22.4.3 In the event that any of the required insurance policies lapse, are revoked, suspended or otherwise terminated, for whatever cause, the Contractor shall immediately stop all Work, and shall not recommence Work until authorized in writing to do so by the Commissioner. Upon quitting the Site, except as otherwise directed by the Commissioner, the Contractor shall leave all plant, materials, equipment, tools, and supplies on the Site. Contract time shall continue to run during such periods and no extensions of time will be granted. The Commissioner may also declare the Contractor in default for failure to maintain required insurance.

22.4.4 In the event the Contractor receives notice, from an insurance company or other person, that any insurance policy required under this Article 22 shall be cancelled or terminated (or has been cancelled or terminated) for any reason, the Contractor shall immediately forward a copy of such notice to both the Commissioner and the New York City Comptroller, attn: Office of Contract Administration, Municipal Building, One Centre Street, room 1005, New York, New York 10007. Notwithstanding the foregoing, the Contractor shall ensure that there is no interruption in any of the insurance coverage required under this Article 22.

22.4.5 Where notice of loss, damage, occurrence, accident, claim or suit is required under an insurance policy maintained in accordance with this Article 22, the Contractor shall notify in writing all insurance carriers that issued potentially responsive policies of any such event relating to any operations under this Contract (including notice to Commercial General Liability insurance carriers for events relating to the Contractor's own employees) no later than 20 days after such event. For any policy where the City is an Additional Insured, such notice shall expressly specify that "this notice is being given on behalf of the City of New York as Insured as well as the Named Insured." Such notice shall also contain the following information: the number of the insurance policy, the name of the named insured, the date and location of the damage, occurrence, or accident, and the identity of the persons or things injured, damaged or lost. The Contractor shall simultaneously send a copy of such notice to the City of New York c/o Insurance Claims Specialist, Affirmative Litigation Division, New York City Law Department, 100 Church Street, New York, New York 10007.

22.4.6 In the event of any loss, accident, claim, action, or other event that does or can give rise to a claim under any insurance policy required under this Article 22, the Contractor shall at all times fully cooperate with the City with regard to such potential or actual claim.

22.5 **Subcontractor Insurance:** In the event the Contractor requires any Subcontractor to procure insurance with regard to any operations under this Contract and requires such Subcontractor to name the Contractor as an Additional Insured thereunder, the Contractor shall ensure that the Subcontractor name the City, including its officials and employees, as an Additional Insured with coverage at least as broad as the most recent edition of ISO Form CG 20 26.

22.6 Wherever reference is made in Article 7 or this Article 22 to documents to be sent to the Commissioner (e.g., notices, filings, or submissions), such documents shall be sent to the address set forth in Schedule A of the General Conditions. In the event no address is set forth in Schedule A, such documents are to be sent to the Commissioner's address as provided elsewhere in this Contract.

22.7 Apart from damages or losses covered by insurance provided pursuant to Articles 22.1.2, 22.1.3, or 22.1.5, the **Contractor** waives all rights against the **City**, including its officials and employees, for any damages or losses that are covered under any insurance required under this Article 22 (whether or not such insurance is actually procured or claims are paid thereunder) or any other insurance applicable to the operations of the **Contractor** and/or its employees, agents, or **Subcontractors**.

22.8 In the event the **Contractor** utilizes a self-insurance program to satisfy any of the requirements of this Article 22, the **Contractor** shall ensure that any such self-insurance program provides the **City** with all rights that would be provided by traditional insurance under this Article 22, including but not limited to the defense and indemnification obligations that insurers are required to undertake in liability policies.

22.9 Materiality/Non-Waiver: The **Contractor's** failure to secure policies in complete conformity with this Article 22, or to give an insurance company timely notice of any sort required in this **Contract** or to do anything else required by this Article 22 shall constitute a material breach of this **Contract**. Such breach shall not be waived or otherwise excused by any action or inaction by the **City** at any time.

22.10 Pursuant to General Municipal Law Section 108, this **Contract** shall be void and of no effect unless **Contractor** maintains Workers' Compensation Insurance for the term of this **Contract** to the extent required and in compliance with the New York State Workers' Compensation Law.

22.11 Other Remedies: Insurance coverage provided pursuant to this Article 22 or otherwise shall not relieve the **Contractor** of any liability under this **Contract**, nor shall it preclude the **City** from exercising any rights or taking such other actions available to it under any other provisions of this **Contract** or **Law**.

### **ARTICLE 23. MONEY RETAINED AGAINST CLAIMS**

23.1 If any claim shall be made by any person or entity (including **Other Contractors** with the **City** on this **Project**) against the **City** or against the **Contractor** and the **City** for any of the following:

(a) An alleged loss, damage, injury, theft or vandalism of any of the kinds referred to in Articles 7 and 12, plus the reasonable costs of defending the **City**, which in the opinion of the **Comptroller** may not be paid by an insurance company (for any reason whatsoever); or

(b) An infringement of copyrights, patents or use of patented articles, tools, etc., as referred to in Article 57; or

(c) Damage claimed to have been caused directly or indirectly by the failure of the **Contractor** to perform the **Work** in strict accordance with this **Contract**,

the amount of such claim, or so much thereof as the **Comptroller** may deem necessary, may be withheld by the **Comptroller**, as security against such claim, from any money due hereunder. The **Comptroller**, in his/her discretion, may permit the **Contractor** to substitute other satisfactory security in lieu of the monies so withheld.

23.2 If an action on such claim is timely commenced and the liability of the **City**, or the **Contractor**, or both, shall have been established therein by a final judgment of a court of competent jurisdiction, or if such claim shall have been admitted by the **Contractor** to be valid, the **Comptroller**



shall pay such judgment or admitted claim out of the monies retained by the **Comptroller** under the provisions of this Article 23, and return the balance, if any, without interest, to the **Contractor**.

#### ARTICLE 24. MAINTENANCE AND GUARANTY

24.1 The **Contractor** shall promptly repair, replace, restore or rebuild, as the **Commissioner** may determine, any finished **Work** in which defects of materials or workmanship may appear or to which damage may occur because of such defects, during the one (1) year period subsequent to the date of **Substantial Completion** (or use and occupancy in accordance with Article 16), except where other periods of maintenance and guaranty are provided for in Schedule A.

24.2 As security for the faithful performance of its obligations hereunder, the **Contractor**, upon filing its requisition for payment on **Substantial Completion**, shall deposit with the **Commissioner** a sum equal to one (1%) percent of the price (or the amount fixed in Schedule A of the General Conditions) in cash or certified check upon a state or national bank and trust company or a check of such bank and trust company signed by a duly authorized officer thereof and drawn to the order of the **Comptroller**, or obligations of the **City**, which the **Comptroller** may approve as of equal value with the sum so required.

24.3 In lieu of the above, the **Contractor** may make such security payment to the **City** by authorizing the **Commissioner** in writing to deduct the amount from the **Substantial Completion** payment which shall be deemed the deposit required above.

24.4 If the **Contractor** has faithfully performed all of its obligations hereunder the **Commissioner** shall so certify to the **Comptroller** within five (5) **Days** after the expiration of one (1) year from the date of **Substantial Completion** and acceptance of the **Work** or within thirty (30) **Days** after the expiration of the guarantee period fixed in the **Specifications**. The security payment shall be repaid to the **Contractor** without interest within thirty (30) **Days** after certification by the **Commissioner** to the **Comptroller** that the **Contractor** has faithfully performed all of its obligations hereunder.

24.5 Notice by the **Commissioner** to the **Contractor** to repair, replace, rebuild or restore such defective or damaged **Work** shall be timely, pursuant to this article, if given not later than ten (10) **Days** subsequent to the expiration of the one (1) year period or other periods provided for herein.

24.6 If the **Contractor** shall fail to repair, replace, rebuild or restore such defective or damaged **Work** promptly after receiving such notice, the **Commissioner** shall have the right to have the **Work** done by others in the same manner as provided for in the completion of a defaulted **Contract**, under Article 51.

24.7 If the security payment so deposited is insufficient to cover the cost of such **Work**, the **Contractor** shall be liable to pay such deficiency on demand by the **Commissioner**.

24.8 The **Engineer's** certificate setting forth the fair and reasonable cost of repairing, replacing, rebuilding or restoring any damaged or defective **Work** when performed by one other than the **Contractor**, shall be binding and conclusive upon the **Contractor** as to the amount thereof.

24.9 The **Contractor** shall obtain all manufacturers' warranties and guaranties of all equipment and materials required by this **Contract** in the name of the **City** and shall deliver same to the **Commissioner**. All of the **City's** rights and title and interest in and to said manufacturers' warranties and guaranties may be assigned by the **City** to any subsequent purchasers of such equipment and materials or lessees of the premises into which the equipment and materials have been installed.

CHAPTER VI  
CHANGES, EXTRA WORK, AND DOCUMENTATION OF CLAIM

ARTICLE 25. CHANGES

25.1 Changes may be made to this Contract only as duly authorized in writing by the **Commissioner** in accordance with the Law and this Contract. All such changes, modifications, and amendments will become a part of the Contract. Work so ordered shall be performed by the **Contractor**.

25.2 Contract changes will be made only for Work necessary to complete the Work included in the original scope of the Contract and/or for non-material changes to the scope of the Contract. Changes are not permitted for any material alteration in the scope of Work in the Contract.

25.3 The **Contractor** shall be entitled to a price adjustment for **Extra Work** performed pursuant to a written change order. Adjustments to price shall be computed in one or more of the following ways:

25.3.1 By applicable unit prices specified in the Contract; and/or

25.3.2 By agreement of a fixed price; and/or

25.3.3 By time and material records; and/or

25.3.4 In any other manner approved by the **CCPO**.

25.4 All payments for change orders are subject to pre-audit by the **Engineering Audit Officer** and may be post-audited by the **Comptroller** and/or the **Agency**.

ARTICLE 26. METHODS OF PAYMENT FOR OVERRUNS AND EXTRA WORK

26.1 **Overrun of Unit Price Item:** An overrun is any quantity of a unit price item which the **Contractor** is directed to provide which is in excess of one hundred twenty-five (125%) percent of the estimated quantity for that item set forth in the bid schedule.

26.1.1 For any unit price item, the **Contractor** will be paid at the unit price bid for any quantity up to one hundred twenty-five (125%) percent of the estimated quantity for that item set forth in the bid schedule. If during the progress of the Work, the actual quantity of any unit price item required to complete the Work approaches the estimated quantity for that item, and for any reason it appears that the actual quantity of any unit price item necessary to complete the Work will exceed the estimated quantity for that item by twenty-five (25%) percent, the **Contractor** shall immediately notify the **Engineer** of such anticipated overrun. The **Contractor** shall not be compensated for any quantity of a unit price item provided which is in excess of one hundred twenty-five (125%) percent of the estimated quantity for that item set forth in the bid schedule without written authorization from the **Engineer**.

26.1.2 If the actual quantity of any unit price item necessary to complete the Work will exceed one hundred twenty five (125%) percent of the estimated quantity for that item set forth in the bid schedule, the **City** reserves the right and the **Contractor** agrees to negotiate a new unit price for such item. In no event shall such negotiated new unit price exceed the unit bid price. If the **City** and **Contractor** cannot agree on a new unit price, then the **City** shall order the **Contractor** and the **Contractor** agrees to provide additional quantities of the

item on the basis of time and material records for the actual and reasonable cost as determined under Article 26.2, but in no event at a unit price exceeding the unit price bid.

**26.2 Extra Work:** For **Extra Work** where payment is by agreement on a fixed price in accordance with Article 25.3.2, the price to be paid for such **Extra Work** shall be based on the fair and reasonable estimated cost of the items set forth below. For **Extra Work** where payment is based on time and material records in accordance with Article 25.3.3, the price to be paid for such **Extra Work** shall be the actual and reasonable cost of the items set forth below, calculated in accordance with the formula specified therein, if any.

26.2.1 Necessary materials (including transportation to the Site); plus

26.2.2 Necessary direct labor, including payroll taxes (subject to statutory wage caps) and supplemental benefits; plus

26.2.3 Sales and personal property taxes, if any, required to be paid on materials not incorporated into such **Extra Work**; plus

26.2.4 Reasonable rental value of **Contractor-owned** (or **Subcontractor-owned**, as applicable), necessary plant and equipment other than **Small Tools**, plus fuel/energy costs. Except for fuel costs for pick-up trucks which shall be reimbursed based on a consumption of five (5) gallons per shift, fuel costs shall be reimbursed based on actual costs or, in the absence of auditable documentation, the following fuel consumption formula per operating hour:  $(.035) \times (\text{HP rating}) \times (\text{Fuel cost/gallon})$ . Reasonable rental value is defined as the lower of either seventy-five percent of the monthly prorated rental rates established in "The AED Green Book, Rental Rates and Specifications for Construction Equipment" published by Equipment Watch (the "Green Book"), or seventy-five percent of the monthly prorated rental rates established in the "Rental Rate Blue Book for Construction Equipment" published by Equipment Watch (the "Blue Book") (the applicable Blue Book rate being for rental only without the addition of any operational costs listed in the Blue Book). The reasonable rental value is deemed to be inclusive of all operating costs except for fuel/energy consumption and equipment operator's wages/costs. For multiple shift utilization, reimbursement shall be calculated as follows: first shift shall be seventy-five (75%) percent of such rental rates; second shift shall be sixty (60%) percent of the first shift rate; and third shift shall be forty (40%) percent of the first shift rate. Equipment on standby shall be reimbursed at one-third (1/3) the prorated monthly rental rate. **Contractor-owned** (or **Subcontractor-owned**, as applicable) equipment includes equipment from rental companies affiliated with or controlled by the **Contractor** (or **Subcontractor**, as applicable), as determined by the Commissioner. In establishing cost reimbursement for non-operating **Contractor-owned** (or **Subcontractor-owned**, as applicable) equipment (scaffolding, sheeting systems, road plates, etc.), the City may restrict reimbursement to a purchase-salvage/life cycle basis if less than the computed rental costs; plus

26.2.5 Necessary installation and dismantling of such plant and equipment, including transportation to and from the Site, if any, provided that, in the case of non-**Contractor-owned** (or non-**Subcontractor-owned**, as applicable) equipment rented from a third party, the cost of installation and dismantling are not allowable if such costs are included in the rental rate; plus

26.2.6 Necessary fees charged by governmental entities; plus

26.2.7 Necessary construction-related service fees charged by non-governmental entities, such as landfill tipping fees; plus

26.2.8 Reasonable rental costs of non-Contractor-owned (or non-Subcontractor-owned, as applicable) necessary plant and equipment other than Small Tools, plus fuel/energy costs. Except for fuel costs for pick-up trucks which shall be reimbursed based on a consumption of five (5) gallons per shift, fuel costs shall be reimbursed based on actual costs or, in the absence of auditable documentation, the following fuel consumption formula per hour of operation:  $(.035) \times (\text{HP rating}) \times (\text{Fuel cost/gallon})$ . In lieu of renting, the City reserves the right to direct the purchase of non-operating equipment (scaffolding, sheeting systems, road plates, etc.), with payment on a purchase-salvage/life cycle basis, if less than the projected rental costs; plus

26.2.9 Workers' Compensation Insurance, and any insurance coverage expressly required by the City for the performance of the Extra Work which is different than the types of insurance required by Article 22 and Schedule A of the General Conditions. The cost of Workers' Compensation Insurance is subject to applicable payroll limitation caps and shall be based upon the carrier's Manual Rate for such insurance derived from the applicable class Loss Cost ("LC") and carrier's Lost Cost Multiplier ("LCM") approved by the New York State Department of Financial Services, and with the exception of experience rating, rate modifiers as promulgated by the New York Compensation Insurance Rating Board ("NYCIRB"); plus

26.2.10 Additional costs incurred as a result of the Extra Work for performance and payment bonds; plus

26.2.11 Twelve percent (12%) percent of the total of items in Articles 26.2.1 through 26.2.5 as compensation for overhead, except that no percentage for overhead will be allowed on Payroll Taxes or on the premium portion of overtime pay or on sales and personal property taxes. Overhead shall include without limitation, all costs and expenses in connection with administration, management superintendence, small tools, and insurance required by Schedule A of the General Conditions other than Workers' Compensation Insurance; plus

26.2.12 Ten (10%) percent of the total of items in Articles 26.2.1 through 26.2.5, plus the items in Article 26.2.11, as compensation for profit, except that no percentage for profit will be allowed on Payroll Taxes or on the premium portion of overtime pay or on sales and personal property taxes; plus

26.2.13 Five (5%) percent of the total of items in Articles 26.2.6 through 26.2.10 as compensation for overhead and profit.

26.3 Where the Extra Work is performed in whole or in part by other than the Contractor's own forces pursuant to Article 26.2, the Contractor shall be paid, subject to pre-audit by the Engineering Audit Officer, the cost of such Work computed in accordance with Article 26.2 above, plus an additional allowance of five (5%) percent to cover the Contractor's overhead and profit.

26.4 Where a change is ordered, involving both Extra Work and omitted or reduced Contract Work, the Contract price shall be adjusted, subject to pre-audit by the EAO, in an amount based on the difference between the cost of such Extra Work and of the omitted or reduced Work.

26.5 Where the Contractor and the Commissioner can agree upon a fixed price for Extra Work in accordance with Article 25.3.2 or another method of payment for Extra Work in accordance with Article

25.3.4, or for Extra Work ordered in connection with omitted Work, such method, subject to pre-audit by the EAO, may, at the option of the Commissioner, be substituted for the cost plus a percentage method provided in Article 26.2; provided, however, that if the Extra Work is performed by a Subcontractor, the Contractor shall not be entitled to receive more than an additional allowance of five (5%) percent for overhead and profit over the cost of such Subcontractor's Work as computed in accordance with Article 26.2.

## ARTICLE 27. RESOLUTION OF DISPUTES

27.1 All disputes between the City and the Contractor of the kind delineated in this Article 27.1 that arise under, or by virtue of, this Contract shall be finally resolved in accordance with the provisions of this Article 27 and the PPB Rules. This procedure for resolving all disputes of the kind delineated herein shall be the exclusive means of resolving any such disputes.

27.1.1 This Article 27 shall not apply to disputes concerning matters dealt with in other sections of the PPB Rules, or to disputes involving patents, copyrights, trademarks, or trade secrets (as interpreted by the courts of New York State) relating to proprietary rights in computer software.

27.1.2 This Article 27 shall apply only to disputes about the scope of Work delineated by the Contract, the interpretation of Contract documents, the amount to be paid for Extra Work or disputed work performed in connection with the Contract, the conformity of the Contractor's Work to the Contract, and the acceptability and quality of the Contractor's Work; such disputes arise when the Engineer, Resident Engineer, Engineering Audit Officer, or other designee of the Commissioner makes a determination with which the Contractor disagrees.

27.2 All determinations required by this Article 27 shall be made in writing clearly stated, with a reasoned explanation for the determination based on the information and evidence presented to the party making the determination. Failure to make such determination within the time required by this Article 27 shall be deemed a non-determination without prejudice that will allow application to the next level.

27.3 During such time as any dispute is being presented, heard, and considered pursuant to this Article 27, the Contract terms shall remain in force and the Contractor shall continue to perform Work as directed by the ACCO or the Engineer. Failure of the Contractor to continue Work as directed shall constitute a waiver by the Contractor of its claim.

### 27.4 Presentation of Disputes to Commissioner.

Notice of Dispute and Agency Response. The Contractor shall present its dispute in writing ("Notice of Dispute") to the Commissioner within thirty (30) Days of receiving written notice of the determination or action that is the subject of the dispute. This notice requirement shall not be read to replace any other notice requirements contained in the Contract. The Notice of Dispute shall include all the facts, evidence, documents, or other basis upon which the Contractor relies in support of its position, as well as a detailed computation demonstrating how any amount of money claimed by the Contractor in the dispute was arrived at. Within thirty (30) Days after receipt of the detailed written submission comprising the complete Notice of Dispute, the Engineer, Resident Engineer, Engineering Audit Officer, or other designee of the Commissioner shall submit to the Commissioner all materials he or she deems pertinent to the dispute. Following initial submissions to the Commissioner, either party may demand of the other the production of any document or other material the demanding party believes may be relevant to the dispute. The requested party shall produce all relevant materials that are not otherwise

protected by a legal privilege recognized by the courts of New York State. Any question of relevancy shall be determined by the Commissioner whose decision shall be final. Willful failure of the Contractor to produce any requested material whose relevancy the Contractor has not disputed, or whose relevancy has been affirmatively determined, shall constitute a waiver by the Contractor of its claim.

27.4.1 **Commissioner Inquiry.** The Commissioner shall examine the material and may, in his or her discretion, convene an informal conference with the Contractor, the ACCO, and the Engineer, Resident Engineer, Engineering Audit Officer, or other designee of the Commissioner to resolve the issue by mutual consent prior to reaching a determination. The Commissioner may seek such technical or other expertise as he or she shall deem appropriate, including the use of neutral mediators, and require any such additional material from either or both parties as he or she deems fit. The Commissioner's ability to render, and the effect of, a decision hereunder shall not be impaired by any negotiations in connection with the dispute presented, whether or not the Commissioner participated therein. The Commissioner may or, at the request of any party to the dispute, shall compel the participation of any Other Contractor with a contract related to the Work of this Contract, and that Contractor shall be bound by the decision of the Commissioner. Any Other Contractor thus brought into the dispute resolution proceeding shall have the same rights and obligations under this Article 27 as the Contractor initiating the dispute.

27.4.2 **Commissioner Determination.** Within thirty (30) Days after the receipt of all materials and information, or such longer time as may be agreed to by the parties, the Commissioner shall make his or her determination and shall deliver or send a copy of such determination to the Contractor, the ACCO, and Engineer, Resident Engineer, Engineering Audit Officer, or other designee of the Commissioner, as applicable, together with a statement concerning how the decision may be appealed.

27.4.3 **Finality of Commissioner's Decision.** The Commissioner's decision shall be final and binding on all parties, unless presented to the Contract Dispute Resolution Board pursuant to this Article 27. The City may not take a petition to the Contract Dispute Resolution Board. However, should the Contractor take such a petition, the City may seek, and the Contract Dispute Resolution Board may render, a determination less favorable to the Contractor and more favorable to the City than the decision of the Commissioner.

27.5 **Presentation of Dispute to the Comptroller.** Before any dispute may be brought by the Contractor to the Contract Dispute Resolution Board, the Contractor must first present its claim to the Comptroller for his or her review, investigation, and possible adjustment.

27.5.1 **Time, Form, and Content of Notice.** Within thirty (30) Days of its receipt of a decision by the Commissioner, the Contractor shall submit to the Comptroller and to the Commissioner a Notice of Claim regarding its dispute with the Agency. The Notice of Claim shall consist of (i) a brief written statement of the substance of the dispute, the amount of money, if any, claimed and the reason(s) the Contractor contends the dispute was wrongly decided by the Commissioner; (ii) a copy of the written decision of the Commissioner; and (iii) a copy of all materials submitted by the Contractor to the Agency, including the Notice of Dispute. The Contractor may not present to the Comptroller any material not presented to the Commissioner, except at the request of the Comptroller.

27.5.2 **Response.** Within thirty (30) Days of receipt of the Notice of Claim, the Agency shall make available to the Comptroller a copy of all material submitted by the Agency to the Commissioner in connection with the dispute. The Agency may not present to the

Comptroller any material not presented to the Commissioner except at the request of the Comptroller.

**27.5.3 Comptroller Investigation.** The Comptroller may investigate the claim in dispute and, in the course of such investigation, may exercise all powers provided in Sections 7-201 and 7-203 of the Administrative Code. In addition, the Comptroller may demand of either party, and such party shall provide, whatever additional material the Comptroller deems pertinent to the claim, including original business records of the Contractor. Willful failure of the Contractor to produce within fifteen (15) Days any material requested by the Comptroller shall constitute a waiver by the Contractor of its claim. The Comptroller may also schedule an informal conference to be attended by the Contractor, Agency representatives, and any other personnel desired by the Comptroller.

**27.5.4 Opportunity of Comptroller to Compromise or Adjust Claim.** The Comptroller shall have forty-five (45) Days from his or her receipt of all materials referred to in Article 27.5.3 to investigate the disputed claim. The period for investigation and compromise may be further extended by agreement between the Contractor and the Comptroller, to a maximum of ninety (90) Days from the Comptroller's receipt of all materials. The Contractor may not present its petition to the Contract Dispute Resolution Board until the period for investigation and compromise delineated in this Article 27.5.4 has expired. In compromising or adjusting any claim hereunder, the Comptroller may not revise or disregard the terms of the Contract between the parties.

**27.6 Contract Dispute Resolution Board.** There shall be a Contract Dispute Resolution Board composed of:

**27.6.1** The chief administrative law judge of the Office of Administrative Trials and Hearings (OATH) or his/her designated OATH administrative law judge, who shall act as chairperson, and may adopt operational procedures and issue such orders consistent with this Article 27 as may be necessary in the execution of the Contract Dispute Resolution Board's functions, including, but not limited to, granting extensions of time to present or respond to submissions;

**27.6.2** The CCPO or his/her designee; any designee shall have the requisite background to consider and resolve the merits of the dispute and shall not have participated personally and substantially in the particular matter that is the subject of the dispute or report to anyone who so participated; and

**27.6.3** A person with appropriate expertise who is not an employee of the City. This person shall be selected by the presiding administrative law judge from a prequalified panel of individuals, established and administered by OATH with appropriate background to act as decision-makers in a dispute. Such individual may not have a contract or dispute with the City or be an officer or employee of any company or organization that does, or regularly represents persons, companies, or organizations having disputes with the City.

**27.7 Petition to the Contract Dispute Resolution Board.** In the event the claim has not been settled or adjusted by the Comptroller within the period provided in this Article 27, the Contractor, within thirty (30) Days thereafter, may petition the Contract Dispute Resolution Board to review the Commissioner's determination.

**27.7.1 Form and Content of Petition by Contractor.** The Contractor shall present its dispute to the Contract Dispute Resolution Board in the form of a petition, which shall

include (i) a brief written statement of the substance of the dispute, the amount of money, if any, claimed, and the reason(s) the Contractor contends the dispute was wrongly decided by the Commissioner; (ii) a copy of the written Decision of the Commissioner, (iii) copies of all materials submitted by the Contractor to the Agency; (iv) a copy of the written decision of the Comptroller, if any, and (v) copies of all correspondence with, or written material submitted by the Contractor, to the Comptroller. The Contractor shall concurrently submit four (4) complete sets of the Petition: one set to the City Corporation Counsel (Attn: Commercial and Real Estate Litigation Division) and three (3) sets to the Contract Dispute Resolution Board at OATH's offices with proof of service on the City Corporation Counsel. In addition, the Contractor shall submit a copy of the written statement of the substance of the dispute, cited in (i) above, to both the Commissioner and the Comptroller.

**27.7.2 Agency Response.** Within thirty (30) Days of its receipt of the Petition by the City Corporation Counsel, the Agency shall respond to the brief written statement of the Contractor and make available to the Contract Dispute Resolution Board all material it submitted to the Commissioner and Comptroller. Three (3) complete copies of the Agency response shall be provided to the Contract Dispute Resolution Board and one to the Contractor. Extensions of time for submittal of the Agency response shall be given as necessary upon a showing of good cause or, upon consent of the parties, for an initial period of up to thirty (30) Days.

**27.7.3 Further Proceedings.** The Contract Dispute Resolution Board shall permit the Contractor to present its case by submission of memoranda, briefs, and oral argument. The Contract Dispute Resolution Board shall also permit the Agency to present its case in response to the Contractor by submission of memoranda, briefs, and oral argument. If requested by the City Corporation Counsel, the Comptroller shall provide reasonable assistance in the preparation of the Agency's case. Neither the Contractor nor the Agency may support its case with any documentation or other material that was not considered by the Comptroller, unless requested by the Contract Dispute Resolution Board. The Contract Dispute Resolution Board, in its discretion, may seek such technical or other expert advice as it shall deem appropriate and may seek, on its own or upon application of a party, any such additional material from any party as it deems fit. The Contract Dispute Resolution Board, in its discretion, may combine more than one dispute between the parties for concurrent resolution.

**27.7.4 Contract Dispute Resolution Board Determination.** Within forty-five (45) Days of the conclusion of all written submissions and oral arguments, the Contract Dispute Resolution Board shall render a written decision resolving the dispute. In an unusually complex case, the Contract Dispute Resolution Board may render its decision in a longer period, not to exceed ninety (90) Days, and shall so advise the parties at the commencement of this period. The Contract Dispute Resolution Board's decision must be consistent with the terms of the Contract. Decisions of the Contract Dispute Resolution Board shall only resolve matters before the Contract Dispute Resolution Board and shall not have precedential effect with respect to matters not before the Contract Dispute Resolution Board.

**27.7.5 Notification of Contract Dispute Resolution Board Decision.** The Contract Dispute Resolution Board shall send a copy of its decision to the Contractor, the ACCO, the Engineer, the Comptroller, the City Corporation Counsel, the CCPO, and the PPB. A decision in favor of the Contractor shall be subject to the prompt payment provisions of the PPB Rules. The Required Payment Date shall be thirty (30) Days after the date the parties are formally notified of the Contract Dispute Resolution Board's decision.



27.7.6 Finality of Contract Dispute Resolution Board Decision. The Contract Dispute Resolution

Board's decision shall be final and binding on all parties. Any party may seek review of the Contract Dispute Resolution Board's decision solely in the form of a challenge, filed within four (4) months of the date of the Contract Dispute Resolution Board's decision, in a court of competent jurisdiction of the State of New York, County of New York pursuant to Article 78 of the Civil Practice Law and Rules. Such review by the court shall be limited to the question of whether or not the Contract Dispute Resolution Board's decision was made in violation of lawful procedure, was affected by an error of Law, or was arbitrary and capricious or an abuse of discretion. No evidence or information shall be introduced or relied upon in such proceeding that was not presented to the Contract Dispute Resolution Board in accordance with this Article 27.

27.8 Any termination, cancellation, or alleged breach of the Contract prior to or during the pendency of any proceedings pursuant to this Article 27 shall not affect or impair the ability of the Commissioner or Contract Dispute Resolution Board to make a binding and final decision pursuant to this Article 27.

#### **ARTICLE 28. RECORD KEEPING FOR EXTRA OR DISPUTED WORK OR WORK ON A TIME & MATERIALS BASIS**

28.1 While the Contractor or any of its Subcontractors is performing Work on a time and material basis or Extra Work on a time and material basis ordered by the Commissioner under Article 25, or where the Contractor believes that it or any of its Subcontractors is performing Extra Work but a final determination by Agency has not been made, or the Contractor or any of its Subcontractors is performing disputed Work (whether on or off the Site), or complying with a determination or order under protest in accordance with Articles 11, 27, and 30, in each such case the Contractor shall furnish the Resident Engineer daily with three (3) copies of written statements signed by the Contractor's representative at the Site showing:

28.1.1 The name, trade, and number of each worker employed on such Work or engaged in complying with such determination or order, the number of hours employed, and the character of the Work each is doing; and

28.1.2 The nature and quantity of any materials, plant and equipment furnished or used in connection with the performance of such Work or compliance with such determination or order, and from whom purchased or rented.

28.2 A copy of such statement will be countersigned by the Resident Engineer, noting thereon any items not agreed to or questioned, and will be returned to the Contractor within two (2) Days after submission.

28.3 The Contractor and its Subcontractors, when required by the Commissioner, or the Comptroller, shall also produce for inspection, at the office of the Contractor or Subcontractor, any and all of its books, bid documents, financial statements, vouchers, records, daily job diaries and reports, and cancelled checks, and any other documents relating to showing the nature and quantity of the labor, materials, plant and equipment actually used in the performance of such Work, or in complying with such determination or order, and the amounts expended therefor, and shall permit the Commissioner and the Comptroller to make such extracts therefrom, or copies thereof, as they or either of them may desire.

28.4 In connection with the examination provided for herein, the Commissioner, upon demand therefor, will produce for inspection by the Contractor such records as the Agency may have with

respect to such **Extra Work** or disputed **Work** performed under protest pursuant to order of the **Commissioner**, except those records and reports which may have been prepared for the purpose of determining the accuracy and validity of the **Contractor's** claim.

28.5 Failure to comply strictly with these requirements shall constitute a waiver of any claim for extra compensation or damages on account of the performance of such **Work** or compliance with such determination or order.

#### ARTICLE 29. OMITTED WORK

29.1 If any **Contract Work** in a lump sum **Contract**, or if any part of a lump sum item in a unit price, lump sum, or percentage-bid **Contract** is omitted by the **Commissioner** pursuant to Article 33, the **Contract** price, subject to audit by the EAO, shall be reduced by a pro rata portion of the lump sum bid amount based upon the percent of **Work** omitted subject to Article 29.4. For the purpose of determining the pro rata portion of the lump sum bid amount, the bid breakdown submitted in accordance with Article 41 shall be considered, but shall not be the determining factor.

29.2 If the whole of a lump sum item or units of any other item is so omitted by the **Commissioner** in a unit price, lump sum, or percentage-bid **Contract**, then no payment will be made therefor except as provided in Article 29.4.

29.3 For units that have been ordered but are only partially completed, the unit price shall be reduced by a pro rata portion of the unit price bid based upon the percentage of **Work** omitted subject to Article 29.4.

29.4 In the event the **Contractor**, with respect to any omitted **Work**, has purchased any non-cancelable material and/or equipment that is not capable of use except in the performance of this **Contract** and has been specifically fabricated for the sole purpose of this **Contract**, but not yet incorporated into the **Work**, the **Contractor** shall be paid for such material and/or equipment in accordance with Article 64.2.1(b); provided, however, such payment is contingent upon the **Contractor's** delivery of such material and/or equipment in acceptable condition to a location designated by the **City**.

29.5 The **Contractor** agrees to make no claim for damages or for loss of overhead and profit with regard to any omitted **Work**.

#### ARTICLE 30. NOTICE AND DOCUMENTATION OF COSTS AND DAMAGES; PRODUCTION OF FINANCIAL RECORDS

30.1 If the **Contractor** shall claim to be sustaining damages by reason of any act or omission of the **City** or its agents, it shall submit to the **Commissioner** within forty-five (45) **Days** from the time such damages are first incurred, and every thirty (30) **Days** thereafter for as long as such damages are incurred, verified statements of the details and the amounts of such damages, together with documentary evidence of such damages. The **Contractor** may submit any of the above statements within such additional time as may be granted by the **Commissioner** in writing upon written request therefor. Failure of the **Commissioner** to respond in writing to a written request for additional time within thirty (30) **Days** shall be deemed a denial of the request. On failure of the **Contractor** to strictly comply with the foregoing provisions, such claims shall be deemed waived and no right to recover on such claims shall exist. Damages that the **Contractor** may claim in any action or dispute resolution procedure arising under or by reason of this **Contract** shall not be different from or in excess of the statements and documentation made pursuant to this Article 30.

30.2 In addition to the foregoing statements, the Contractor shall, upon notice from the Commissioner, produce for examination at the Contractor's office, by the Engineer, Architect or Project Manager, all of its books of account, bills, invoices, payrolls, subcontracts, time books, daily reports, bank deposit books, bank statements, check books, and cancelled checks, showing all of its acts and transactions in connection with or relating to or arising by reason of this Contract, and submit itself and persons in its employment, for examination under oath by any person designated by the Commissioner or Comptroller to investigate claims made or disputes against the City under this Contract. At such examination, a duly authorized representative of the Contractor may be present.

30.3 In addition to the statements required under Article 28 and this Article 30, the Contractor and/or its Subcontractor shall, within thirty (30) Days upon notice from the Commissioner or Comptroller, produce for examination at the Contractor's and/or Subcontractor's office, by a representative of either the Commissioner or Comptroller, all of its books of account, bid documents, financial statements, accountant workpapers, bills, invoices, payrolls, subcontracts, time books, daily reports, bank deposit books, bank statements, check books, and cancelled checks, showing all of its acts and transactions in connection with or relating to or arising by reason of this Contract. Further, the Contractor and/or its Subcontractor shall submit any person in its employment, for examination under oath by any person designated by the Commissioner or Comptroller to investigate claims made or disputes against the City under this Contract. At such examination, a duly authorized representative of the Contractor may be present.

30.4 Unless the information and examination required under Article 30.3 is provided by the Contractor and/or its Subcontractor upon thirty (30) Days' notice from the Commissioner or Comptroller, or upon the Commissioner's or Comptroller's written authorization to extend the time to comply, the City shall be released from all claims arising under, relating to or by reason of this Contract, except for sums certified by the Commissioner to be due under the provisions of this Contract. It is further stipulated and agreed that no person has the power to waive any of the foregoing provisions and that in any action or dispute resolution procedure against the City to recover any sum in excess of the sums certified by the Commissioner to be due under or by reason of this Contract, the Contractor must allege in its complaint and prove, at trial or during such dispute resolution procedure, compliance with the provisions of this Article 30.

30.5 In addition, after the commencement of any action or dispute resolution procedure by the Contractor arising under or by reason of this Contract, the City shall have the right to require the Contractor to produce for examination under oath, up until the trial of the action or hearing before the Contract Dispute Resolution Board, the books and documents described in Article 30.3 and submit itself and all persons in its employ for examination under oath. If this Article 30 is not complied with as required, then the Contractor hereby consents to the dismissal of the action or dispute resolution procedure.

**CHAPTER VII  
POWERS OF THE RESIDENT ENGINEER,  
THE ENGINEER OR ARCHITECT AND THE COMMISSIONER**

**ARTICLE 31. THE RESIDENT ENGINEER**

31.1 The Resident Engineer shall have the power to inspect, supervise, and control the performance of the Work, subject to review by the Commissioner. The Resident Engineer shall not, however, have the power to issue an Extra Work order, except as specifically designated in writing by the Commissioner.

## ARTICLE 32. THE ENGINEER OR ARCHITECT OR PROJECT MANAGER

32.1 The Engineer or Architect or Project Manager, in addition to those matters elsewhere herein delegated to the Engineer and expressly made subject to his/her determination, direction or approval, shall have the power, subject to review by the Commissioner:

32.1.1 To determine the amount, quality, and location of the Work to be paid for hereunder; and

32.1.2 To determine all questions in relation to the Work, to interpret the Contract Drawings, Specifications, and Addenda, and to resolve all patent inconsistencies or ambiguities therein; and

32.1.3 To determine how the Work of this Contract shall be coordinated with Work of Other Contractors engaged simultaneously on this Project, including the power to suspend any part of the Work, but not the whole thereof; and

32.1.4 To make minor changes in the Work as he/she deems necessary, provided such changes do not result in a net change in the cost to the City or to the Contractor of the Work to be done under the Contract; and

32.1.5 To amplify the Contract Drawings, add explanatory information and furnish additional Specifications and drawings, consistent with this Contract.

32.2 The foregoing enumeration shall not imply any limitation upon the power of the Engineer or Architect or Project Manager, for it is the intent of this Contract that all of the Work shall generally be subject to his/her determination, direction, and approval, except where the determination, direction or approval of someone other than the Engineer or Architect or Project Manager is expressly called for herein.

32.3 The Engineer or Architect or Project Manager shall not, however, have the power to issue an Extra Work order, except as specifically designated in writing by the Commissioner.

## ARTICLE 33. THE COMMISSIONER

33.1 The Commissioner, in addition to those matters elsewhere herein expressly made subject to his/her determination, direction or approval, shall have the power:

33.1.1 To review and make determinations on any and all questions in relation to this Contract and its performance; and

33.1.2 To modify or change this Contract so as to require the performance of Extra Work (subject, however, to the limitations specified in Article 25) or the omission of Contract Work; and

33.1.3 To suspend the whole or any part of the Work whenever in his/her judgment such suspension is required:

33.1.3(a) In the interest of the City generally; or

33.1.3(b) To coordinate the Work of the various contractors engaged on this Project pursuant to the provisions of Article 12; or

33.1.3(c) To expedite the completion of the entire Project even though the completion of this particular Contract may thereby be delayed.

#### ARTICLE 34. NO ESTOPPEL

34.1 Neither the City nor any Agency, official, agent or employee thereof, shall be bound, precluded or estopped by any determination, decision, approval, order, letter, payment or certificate made or given under or in connection with this Contract by the City, the Commissioner, the Engineer, the Resident Engineer, or any other official, agent or employee of the City, either before or after the final completion and acceptance of the Work and payment therefor:

34.1.1 From showing the true and correct classification, amount, quality or character of the Work actually done; or that any such determination, decision, order, letter, payment or certificate was untrue, incorrect or improperly made in any particular, or that the Work, or any part thereof, does not in fact conform to the requirements of this Contract; and

34.1.2 From demanding and recovering from the Contractor any overpayment made to it, or such damages as the City may sustain by reason of the Contractor's failure to perform each and every part of its Contract.

### CHAPTER VIII LABOR PROVISIONS

#### ARTICLE 35. EMPLOYEES

35.1 The Contractor and its Subcontractors shall not employ on the Work:

35.1.1 Anyone who is not competent, faithful and skilled in the Work for which he/she shall be employed; and whenever the Commissioner shall inform the Contractor, in writing, that any employee is, in his/her opinion, incompetent, unfaithful or disobedient, that employee shall be discharged from the Work forthwith, and shall not again be employed upon it; or

35.1.2 Any labor, materials or means whose employment, or utilization during the course of this Contract, may tend to or in any way cause or result in strikes, work stoppages, delays, suspension of Work or similar troubles by workers employed by the Contractor or its Subcontractors, or by any of the trades working in or about the buildings and premises where Work is being performed under this Contract, or by Other Contractors or their Subcontractors pursuant to other contracts, or on any other building or premises owned or operated by the City, its Agencies, departments, boards or authorities. Any violation by the Contractor of this requirement may, upon certification of the Commissioner, be considered as proper and sufficient cause for declaring the Contractor to be in default, and for the City to take action against it as set forth in Chapter X of this Contract, or such other article of this Contract as the Commissioner may deem proper; or

35.1.3 In accordance with Section 220.3-e of the Labor Law of the State of New York (hereinafter "Labor Law"), the Contractor and its Subcontractors shall not employ on the Work any apprentice, unless he/she is a registered individual, under a bona fide program

registered with the New York State Department of Labor. The allowable ratio of apprentices to journey-level workers in any craft classification shall not be greater than the ratio permitted to the **Contractor** as to its work force on any job under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered as above, shall be paid the wage rate determined by the **Comptroller** of the City for the classification of **Work** actually performed. The **Contractor** or **Subcontractor** will be required to furnish written evidence of the registration of its program and apprentices as well as all the appropriate ratios and wage rates, for the area of the construction prior to using any apprentices on the **Contract Work**.

35.2 If the total cost of the **Work** under this **Contract** is at least two hundred fifty thousand (\$250,000) dollars, all laborers, workers, and mechanics employed in the performance of the **Contract** on the public work site, either by the **Contractor**, **Subcontractor** or other person doing or contracting to do the whole or a part of the **Work** contemplated by the **Contract**, shall be certified prior to performing any **Work** as having successfully completed a course in construction safety and health approved by the United States Department of Labor's Occupational Safety and Health Administration that is at least ten (10) hours in duration.

35.3 In accordance with Local Law Nos. 30-2012 and 33-2012, codified at sections 6-132 and 12-113 of the Administrative Code, respectively,

35.3.1 The **Contractor** shall not take an adverse personnel action with respect to an officer or employee in retaliation for such officer or employee making a report of information concerning conduct which such officer or employee knows or reasonably believes to involve corruption, criminal activity, conflict of interest, gross mismanagement or abuse of authority by any officer or employee relating to this **Contract** to (a) the Commissioner of the Department of Investigation, (b) a member of the New York City Council, the Public Advocate, or the **Comptroller**, or (c) the CCPO, ACCO, Agency head, or Commissioner.

35.3.2 If any of the **Contractor's** officers or employees believes that he or she has been the subject of an adverse personnel action in violation of Article 35.3.1, he or she shall be entitled to bring a cause of action against the **Contractor** to recover all relief necessary to make him or her whole. Such relief may include but is not limited to: (a) an injunction to restrain continued retaliation, (b) reinstatement to the position such employee would have had but for the retaliation or to an equivalent position, (c) reinstatement of full fringe benefits and seniority rights, (d) payment of two times back pay, plus interest, and (e) compensation for any special damages sustained as a result of the retaliation, including litigation costs and reasonable attorney's fees.

35.3.3 The **Contractor** shall post a notice provided by the City in a prominent and accessible place on any site where work pursuant to the **Contract** is performed that contains information about:

35.3.3(a) how its employees can report to the New York City Department of Investigation allegations of fraud, false claims, criminality or corruption arising out of or in connection with the **Contract**; and

35.3.3(b) the rights and remedies afforded to its employees under Administrative Code sections 7-805 (the New York City False Claims Act) and 12-113 (the Whistleblower Protection Expansion Act) for lawful acts taken in connection with the reporting of allegations of fraud, false claims, criminality or corruption in connection with the **Contract**.

35.3.4 For the purposes of this Article 35.3, "adverse personnel action" includes dismissal, demotion, suspension, disciplinary action, negative performance evaluation, any action resulting in loss of staff, office space, equipment or other benefit, failure to appoint, failure to promote, or any transfer or assignment or failure to transfer or assign against the wishes of the affected officer or employee.

35.3.5 This Article 35.3 is applicable to all of the Contractor's Subcontractors having subcontracts with a value in excess of \$100,000; accordingly, the Contractor shall include this rider in all subcontracts with a value a value in excess of \$100,000.

35.4 Article 35.3 is not applicable to this Contract if it is valued at \$100,000 or less. Articles 35.3.1, 35.3.2, 35.3.4, and 35.3.5 are not applicable to this Contract if it was solicited pursuant to a finding of an emergency.

#### ARTICLE 36. NO DISCRIMINATION

36.1 The Contractor specifically agrees, as required by Labor Law Section 220-e, as amended, that:

36.1.1 In the hiring of employees for the performance of Work under this Contract or any subcontract hereunder, neither the Contractor, Subcontractor, nor any person acting on behalf of such Contractor or Subcontractor, shall by reason of race, creed, color or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the Work to which the employment relates;

36.1.2 Neither the Contractor, Subcontractor, nor any person on its behalf shall, in any manner, discriminate against or intimidate any employee hired for the performance of Work under this Contract on account of race, creed, color or national origin;

36.1.3 There may be deducted from the amount payable to the Contractor by the City under this Contract a penalty of fifty (\$50.00) dollars for each person for each Day during which such person was discriminated against or intimidated in violation of the provisions of this Contract; and

36.1.4 This Contract may be cancelled or terminated by the City and all moneys due or to become due hereunder may be forfeited, for a second or any subsequent violation of the terms or conditions of this Article 36.

36.1.5 This Article 36 covers all construction, alteration and repair of any public building or public work occurring in the State of New York and the manufacture, sale, and distribution of materials, equipment, and supplies to the extent that such operations are performed within the State of New York pursuant to this Contract.

36.2 The Contractor specifically agrees, as required by Section 6-108 of the Administrative Code, as amended, that:

36.2.1 It shall be unlawful for any person engaged in the construction, alteration or repair of buildings or engaged in the construction or repair of streets or highways pursuant to a Contract with the City or engaged in the manufacture, sale or distribution of materials, equipment or supplies pursuant to a Contract with the City to refuse to employ or to refuse to continue in any employment any person on account of the race, color or creed of such person.

36.2.2 It shall be unlawful for any person or any servant, agent or employee of any person, described in Article 36.1.2, to ask, indicate or transmit, orally or in writing, directly or indirectly, the race, color or creed or religious affiliation of any person employed or seeking employment from such person, firm or corporation.

36.2.3 Breach of the foregoing provisions shall be deemed a violation of a material provision of this **Contract**.

36.2.4 Any person, or the employee, manager or owner of or officer of such firm or corporation who shall violate any of the provisions of this Article 36.2 shall, upon conviction thereof, be punished by a fine of not more than one hundred (\$100.00) dollars or by imprisonment for not more than thirty (30) Days, or both.

36.3 This **Contract** is subject to the requirements of Executive Order No. 50 (1980) ("E.O. 50"), as revised, and the rules and regulations promulgated thereunder. No contract will be awarded unless and until these requirements have been complied with in their entirety. By signing this **Contract**, the **Contractor** agrees that it:

36.3.1 Will not engage in any unlawful discrimination against any employee or applicant for employment because of race, creed, color, national origin, sex, age, disability, marital status or sexual orientation with respect to all employment decisions including, but not limited to, recruitment, hiring, upgrading, demotion, downgrading, transfer, training, rates of pay or other forms of compensation, layoff, termination, and all other terms and conditions of employment; and

36.3.2 Will not engage in any unlawful discrimination in the selection of **Subcontractors** on the basis of the owner's race, color, creed, national origin, sex, age, disability, marital status or sexual orientation; and

36.3.3 Will state in all solicitations or advertisements for employees placed by or on behalf of the **Contractor** that all qualified applicants will receive consideration for employment without unlawful discrimination based on race, creed, color, national origin, sex, age, citizens status, disability, marital status, sexual orientation, or that it is an equal employment opportunity employer; and

36.3.4 Will send to each labor organization or representative of workers with which it has a collective bargaining agreement or other contract or memorandum of understanding, written notification of its equal employment opportunity commitments under E.O. 50 and the rules and regulations promulgated thereunder; and

36.3.5 Will furnish, before the award of the **Contract**, all information and reports, including an employment report, that are required by E.O. 50, the rules and regulations promulgated thereunder, and orders of the City Department of Business Services, Division of Labor Services (DLS) and will permit access to its books, records, and accounts by the DLS for the purposes of investigation to ascertain compliance with such rules, regulations, and orders.

36.4 The **Contractor** understands that in the event of its noncompliance with the nondiscrimination clauses of this **Contract** or with any of such rules, regulations, or orders, such noncompliance shall constitute a material breach of this **Contract** and noncompliance with E.O. 50 and the rules and regulations promulgated thereunder. After a hearing held pursuant to the rules of the DLS, the Director of the DLS may direct the Commissioner to impose any or all of the following sanctions:



36.4.1 Disapproval of the Contractor; and/or

36.4.2 Suspension or termination of the Contract; and/or

36.4.3 Declaring the Contractor in default; and/or

36.4.4 In lieu of any of the foregoing sanctions, the Director of the DLS may impose an employment program.

In addition to any actions taken under this Contract, failure to comply with E.O. 50 and the rules and regulations promulgated thereunder, in one or more instances, may result in a City Agency declaring the Contractor to be non-responsible in future procurements. The Contractor further agrees that it will refrain from entering into any Contract or Contract modification subject to E.O. 50 and the rules and regulations promulgated thereunder with a Subcontractor who is not in compliance with the requirements of E.O. 50 and the rules and regulations promulgated thereunder.

36.5 The Contractor specifically agrees, as required by Section 6-123 of the Administrative Code, that:

36.5.1 The Contractor will not engage in any unlawful discriminatory practice in violation of Title 8 of the Administrative Code; and

36.5.2 Any failure to comply with this Article 36.5 may subject the Contractor to the remedies set forth in Section 6-123 of the Administrative Code, including, where appropriate, sanctions such as withholding of payment, imposition of an employment program, finding the Contractor to be in default, cancellation of the Contract, or any other sanction or remedy provided by Law or Contract.

### ARTICLE 37. LABOR LAW REQUIREMENTS

37.1 The Contractor shall strictly comply with all applicable provisions of the Labor Law, as amended. Such compliance is a material term of this Contract.

37.2 The Contractor specifically agrees, as required by Labor Law Sections 220 and 220-d, as amended, that:

37.2.1 **Hours of Work:** No laborer, worker, or mechanic in the employ of the Contractor, Subcontractor or other person doing or contracting to do the whole or a part of the Work contemplated by this Contract shall be permitted or required to work more than eight (8) hours in any one (1) Day, or more than five (5) Days in any one (1) week, except as provided in the Labor Law and in cases of extraordinary emergency including fire, flood, or danger to life or property, or in the case of national emergency when so proclaimed by the President of the United States of America.

37.2.2 In situations in which there are not sufficient laborers, workers, and mechanics who may be employed to carry on expeditiously the Work contemplated by this Contract as a result of such restrictions upon the number of hours and Days of labor, and the immediate commencement or prosecution or completion without undue delay of the Work is necessary for the preservation of the Site and/or for the protection of the life and limb of the persons using the same, such laborers, workers, and mechanics shall be permitted or required to

work more than eight (8) hours in any one (1) Day; or five (5) Days in any one (1) week; provided, however, that upon application of any Contractor, the Commissioner shall have first certified to the Commissioner of Labor of the State of New York (hereinafter "Commissioner of Labor") that such public Work is of an important nature and that a delay in carrying it to completion would result in serious disadvantage to the public; and provided, further, that such Commissioner of Labor shall have determined that such an emergency does in fact exist as provided in Labor Law Section 220.2.

37.2.3 Failure of the Commissioner to make such a certification to the Commissioner of Labor shall not entitle the Contractor to damages for delay or for any cause whatsoever.

37.2.4 Prevailing Rate of Wages: The wages to be paid for a legal day's Work to laborers, workers, or mechanics employed upon the Work contemplated by this Contract or upon any materials to be used thereon shall not be less than the "prevailing rate of wage" as defined in Labor Law Section 220, and as fixed by the Comptroller in the attached Schedule of Wage Rates and in updated schedules thereof. The prevailing wage rates and supplemental benefits to be paid are those in effect at the time the Work is being performed.

37.2.5 Requests for interpretation or correction in the Information for Bidders includes all requests for clarification of the classification of trades to be employed in the performance of the Work under this Contract. In the event that a trade not listed in the Contract is in fact employed during the performance of this Contract, the Contractor shall be required to obtain from the Agency the prevailing wage rates and supplementary benefits for the trades used and to complete the performance of this Contract at the price at which the Contract was awarded.

37.2.6 Minimum Wages: Except for employees whose wage is required to be fixed pursuant to Labor Law Section 220, all persons employed by the Contractor and any Subcontractor in the manufacture or furnishing of the supplies, materials, or equipment, or the furnishing of work, labor, or services, used in the performance of this Contract, shall be paid, without subsequent deduction or rebate unless expressly authorized by Law, not less than the sum mandated by Law.

37.3 Working Conditions: No part of the Work, labor or services shall be performed or rendered by the Contractor in any plants, factories, buildings or surroundings or under working conditions which are unsanitary or hazardous or dangerous to the health and safety of employees engaged in the performance of this Contract. Compliance with the safety, sanitary, and factory inspection Laws of the state in which the Work is to be performed shall be prima facie evidence of compliance with this Article 37.3.

37.4 Prevailing Wage Enforcement: The Contractor agrees to pay for all costs incurred by the City in enforcing prevailing wage requirements, including the cost of any investigation conducted by or on behalf of the Agency or the Comptroller, where the City discovers a failure to comply with any of the requirements of this Article 37 by the Contractor or its Subcontractor(s). The Contractor also agrees that, should it fail or refuse to pay for any such investigation, the Agency is hereby authorized to deduct from a Contractor's account an amount equal to the cost of such investigation.

37.4.1 The Labor Law Section 220 and Section 220-d, as amended, provide that this Contract shall be forfeited and no sum paid for any Work done hereunder on a second conviction for willfully paying less than:

37.4.1(a) The stipulated prevailing wage scale as provided in Labor Law section 220, as amended, or

37.4.1(b) The stipulated minimum hourly wage scale as provided in Labor Law section 220-d, as amended.

37.4.2 For any breach or violation of either working conditions (Article 37.3) or minimum wages (Article 37.2.6) provisions, the party responsible therefor shall be liable to the City for liquidated damages, which may be withheld from any amounts due on any contracts with the City of such party responsible, or may be recovered in actions brought by the City Corporation Counsel in the name of the City, in addition to damages for any other breach of this Contract, for a sum equal to the amount of any underpayment of wages due to any employee engaged in the performance of this Contract. In addition, the Commissioner shall have the right to cancel contracts and enter into other contracts for the completion of the original contract, with or without public letting, and the original Contractor shall be liable for any additional cost. All sums withheld or recovered as deductions, rebates, refunds, or underpayment of wages hereunder, shall be held in a special deposit account and shall be paid without interest, on order of the Comptroller, directly to the employees who have been paid less than minimum rates of pay as set forth herein and on whose account such sums were withheld or recovered, provided that no claims by employees for such payments shall be entertained unless made within two (2) years from the date of actual notice to the Contractor of the withholding or recovery of such sums by the City.

37.4.3 A determination by the Comptroller that a Contractor and/or its Subcontractor willfully violated Labor Law Section 220 will be forwarded to the City's five District Attorneys for review.

37.4.4 The Contractor's or Subcontractor's noncompliance with this Article 37.4 and Labor Law Section 220 may result in an unsatisfactory performance evaluation and the Comptroller may also find and determine that the Contractor or Subcontractor willfully violated the New York Labor Law.

37.4.4(a) An unsatisfactory performance evaluation for noncompliance with this Article 37.4 may result in a determination that the Contractor is a non-responsible bidder on subsequent procurements with the City and thus a rejection of a future award of a contract with the City, as well as any other sanctions provided for by Law.

37.4.4(b) Labor Law Section 220-b, as amended, provides that when two (2) final determinations have been rendered against a Contractor or Subcontractor within any consecutive six (6) year period determining that such Contractor or Subcontractor has willfully failed to pay the prevailing rate of wages or to provide supplements in accordance with the Labor Law and this Article 37.4, whether such failures were concurrent or consecutive and whether or not such final determinations concerning separate public works projects are rendered simultaneously, such Contractor or Subcontractor shall be ineligible to submit a bid on or be awarded any public works contract with the City for a period of five (5) years from the second final determination. If the final determination involves the falsification of payroll records or the kickback of wages or supplements, the Contractor or Subcontractor shall be ineligible to submit a bid on or be awarded any public works contract with the City for a period of five (5) years from the first final determination.

37.4.4(c) Labor Law Section 220, as amended, provides that the Contractor or Subcontractor found to have violated this Article 37.4 may be directed to make payment of wages or supplements including interest found to be due, and the Contractor or Subcontractor may be directed to make payment of a further sum as

a civil penalty in an amount not exceeding twenty-five (25%) percent of the total amount found to be due.

37.5 The Contractor and its Subcontractors shall within ten (10) Days after mailing of a Notice of Award or written order, post in prominent and conspicuous places in each and every plant, factory, building, and structure where employees of the Contractor and its Subcontractors engaged in the performance of this Contract are employed, notices furnished by the City, in relation to prevailing wages and supplements, minimum wages, and other stipulations contained in Sections 220 and 220-h of the Labor Law, and the Contractor and its Subcontractors shall continue to keep such notices posted in such prominent and conspicuous places until Final Acceptance of the supplies, materials, equipment, or Work, labor, or services required to be furnished or rendered under this Contract.

37.6 The Contractor shall strictly comply with all of the provisions of Articles 37.6.1 through 37.6.5, and provide for all workers, laborers or mechanics in its employ, the following:

37.6.1 Notices Posted At Site: Post, in a location designated by the City, schedules of prevailing wages and supplements for this Project, a copy of all re-determinations of such schedules for the Project, the Workers' Compensation Law Section 51 notice, all other notices required by Law to be posted at the Site, the City notice that this Project is a public works project on which each worker is entitled to receive the prevailing wages and supplements for the occupation at which he or she is working, and all other notices which the City directs the Contractor to post. The Contractor shall provide a surface for such notices which is satisfactory to the City. The Contractor shall maintain and keep current such notices in a legible manner and shall replace any notice or schedule which is damaged, defaced, illegible or removed for any reason. The Contractor shall post such notices before commencing any Work on the Site and shall maintain such notices until all Work on the Site is complete; and

37.6.2 Daily Site Sign-in Sheets: Maintain daily Site sign-in sheets, and require that Subcontractors maintain daily Site sign-in sheets for its employees, which include blank spaces for an employee's name to be both printed and signed, job title, date started and Social Security number, the time the employee began work and the time the employee left work, until Final Acceptance of the supplies, materials, equipment, or Work, labor, or services to be furnished or rendered under this Contract unless exception is granted by the Comptroller upon application by the Agency. In the alternative, subject to the approval of the CCPO, the Contractor and Subcontractor may maintain an electronic or biometric sign-in system, which provides the information required by this Article 37.6.2; and

37.6.3 Individual Employee Information Notices: Distribute a notice to each worker, laborer or mechanic employed under this Contract, in a form provided by the Agency, that this Project is a public works project on which each worker, laborer or mechanic is entitled to receive the prevailing rate of wages and supplements for the occupation at which he or she is working. If the total cost of the Work under this Contract is at least two hundred fifty thousand (\$250,000) dollars, such notice shall also include a statement that each worker, laborer or mechanic must be certified prior to performing any Work as having successfully completed a course in construction safety and health approved by the United States Department of Labor's Occupational Safety and Health Administration that is at least ten (10) hours in duration. Such notice shall be distributed to each worker before he or she starts performing any Work of this Contract and with the first paycheck after July first of each year. "Worker, laborer or mechanic" includes employees of the Contractor and all Subcontractors and all employees of suppliers entering the Site. At the time of distribution, the Contractor shall have each worker, laborer or mechanic sign a statement, in a form provided by the Agency, certifying that the worker has received the notice required by this

Article 37.6.3, which signed statement shall be maintained with the payroll records required by this Contract; and

37.6.3(a) The Contractor and each Subcontractor shall notify each worker, laborer or mechanic employed under this Contract in writing of the prevailing rate of wages for their particular job classification. Such notification shall be given to every worker, laborer, and mechanic on their first pay stub and with every pay stub thereafter; and

37.6.4 Site Laminated Identification Badges: The Contractor shall provide laminated identification badges which include a photograph of the worker's, laborer's or mechanic's face and indicate the worker's, laborer's or mechanic's name, trade, employer's name, and employment starting date (month/day/year). Further, the Contractor shall require as a condition of employment on the Site, that each and every worker, laborer or mechanic wear the laminated identification badge at all times and that it may be seen by any representative of the City. The Commissioner may grant a written waiver from the requirement that the laminated identification badge include a photograph if the Contractor demonstrates that the identity of an individual wearing a laminated identification badge can be easily verified by another method; and

37.6.5 Language Other Than English Used On Site: Provide the ACCO notice when three (3) or more employees (worker and/or laborer and/or mechanic) on the Site, at any time, speak a language other than English. The ACCO will then provide the Contractor the notices described in Article 37.6.1 in that language or languages as may be required. The Contractor is responsible for all distributions under this Article 37; and

37.6.6 Provision of Records: The Contractor and Subcontractor(s) shall produce within five (5) Days on the Site of the Work and upon a written order of the Engineer, the Commissioner, the ACCO, the Agency EAO, or the Comptroller, such records as are required to be kept by this Article 37.6; and

37.6.7 The Contractor and Subcontractor(s) shall pay employees by check or direct deposit. If this Contract is for an amount greater than one million (\$1,000,000) dollars, checks issued by the Contractor to covered employees shall be generated by a payroll service or automated payroll system (an in-house system may be used if approved by the Agency). For any subcontract for an amount greater than seven hundred fifty thousand (\$750,000) dollars, checks issued by a Subcontractor to covered employees shall be generated by a payroll service or automated payroll system (an in-house system may be used if approved by the Agency); and

37.6.8 The failure of the Contractor or Subcontractor(s) to comply with the provisions of Articles 37.6.1 through 37.6.7 may result in the Commissioner declaring the Contractor in default and/or the withholding of payments otherwise due under the Contract.

37.7 The Contractor and its Subcontractors shall keep such employment and payroll records as are required by Section 220 of the Labor Law. The failure of the Contractor or Subcontractor(s) to comply with the provisions of this Article 37.7 may result in the Commissioner declaring the Contractor in default and/or the withholding of payments otherwise due under the Contract.

37.8 At the time the Contractor makes application for each partial payment and for final payment, the Contractor shall submit to the Commissioner a written payroll certification, in the form provided by this Contract, of compliance with the prevailing wage, minimum wage, and other provisions and stipulations required by Labor Law Section 220 and of compliance with the training requirements of

Labor Law Section 220-h set forth in Article 35.2. This certification of compliance shall be a condition precedent to payment and no payment shall be made to the Contractor unless and until each such certification shall have been submitted to and received by the Commissioner.

37.9 This Contract is executed by the Contractor with the express warranty and representation that the Contractor is not disqualified under the provisions of Section 220 of the Labor Law from the award of the Contract.

37.10 Any breach or violation of any of the foregoing shall be deemed a breach or violation of a material provision of this Contract, and grounds for cancellation thereof by the City.

#### ARTICLE 38. PAYROLL REPORTS

38.1 The Contractor and its Subcontractor(s) shall maintain on the Site during the performance of the Work the original payrolls or transcripts thereof which the Contractor and its Subcontractor(s) are required to maintain and shall submit such original payrolls or transcripts, subscribed and affirmed by it as true, within thirty (30) Days after issuance of its first payroll, and every thirty (30) Days thereafter, pursuant to Labor Law Section 220(3-a)(a)(iii). The Contractor and Subcontractor(s) shall submit such original payrolls or transcripts along with each and every payment requisition. If payment requisitions are not submitted at least once a month, the Contractor and its Subcontractor(s) shall submit original payrolls and transcripts both along with its payment requisitions and independently of its payment requisitions.

38.2 The Contractor shall maintain payrolls or transcripts thereof for six (6) years from the date of completion of the Work on this Contract. If such payrolls and transcripts are maintained outside of New York City after the completion of the Work and their production is required pursuant to this Article 38, the Contractor shall produce such records in New York City upon request by the City.

38.3 The Contractor and Subcontractor(s) shall comply with any written order, direction, or request made by the Engineer, the Commissioner, the ACCO, the Agency EAO, the Agency Labor Law Investigator(s), or the Comptroller, to provide to the requesting party any of the following information and/or records within five (5) Days of such written order, direction, or request:

38.3.1 Such original payrolls or transcripts thereof subscribed and affirmed by it as true and the statements signed by each worker pursuant to this Chapter VIII; and/or

38.3.2 Attendance sheets for each Day on which any employee of the Contractor and/or any of the Subcontractor(s) performed Work on the Site, which attendance sheet shall be in a form acceptable to the Agency and shall provide information acceptable to the Agency to identify each such employee; and/or

38.3.3 Any other information to satisfy the Engineer, the Commissioner, the ACCO, the Agency EAO, the Agency Labor Law Investigator(s) or the Comptroller, that this Chapter VIII and the Labor Law, as to the hours of employment and prevailing rates of wages and/or supplemental benefits, are being observed.

38.4 The failure of the Contractor or Subcontractor(s) to comply with the provisions of Articles 38.1 and/or 38.2 may result in the Commissioner declaring the Contractor in default and/or the withholding of payments otherwise due under the Contract.

## ARTICLE 39. DUST HAZARDS

39.1 Should a harmful dust hazard be created in performing the Work of this Contract, for the elimination of which appliances or methods have been approved by the Board of Standards and Appeals of the City of New York, such appliances and methods shall be installed, maintained, and effectively operated during the continuance of such harmful dust hazard. Failure to comply with this provision after notice shall make this Contract voidable at the sole discretion of the City.

## CHAPTER IX PARTIAL AND FINAL PAYMENTS

### ARTICLE 40. CONTRACT PRICE

40.1 The City shall pay, and the Contractor agrees to accept, in full consideration for the Contractor's performance of the Work subject to the terms and conditions hereof, the lump sum price or unit prices for which this Contract was awarded, plus the amount required to be paid for any Extra Work ordered by the Commissioner under Article 25, less credit for any Work omitted pursuant to Article 29.

### ARTICLE 41. BID BREAKDOWN ON LUMP SUM

41.1 Within fifteen (15) Days after the commencement date specified in the Notice to Proceed or Order to Work, unless otherwise directed by the Resident Engineer, the Contractor shall submit to the Resident Engineer a breakdown of its bid price, or of lump sums bid for items of the Contract, showing the various operations to be performed under the Contract, as directed in the progress schedule required under Article 9, and the value of each of such operations, the total of such items to equal the lump sum price bid. Said breakdown must be approved in writing by the Resident Engineer.

41.2 No partial payment will be approved until the Contractor submits a bid breakdown that is acceptable to the Resident Engineer.

41.3 The Contractor shall also submit such other information relating to the bid breakdown as directed by the Resident Engineer. Thereafter, the breakdown may be used only for checking the Contractor's applications for partial payments hereunder, but shall not be binding upon the City, the Commissioner, or the Engineer for any purpose whatsoever.

### ARTICLE 42. PARTIAL PAYMENTS

42.1 From time to time as the Work progresses satisfactorily, but not more often than once each calendar month (except where the Commissioner approves in writing the submission of invoices on a more frequent basis and for invoices relating to Work performed pursuant to a change order), the Contractor may submit to the Engineer a requisition for a partial payment in the prescribed form, which shall contain an estimate of the quantity and the fair value of the Work done during the payment period.

42.2 Partial payments may be made for materials, fixtures, and equipment in advance of their actual incorporation in the Work, as the Commissioner may approve, and upon the terms and conditions set forth in the General Conditions.

42.3 The Contractor shall also submit to the Commissioner in connection with every application for partial payment a verified statement in the form prescribed by the Comptroller setting forth the information required under Labor Law Section 220-a.

42.4 Within thirty (30) Days after receipt of a satisfactory payment application, and within sixty (60) Days after receipt of a satisfactory payment application in relation to Work performed pursuant to a change order, the Engineer will prepare and certify, and the Commissioner will approve, a voucher for a partial payment in the amount of such approved estimate, less any and all deductions authorized to be made by the Commissioner under the terms of this Contract or by Law.

#### ARTICLE 43. PROMPT PAYMENT

43.1 The Prompt Payment provisions of the PPB Rules in effect at the time of the bid will be applicable to payments made under this Contract. The provisions require the payment to the Contractor of interest on payments made after the required payment date, except as set forth in the PPB Rules.

43.2 The Contractor shall submit a proper invoice to receive payment, except where the Contract provides that the Contractor will be paid at predetermined intervals without having to submit an invoice for each scheduled payment.

43.3 Determination of interest due will be made in accordance with the PPB Rules.

43.4 If the Contractor is paid interest, the proportionate share(s) of that interest shall be forwarded by the Contractor to its Subcontractor(s).

43.5 The Contractor shall pay each Subcontractor or Materialman not later than seven (7) Days after receipt of payment out of amounts paid to the Contractor by the City for Work performed by the Subcontractor or Materialman under this Contract.

43.5.1 If Contractor fails to make any payment to any Subcontractor or Materialman within seven (7) Days after receipt of payment by the City pursuant to this Article 43.5, then the Contractor shall pay interest on amounts due to such Subcontractor or Materialman at the rate of interest in effect on the date such payment is made by the Contractor computed in accordance with Section 756-b (1)(b) of the New York General Business Law. Accrual of interest shall commence on the Day immediately following the expiration of the seventh Day following receipt of payment by the Contractor from the City and shall end on the date on which payment is made.

43.6 The Contractor shall include in each of its subcontracts a provision requiring each Subcontractor to make payment to each of its Subcontractors or Materialmen for Work performed under this Contract in the same manner and within the same time period set forth above.

#### ARTICLE 44. SUBSTANTIAL COMPLETION PAYMENT

44.1 The Contractor shall submit with the Substantial Completion requisition:

44.1.1 A final verified statement of any pending Article 27 disputes in accordance with the PPB Rules and this Contract and any and all alleged claims against the City, in any way connected with or arising out of this Contract (including those as to which details may have been furnished pursuant to Articles 11, 27, 28, and 30) setting forth with respect to each



such claim the total amount thereof, the various items of labor and materials included therein, and the alleged value of each item; and if the alleged claim be one for delay, the alleged cause of each such delay, the period or periods of time, giving the dates when the Contractor claims the performance of the Work or a particular part thereof was delayed, and an itemized statement and breakdown of the amount claimed for each such delay.

44.1.1(a) With respect to each such claim, the Commissioner, the Comptroller and, in the event of litigation, the City Corporation Counsel shall have the same right to inspect, and to make extracts or copies of, the Contractor's books, vouchers, records, etc., as is referred to in Articles 11, 27, 28, and 30. Nothing contained in this Article 44.1.1(a) is intended to or shall relieve the Contractor from the obligation of complying strictly with Articles 11, 27, 28, and 30. The Contractor is warned that unless such claims are completely set forth as herein required, the Contractor upon acceptance of the Substantial Completion payment pursuant to this Article 44, will have waived any such claims.

44.1.2 A Final Approved Punch List.

44.1.3 Where required, a request for an extension of time to achieve Substantial Completion or final extension of time.

44.2 The Commissioner shall issue a voucher calling for payment of any part or all of the balance due for Work performed under the Contract, including monies retained under Article 21, less any and all deductions authorized to be made by the Commissioner, under this Contract or by Law, and less twice the amount the Commissioner considers necessary to ensure the completion of the balance of the Work by the Contractor. Such a payment shall be considered a partial and not a final payment. No Substantial Completion payment shall be made under this Article 44 where the Contractor failed to complete the Work within the time fixed for such completion in the Schedule A of the General Conditions, or within the time to which completion may have been extended, until an extension or extensions of time for the completion of Work have been acted upon pursuant to Article 13.

44.3 No further partial payments shall be made to the Contractor after Substantial Completion, except the Substantial Completion payment and payment pursuant to any Contractor's requisition that were properly filed with the Commissioner prior to the date of Substantial Completion; however, the Commissioner may grant a waiver for further partial payments after the date of Substantial Completion to permit payments for change order Work and/or release of retainage and deposits pursuant to Articles 21 and 24. Such waiver shall be in writing.

44.4 The Contractor acknowledges that nothing contained in this Article 44 is intended to or shall in any way diminish the force and effect of Article 13.

#### ARTICLE 45. FINAL PAYMENT

45.1 After completion and Final Acceptance of the Work, the Contractor shall submit all required certificates and documents, together with a requisition for the balance claimed to be due under the Contract, less the amount authorized to be retained for maintenance under Article 24. Such submission shall be within 90 days of the date of the Commissioner's written determination of Final Acceptance, or within such additional time as may be granted by the Commissioner in writing. If the Contractor fails to submit all required certificates and documents within the time allowed, no payment of the balance claimed shall be made to the Contractor and the Contractor shall be deemed to have forfeited its right to

payment of any balance claimed. A verified statement similar to that required in connection with applications for partial payments shall also be submitted to the Commissioner.

45.2 Amended Verified Statement of Claims: The Contractor shall also submit with the final requisition any amendments to the final verified statement of any pending dispute resolution procedures in accordance with the PPB Rules and this Contract and any and all alleged claims against the City, in any way connected with or arising out of this Contract (including those as to which details may have been furnished pursuant to Articles 11, 27, 28, and 30) that have occurred subsequent to Substantial Completion, setting forth with respect to each such claim the total amount thereof, the various items of labor and materials included therein, and the alleged value of each such item; and if the alleged claim be one for delay, the alleged cause of each such delay, the period or periods of time, giving the dates when the Contractor claims the performance of the Work or a particular part thereof was delayed, and an itemized statement and breakdown of the amount claimed for each such delay. With reference to each such claim, the Commissioner, the Comptroller and, in the event of litigation, the City Corporation Counsel shall have the same right to inspect, and to make extracts or copies of, the Contractor's books, vouchers, records, etc., as is referred to in Articles 11, 27, 28, and 30. Nothing contained in this Article 45.2, is intended to or shall relieve the Contractor from the obligation of complying strictly with Articles 11, 27, 28, and 30. The Contractor is warned that unless such claims are completely set forth as herein required, the Contractor, upon acceptance of the Final Payment pursuant to Article 46, will have waived any such claims.

45.3 Preparation of Final Voucher: Upon determining the balance due hereunder other than on account of claims, the Engineer will prepare and certify, for the Commissioner's approval, a voucher for final payment in that amount less any and all deductions authorized to be made by the Commissioner under this Contract or by Law. In the case of a lump sum Contract, the Commissioner shall certify the voucher for final payment within thirty (30) Days from the date of completion and acceptance of the Work, provided all requests for extensions of time have been acted upon.

45.3.1 All prior certificates and vouchers upon which partial payments were made, being merely estimates made to enable the Contractor to prosecute the Work more advantageously, shall be subject to correction in the final voucher, and the certification of the Engineer thereon and the approval of the Commissioner thereof, shall be conditions precedent to the right of the Contractor to receive any money hereunder. Such final voucher shall be binding and conclusive upon the Contractor.

45.3.2 Payment pursuant to such final voucher, less any deductions authorized to be made by the Commissioner under this Contract or by Law, shall constitute the final payment, and shall be made by the Comptroller within thirty (30) Days after the filing of such voucher in his/her office.

45.4 The Contractor acknowledges that nothing contained in this Article 45 is intended to or shall in any way diminish the force and effect of Article 13.

#### **ARTICLE 46. ACCEPTANCE OF FINAL PAYMENT**

46.1 The acceptance by the Contractor, or by anyone claiming by or through it, of the final payment, whether such payment be made pursuant to any judgment of any court, or otherwise, shall constitute and operate as a release of the City from any and all claims of and liability to the Contractor for anything heretofore done or furnished for the Contractor relating to or arising out of this Contract and the Work done hereunder, and for any prior act, neglect or default on the part of the City or any of its officials, agents or employees, excepting only a claim against the City for the amounts deducted or retained in accordance with the terms and provisions of this Contract or by Law, and excepting any

claims, not otherwise waived, or any pending dispute resolution procedures which are contained in the verified statement filed with the Contractor's substantial and final requisitions pursuant to Articles 44 and 45.

46.2 The Contractor is warned that the execution by it of a release, in connection with the acceptance of the final payment, containing language purporting to reserve claims other than those herein specifically excepted from the operation of this Article 46, or those for amounts deducted by the Commissioner from the final requisition or from the final payment as certified by the Engineer and approved by the Commissioner, shall not be effective to reserve such claims, anything stated to the Contractor orally or in writing by any official, agent or employee of the City to the contrary notwithstanding.

46.3 Should the Contractor refuse to accept the final payment as tendered by the Comptroller, it shall constitute a waiver of any right to interest thereon.

46.4 The Contractor, however, shall not be barred by this Article 46 from commencing an action for breach of Contract to the extent permitted by Law and by the terms of the Contract for any claims that are contained in the verified statement filed with the Contractor's substantial and final requisitions pursuant to Articles 44 and 45 or that arose after submission of the final payment requisition, provided that a detailed and verified statement of claim is served upon the contracting Agency and Comptroller not later than forty (40) Days after the making of such final payment by electronic funds transfer (EFT) or the mailing of such final payment. The statement shall specify the items upon which the claim will be based and any such claim shall be limited to such items.

#### **ARTICLE 47. APPROVAL BY PUBLIC DESIGN COMMISSION**

47.1 All works of art, including paintings, mural decorations, stained glass, statues, bas-reliefs, and other sculptures, monuments, fountains, arches, and other structures of a permanent character intended for ornament or commemoration, and every design of the same to be used in the performance of this Contract, and the design of all bridges, approaches, buildings, gates, fences, lamps, or structures to be erected, pursuant to the terms of this Contract, shall be submitted to the Art Commission, d/b/a the Public Design Commission of the City of New York, and shall be approved by the Public Design Commission prior to the erection or placing in position of the same. The final payment shall not become due or payable under this Contract unless and until the Public Design Commission shall certify that the design for the Work herein contracted for has been approved by the said Public Design Commission, and that the same has been executed in substantial accordance with the design so approved, pursuant to the provisions of Chapter 37, Section 854 of the City Charter, as amended.

### **CHAPTER X CONTRACTOR'S DEFAULT**

#### **ARTICLE 48. COMMISSIONER'S RIGHT TO DECLARE CONTRACTOR IN DEFAULT**

48.1 In addition to those instances specifically referred to in other Articles herein, the Commissioner shall have the right to declare the Contractor in default of this Contract if:

48.1.1 The Contractor fails to commence Work when notified to do so by the Commissioner; or  
if

48.1.2 The Contractor shall abandon the Work; or if

48.1.3 The Contractor shall refuse to proceed with the Work when and as directed by the Commissioner; or if

48.1.4 The Contractor shall, without just cause, reduce its working force to a number which, if maintained, would be insufficient, in the opinion of the Commissioner, to complete the Work in accordance with the progress schedule; or if

48.1.5 The Contractor shall fail or refuse to increase sufficiently such working force when ordered to do so by the Commissioner; or if

48.1.6 The Contractor shall sublet, assign, transfer, convert or otherwise dispose of this Contract other than as herein specified; or sell or assign a majority interest in the Contractor; or if

48.1.7 The Contractor fails to secure and maintain all required insurance; or if

48.1.8 A receiver or receivers are appointed to take charge of the Contractor's property or affairs; or if

48.1.9 The Commissioner shall be of the opinion that the Contractor is or has been unnecessarily or unreasonably or willfully delaying the performance and completion of the Work, or the award of necessary subcontracts, or the placing of necessary material and equipment orders; or if

48.1.10 The Commissioner shall be of the opinion that the Contractor is or has been willfully or in bad faith violating any of the provisions of this Contract; or if

48.1.11 The Commissioner shall be of the opinion that the Work cannot be completed within the time herein provided therefor or within the time to which such completion may have been extended; provided, however, that the impossibility of timely completion is, in the Commissioner's opinion, attributable to conditions within the Contractor's control; or if

48.1.12 The Work is not completed within the time herein provided therefor or within the time to which the Contractor may be entitled to have such completion extended; or if

48.1.13 Any statement or representation of the Contractor in the Contract or in any document submitted by the Contractor with respect to the Work, the Project, or the Contract (or for purposes of securing the Contract) was untrue or incorrect when made; or if

48.1.14 The Contractor or any of its officers, directors, partners, five (5%) percent shareholders, principals, or other persons substantially involved in its activities, commits any of the acts or omissions specified as the grounds for debarment in the PPB Rules.

48.2 Before the Commissioner shall exercise his/her right to declare the Contractor in default, the Commissioner shall give the Contractor an opportunity to be heard, upon not less than two (2) Days notice.

#### ARTICLE 49. EXERCISE OF THE RIGHT TO DECLARE DEFAULT

49.1 The right to declare the Contractor in default for any of the grounds specified or referred to in Article 48 shall be exercised by sending the Contractor a notice, signed by the Commissioner, setting forth the ground or grounds upon which such default is declared (hereinafter referred to as a "Notice of Default").

49.2 The Commissioner's determination that the Contractor is in default shall be conclusive, final, and binding on the parties and such a finding shall preclude the Contractor from commencing a plenary action for any damages relating to the Contract. If the Contractor protests the determination of the Commissioner, the Contractor may commence an action in a court of competent jurisdiction of the State of New York under Article 78 of the New York Civil Practice Law and Rules.

#### ARTICLE 50. QUITTING THE SITE

50.1 Upon receipt of such notice the Contractor shall immediately discontinue all further operations under this Contract and shall immediately quit the Site, leaving untouched all plant, materials, equipment, tools, and supplies then on the Site.

#### ARTICLE 51. COMPLETION OF THE WORK

51.1 The Commissioner, after declaring the Contractor in default, may then have the Work completed by such means and in such manner, by contract with or without public letting, or otherwise, as he/she may deem advisable, utilizing for such purpose such of the Contractor's plant, materials, equipment, tools, and supplies remaining on the Site, and also such Subcontractors, as he/she may deem advisable.

51.2 After such completion, the Commissioner shall make a certificate stating the expense incurred in such completion, which shall include the cost of re-letting and also the total amount of liquidated damages (at the rate provided for in the Contract) from the date when the Work should have been completed by the Contractor in accordance with the terms hereof to the date of actual completion of the Work. Such certificate shall be binding and conclusive upon the Contractor, its sureties, and any person claiming under the Contractor, as to the amount thereof.

51.3 The expense of such completion, including any and all related and incidental costs, as so certified by the Commissioner, and any liquidated damages assessed against the Contractor, shall be charged against and deducted out of monies which are earned by the Contractor prior to the date of default. Should the expense of such completion, as certified by the Commissioner, exceed the total sum which would have been payable under the Contract if it had been completed by the Contractor, any excess shall be paid by the Contractor.

#### ARTICLE 52. PARTIAL DEFAULT

52.1 In case the Commissioner shall declare the Contractor in default as to a part of the Work only, the Contractor shall discontinue such part, shall continue performing the remainder of the Work in strict conformity with the terms of this Contract, and shall in no way hinder or interfere with any Other

Contractor(s) or persons whom the Commissioner may engage to complete the Work as to which the Contractor was declared in default.

52.2 The provisions of this Chapter relating to declaring the Contractor in default as to the entire Work shall be equally applicable to a declaration of partial default, except that the Commissioner shall be entitled to utilize for completion of the part of the Work as to which the Contractor was declared in default only such plant, materials, equipment, tools, and supplies as had been previously used by the Contractor on such part.

#### ARTICLE 53. PERFORMANCE OF UNCOMPLETED WORK

53.1 In completing the whole or any part of the Work under the provisions of this Chapter X, the Commissioner shall have the power to depart from or change or vary the terms and provisions of this Contract, provided, however, that such departure, change or variation is made for the purpose of reducing the time or expense of such completion. Such departure, change or variation, even to the extent of accepting a lesser or different performance, shall not affect the conclusiveness of the Commissioner's certificate of the cost of completion referred to in Article 51, nor shall it constitute a defense to an action to recover the amount by which such certificate exceeds the amount which would have been payable to the Contractor hereunder but for its default.

#### ARTICLE 54. OTHER REMEDIES

54.1 In addition to the right to declare the Contractor in default pursuant to this Chapter X, the Commissioner shall have the absolute right, in his/her sole discretion and without a hearing, to complete or cause to be completed in the same manner as described in Articles 51 and 53, any or all unsatisfactory or uncompleted punch list Work that remains after the completion date specified in the Final Approved Punch List. A written notice of the exercise of this right shall be sent to the Contractor who shall immediately quit the Site in accordance with the provisions of Article 50.

54.2 The expense of completion permitted under Article 54.1, including any and all related and incidental costs, as so certified by the Commissioner, shall be charged against and deducted out of monies which have been earned by the Contractor prior to the date of the exercise of the right set forth in Article 54.1; the balance of such monies, if any, subject to the other provisions of this Contract, to be paid to the Contractor without interest after such completion. Should the expense of such completion, as certified by the Commissioner, exceed the total sum which would have been payable under the Contract if it had been completed by the Contractor, any excess shall be paid by the Contractor.

54.3 The previous provisions of this Chapter X shall be in addition to any and all other remedies available under Law or in equity.

54.4 The exercise by the City of any remedy set forth herein shall not be deemed a waiver by the City of any other legal or equitable remedy contained in this Contract or provided under Law.

CHAPTER XI  
MISCELLANEOUS PROVISIONS

ARTICLE 55. CONTRACTOR'S WARRANTIES

55.1 In consideration of, and to induce, the award of this Contract to the Contractor, the Contractor represents and warrants:

55.1.1 That it is financially solvent, sufficiently experienced and competent to perform the Work; and

55.1.2 That the facts stated in its bid and the information given by it pursuant to the Information for Bidders is true and correct in all respects; and

55.1.3 That it has read and complied with all requirements set forth in the Contract.

ARTICLE 56. CLAIMS AND ACTIONS THEREON

56.1 Any claim, that is not subject to dispute resolution under the PPB Rules or this Contract, against the City for damages for breach of Contract shall not be made or asserted in any action, unless the Contractor shall have strictly complied with all requirements relating to the giving of notice and of information with respect to such claims, as herein before provided.

56.2 Nor shall any action be instituted or maintained on any such claims unless such action is commenced within six (6) months after Substantial Completion; except that:

56.2.1 Any claims arising out of events occurring after Substantial Completion and before Final Acceptance of the Work shall be asserted within six (6) months of Final Acceptance of the Work;

56.2.2 Any claims for monies deducted, retained or withheld under the provisions of this Contract shall be asserted within six (6) months after the date when such monies otherwise become due and payable hereunder; and

56.2.3 If the Commissioner exercises his/her right to terminate the Contract pursuant to Article 64, any such action shall be commenced within six (6) months of the date the Commissioner exercises said right.

ARTICLE 57. INFRINGEMENT

57.1 The Contractor shall be solely responsible for and shall defend, indemnify, and hold the City harmless from any and all claims (even if the allegations of the lawsuit are without merit) and judgments for damages and from costs and expenses to which the City may be subject to or which it may suffer or incur allegedly arising out of or in connection with any infringement by the Contractor of any copyright, trade secrets, trademark or patent rights or any other property or personal right of any third party by the Contractor and/or its Subcontractors in the performance or completion of the Work. Insofar as the facts or Law relating to any claim would preclude the City from being completely indemnified by the Contractor, the City shall be partially indemnified by the Contractor to the fullest extent permitted by Law.

**ARTICLE 58. NO CLAIM AGAINST OFFICIALS, AGENTS OR EMPLOYEES**

58.1 No claim whatsoever shall be made by the Contractor against any official, agent or employee of the City for, or on account of, anything done or omitted to be done in connection with this Contract.

**ARTICLE 59. SERVICE OF NOTICES**

59.1 The Contractor hereby designates the business address, fax number, and email address specified in its bid, as the place where all notices, directions or other communications to the Contractor may be delivered, or to which they may be mailed. Any notice, direction, or communication from either party to the other shall be in writing and shall be deemed to have been given when (i) delivered personally; (ii) sent by certified mail, return receipt requested; (iii) delivered by overnight or same day courier service in a properly addressed envelope with confirmation; or (iv) sent by fax or email and, unless receipt of the fax or e-mail is acknowledged by the recipient by fax or e-mail, deposited in a post office box regularly maintained by the United States Postal Service in a properly addressed, postage pre-paid envelope.

59.2 Contractor's notice address, email address, or fax number may be changed at any time by an instrument in writing, executed and acknowledged by the Contractor, and delivered to the Commissioner.

59.3 Nothing herein contained shall, however, be deemed to preclude or render inoperative the service of any notice, direction or other communication upon the Contractor personally, or, if the Contractor is a corporation, upon any officer thereof.

**ARTICLE 60. UNLAWFUL PROVISIONS DEEMED STRICKEN FROM CONTRACT**

60.1 If this Contract contains any unlawful provision not an essential part of the Contract and which shall not appear to have been a controlling or material inducement to the making thereof, the same shall be deemed of no effect and shall, upon notice by either party, be deemed stricken from the Contract without affecting the binding force of the remainder.

**ARTICLE 61. ALL LEGAL PROVISIONS DEEMED INCLUDED**

61.1 It is the intent and understanding of the parties to this Contract that each and every provision of Law required to be inserted in this Contract shall be and is inserted herein. Furthermore, it is hereby stipulated that every such provision is to be deemed to be inserted herein, and if, through mistake or otherwise, any such provision is not inserted, or is not inserted in correct form, then this Contract shall forthwith upon the application of either party be amended by such insertion so as to comply strictly with the Law and without prejudice to the rights of either party hereunder.

**ARTICLE 62. TAX EXEMPTION**

62.1 The City is exempt from payment of Federal, State, and local taxes, including sales and compensating use taxes of the State of New York and its cities and counties on all tangible personal property sold to the City pursuant to the provisions of this Contract. These taxes are not to be included in bids. However, this exemption does not apply to tools, machinery, equipment or other property leased by or to the Contractor, Subcontractor or Materialman or to tangible personal property which, even



though it is consumed, is not incorporated into the completed Work (consumable supplies) and tangible personal property that the Contractor is required to remove from the Site during or upon completion of the Work. The Contractor and its Subcontractors and Materialmen shall be responsible for and pay any and all applicable taxes, including sales and compensating use taxes, on such leased tools, machinery, equipment or other property and upon all such consumable supplies and tangible personal property that the Contractor is required to remove from the Site during or upon completion of the Work.

62.2 The Contractor agrees to sell and the City agrees to purchase all tangible personal property, other than consumable supplies and other tangible personal property that the Contractor is required to remove from the Site during or upon completion of the Work, that is required, necessary or proper for or incidental to the construction of the Project covered by this Contract. The sum paid under this Contract for such tangible personal property shall be in full payment and consideration for the sale of such tangible personal property.

62.2.1 The Contractor agrees to construct the Project and to perform all Work, labor and services rendered, necessary, proper or incidental thereto for the sum shown in the bid for the performance of such Work, labor, and services, and the sum so paid pursuant to this Contract for such Work, labor, and services, shall be in full consideration for the performance by the Contractor of all its duties and obligations under this Contract in connection with said Work, labor, and services.

62.3 20 NYCRR Section 541.3(d) provides that a Contractor's purchases of tangible personal property that is either incorporated into real property owned by a governmental entity or purchased for and sold to a governmental entity are exempt from sales and use tax. The City shall not pay sales tax for any such tangible personal property that it purchases from the Contractor pursuant to the Contract. With respect to such tangible personal property, the Contractor, at the request of the City, shall furnish to the City such bills of sale and other instruments as may be required by the City, properly executed, acknowledged and delivered assuring to the City title to such tangible personal property, free of liens and/or encumbrances, and the Contractor shall mark or otherwise identify all such tangible personal property as the property of the City.

62.4 Title to all tangible personal property to be sold by the Contractor to the City pursuant to the provisions of the Contract shall immediately vest in and become the sole property of the City upon delivery of such tangible personal property to the Site. Notwithstanding such transfer of title, the Contractor shall have the full and continuing responsibility to install such tangible personal property in accordance with the provisions of this Contract, protect it, maintain it in a proper condition and forthwith repair, replace and make good any damage thereto, theft or disappearance thereof, and furnish additional tangible personal property in place of any that may be lost, stolen or rendered unusable, without cost to the City, until such time as the Work covered by the Contract is fully accepted by the City. Such transfer of title shall in no way affect any of the Contractor's obligations hereunder. In the event that, after title has passed to the City, any of the tangible personal property is rejected as being defective or otherwise unsatisfactory, title to all such tangible personal property shall be deemed to have been transferred back to the Contractor.

62.5 The purchase by Subcontractors or Materialmen of tangible personal property to be sold hereunder shall be a purchase or procurement for resale to the Contractor (either directly or through other Subcontractors) and therefore not subject to the aforesaid sales and compensating use taxes, provided that the subcontracts and purchase agreements provide for the resale of such tangible personal property and that such subcontracts and purchase agreements are in a form similar to this Contract with respect to the separation of the sale of consumable supplies and tangible personal property that the Contractor is required to remove from the Site during or upon completion of the Work from the Work and labor, services, and any other matters to be provided, and provided further that the subcontracts and

purchase agreements provide separate prices for tangible personal property and all other services and matters. Such separation shall actually be followed in practice, including the separation of payments for tangible personal property from the payments for other Work and labor and other things to be provided.

62.6 The Contractor and its Subcontractors and Materialmen shall furnish a Contractor Exempt Purchase Certificate to all persons, firms or corporations from which they purchase tangible personal property for the performance of the Work covered by this Contract.

62.7 In the event any of the provisions of this Article 62 shall be deemed to be in conflict with any other provisions of this Contract or create any ambiguity, then the provisions of this Article 62 shall control.

### ARTICLE 63. INVESTIGATION(S) CLAUSE

63.1 The parties to this Contract agree to cooperate fully and faithfully with any investigation, audit or inquiry conducted by a United States, a State of New York (State) or a City governmental agency or authority that is empowered directly or by designation to compel the attendance of witnesses and to examine witnesses under oath, or conducted by the Inspector General of a governmental agency that is a party in interest to the transaction, submitted bid, submitted proposal, contract, lease, permit or license that is the subject of the investigation, audit or inquiry.

63.2 If any person who has been advised that his/her statement, and any information from such statement, will not be used against him/her in any subsequent criminal proceeding refuses to testify before a grand jury or other governmental agency or authority empowered directly or by designation to compel the attendance of witnesses and to examine witnesses under oath concerning the award of or performance under any transaction, agreement, lease, permit, contract, or license entered into with the City, the State, or any political subdivision or public authority thereof, or the Port Authority of New York and New Jersey, or any local development corporation within the City, or any public benefit corporation organized under the Laws of the State of New York, or;

63.3 If any person refuses to testify for a reason other than the assertion of his/her privilege against self incrimination in an investigation, audit or inquiry conducted by a City or State governmental agency or authority empowered directly or by designation to compel the attendance of witnesses and to take testimony under oath, or by the Inspector General of the governmental agency that is a party in interest in, and is seeking testimony concerning the award of, or performance under any transaction, agreement, lease, permit, contract, or license entered into with the City, the State, or any political subdivision thereof or any local development corporation within the City, then;

63.4 The Commissioner whose Agency is a party in interest to the transaction, submitted bid, submitted proposal, contract, lease, permit, or license shall convene a hearing, upon not less than five (5) Days' written notice to the parties involved to determine if any penalties should attach for the failure of a person to testify.

63.5 If any non-governmental party to the hearing requests an adjournment, the Commissioner who convened the hearing may, upon granting the adjournment, suspend any contract, lease, permit, or license, pending the final determination pursuant to Article 63.7 without the City incurring any penalty or damages for delay or otherwise.

63.6 The penalties which may attach after a final determination by the Commissioner may include but shall not exceed:

63.6.1 The disqualification for a period not to exceed five (5) years from the date of an adverse determination for any person, or any entity of which such person was a member at the time the testimony was sought, from submitting bids for, or transacting business with, or entering into or obtaining any contract, lease, permit or license with or from the City; and/or

63.6.2 The cancellation or termination of any and all such existing City contracts, leases, permits or licenses that the refusal to testify concerns and that have not been assigned as permitted under this Contract, nor the proceeds of which pledged, to an unaffiliated and unrelated institutional lender for fair value prior to the issuance of the notice scheduling the hearing, without the City incurring any penalty or damages on account of such cancellation or termination; monies lawfully due for goods delivered, work done, rentals, or fees accrued prior to the cancellation or termination shall be paid by the City.

63.7 The Commissioner shall consider and address in reaching his/her determination and in assessing an appropriate penalty the factors in Articles 63.7.1 and 63.7.2. The Commissioner may also consider, if relevant and appropriate, the criteria established in Articles 63.7.3 and 63.7.4, in addition to any other information which may be relevant and appropriate:

63.7.1 The party's good faith endeavors or lack thereof to cooperate fully and faithfully with any governmental investigation or audit, including but not limited to the discipline, discharge, or disassociation of any person failing to testify, the production of accurate and complete books and records, and the forthcoming testimony of all other members, agents, assignees or fiduciaries whose testimony is sought.

63.7.2 The relationship of the person who refused to testify to any entity that is a party to the hearing, including but not limited to, whether the person whose testimony is sought has an ownership interest in the entity and/or the degree of authority and responsibility the person has within the entity.

63.7.3 The nexus of the testimony sought to the subject entity and its contracts, leases, permits or licenses with the City.

63.7.4 The effect a penalty may have on an unaffiliated and unrelated party or entity that has a significant interest in an entity subject to penalties under Article 63.6, provided that the party or entity has given actual notice to the Commissioner upon the acquisition of the interest, or at the hearing called for in Article 63.4, gives notice and proves that such interest was previously acquired. Under either circumstance the party or entity shall present evidence at the hearing demonstrating the potential adverse impact a penalty will have on such person or entity.

#### 63.8 Definitions:

63.8.1 The term "license" or "permit" as used in this Article 63 shall be defined as a license, permit, franchise or concession not granted as a matter of right.

63.8.2 The term "person" as used in this Article 63 shall be defined as any natural person doing business alone or associated with another person or entity as a partner, director, officer, principal or employee.

63.8.3 The term "entity" as used in this Article 63 shall be defined as any firm, partnership, corporation, association, joint venture, or person that receives monies, benefits, licenses, leases, or permits from or through the City or otherwise transacts business with the City.

63.8.4 The term "member" as used in this Article 63 shall be defined as any person associated with another person or entity as a partner, director, officer, principal or employee.

63.9 In addition to and notwithstanding any other provision of this Contract, the Commissioner may in his/her sole discretion terminate this Contract upon not less than three (3) Days' written notice in the event the Contractor fails to promptly report in writing to the Commissioner of the Department of Investigations ("DOI") of the City any solicitation of money, goods, requests for future employment or other benefit or thing of value, by or on behalf of any employee of the City or other person, firm, corporation or entity for any purpose which may be related to the procurement or obtaining of this Contract by the Contractor, or affecting the performance of this Contract.

#### ARTICLE 64. TERMINATION BY THE CITY

64.1 In addition to termination pursuant to any other article of this Contract, the Commissioner may, at any time, terminate this Contract by written notice to the Contractor. In the event of termination, the Contractor shall, upon receipt of such notice, unless otherwise directed by the Commissioner:

64.1.1 Stop Work on the date specified in the notice;

64.1.2 Take such action as may be necessary for the protection and preservation of the City's materials and property;

64.1.3 Cancel all cancelable orders for material and equipment;

64.1.4 Assign to the City and deliver to the Site or another location designated by the Commissioner, any non-cancelable orders for material and equipment that is not capable of use except in the performance of this Contract and has been specifically fabricated for the sole purpose of this Contract and not incorporated in the Work;

64.1.5 Take no action which will increase the amounts payable by the City under this Contract.

64.2 In the event of termination by the City pursuant to this Article 64, payment to the Contractor shall be in accordance with Articles 64.2.1, 64.2.2 or 64.2.3, to the extent that each respective article applies.

64.2.1 Lump Sum Contracts or Items: On all lump sum Contracts, or on lump sum items in a Contract, the City will pay the Contractor the sum of the amounts described in Articles 64.2.1(a) and 64.2.1(b), less all payments previously made pursuant to this Contract. On lump sum Contracts only, the City will also pay the Contractor an additional sum as provided in Article 64.2.1(c).

64.2.1(a) For Work completed prior to the notice of termination, the Contractor shall be paid a pro rata portion of the lump sum bid amount, plus approved change orders, based upon the percent completion of the Work, as determined by the Commissioner. For the purpose of determining the pro rata portion of the lump sum bid amount to which the Contractor is entitled, the bid breakdown submitted in accordance with Article 41 shall be considered, but shall not be dispositive. The Commissioner's determination hereunder shall be final, binding, and conclusive.

64.2.1(b) For non-cancelable material and equipment that is not capable of use except in the performance of this Contract and has been specifically fabricated for the sole purpose of this Contract, but not yet incorporated in the Work, the Contractor shall be paid the lesser of the following, less salvage value:

64.2.1(b)(i) The Direct Cost, as defined in Article 64.2.4; or

64.2.1(b)(ii) The fair and reasonable value, if less than Direct Cost, of such material and equipment, plus necessary and reasonable delivery costs.

64.2.1(b)(iii) In addition, the Contractor shall be paid five (5%) percent of the amount described in Article 64.2.1(b)(i) or Article 64.2.1(b)(ii), whichever applies.

64.2.1(c) Except as otherwise provided in Article 64.2.1(d), on all lump sum Contracts, the Contractor shall be paid the percentage indicated below applied to the difference between the total lump sum bid amount and the total of all payments made prior to the notice of termination plus all payments allowed pursuant to Articles 64.2.1(a) and 64.2.1(b):

64.2.1(c)(i) Five (5%) percent of the first five million (\$5,000,000) dollars; and

64.2.1(c)(ii) Three (3%) percent of any amount between five million (\$5,000,000) dollars and fifteen million (\$15,000,000) dollars; plus

64.2.1(c)(iii) One (1%) percent of any amount over fifteen million (\$15,000,000) dollars.

64.2.1(d) In the event the City terminates a lump sum Contract pursuant to this Article 64 within ninety (90) Days after registration of the Contract with the Comptroller, the Contractor shall be paid one (1%) percent of the difference between the lump sum bid amount and the total of all payments made pursuant to this Article 64.2.

64.2.2 Unit Price Contracts or Items: On all unit price Contracts, or on unit price items in a Contract, the City will pay the Contractor the sum of the amounts described in Articles 64.2.2(a) and 64.2.2(b), less all payments previously made pursuant to this Contract:

64.2.2(a) For all completed units, the unit price stated in the Contract, and

64.2.2(b) For units that have been ordered but are only partially completed, the Contractor will be paid:

64.2.2(b)(i) A pro rata portion of the unit price stated in the Contract based upon the percent completion of the unit and

64.2.2(b)(ii) For non-cancelable material and equipment, payment will be made pursuant to Article 64.2.1(b).

64.2.3 Time and Materials Contracts or Items Based on Time and Material Records: On all Contracts or items in a Contract where payment for the Work is based on time and

material records, the Contractor shall be paid in accordance with Article 26, less all payments previously made pursuant to this Contract.

64.2.4 Direct Costs: Direct Costs as used in this Article 64.2 shall mean:

64.2.4(a) The actual purchase price of material and equipment, plus necessary and reasonable delivery costs,

64.2.4(b) The actual cost of labor involved in construction and installation at the Site, and

64.2.4(c) The actual cost of necessary bonds and insurance purchased pursuant to requirements of this Contract less any amounts that have been or should be refunded by the Contractor's sureties or insurance carriers.

64.2.4(d) Direct Costs shall not include overhead.

64.3 In no event shall any payments under this Article 64 exceed the Contract price for such items.

64.4 All payments pursuant to Article 64 shall be in the nature of liquidated damages and shall be accepted by the Contractor in full satisfaction of all claims against the City.

64.5 The City may deduct or set off against any sums due and payable pursuant to this Article 64, any deductions authorized by this Contract or by Law (including but not limited to liquidated damages) and any claims it may have against the Contractor. The City's exercise of the right to terminate the Contract pursuant to this Article 64 shall not impair or otherwise effect the City's right to assert any claims it may have against the Contractor in a plenary action.

64.6 Where the Work covered by the Contract has been substantially completed, as determined in writing by the Commissioner, termination of the Work shall be handled as an omission of Work pursuant to Articles 29 and 33, in which case a change order will be issued to reflect an appropriate reduction in the Contract sum, or if the amount is determined after final payment, such amount shall be paid by the Contractor.

#### **ARTICLE 65. CHOICE OF LAW, CONSENT TO JURISDICTION AND VENUE**

65.1 This Contract shall be deemed to be executed in the City regardless of the domicile of the Contractor, and shall be governed by and construed in accordance with the Laws of the State of New York and the Laws of the United States, where applicable.

65.2 The parties agree that any and all claims asserted against the City arising under this Contract or related thereto shall be heard and determined in the courts of the State of New York ("New York State Courts") located in the City and County of New York. To effect this Contract and intent, the Contractor agrees:

65.2.1 If the City initiates any action against the Contractor in Federal court or in a New York State Court, service of process may be made on the Contractor either in person, wherever such Contractor may be found, or by registered mail addressed to the Contractor at its address as set forth in this Contract, or to such other address as the Contractor may provide to the City in writing; and

65.2.2 With respect to any action between the **City** and the **Contractor** in a New York State Court, the **Contractor** hereby expressly waives and relinquishes any rights it might otherwise have:

65.2.2(a) To move to dismiss on grounds of forum non conveniens;

65.2.2(b) To remove to Federal Court; and

65.2.2(c) To move for a change of venue to a New York State Court outside New York County.

65.2.3 With respect to any action brought by the **City** against the **Contractor** in a Federal Court located in the **City**, the **Contractor** expressly waives and relinquishes any right it might otherwise have to move to transfer the action to a Federal Court outside the **City**.

65.2.4 If the **Contractor** commences any action against the **City** in a court located other than in the **City** and County of New York, upon request of the **City**, the **Contractor** shall either consent to a transfer of the action to a New York State Court of competent jurisdiction located in the **City** and County of New York or, if the Court where the action is initially brought will not or cannot transfer the action, the **Contractor** shall consent to dismiss such action without prejudice and may thereafter reinstate the action in a New York State Court of competent jurisdiction in New York County.

65.3 If any provision(s) of this Article 65 is held unenforceable for any reason, each and all other provision(s) shall nevertheless remain in full force and effect.

#### **ARTICLE 66. PARTICIPATION IN AN INTERNATIONAL BOYCOTT**

66.1 The **Contractor** agrees that neither the **Contractor** nor any substantially owned affiliated company is participating or shall participate in an international boycott in violation of the provisions of the Federal Export Administration Act of 1979, as amended, or the regulations of the United States Department of Commerce (Commerce Department) promulgated thereunder.

66.2 Upon the final determination by the Commerce Department or any other agency of the United States as to, or conviction of the **Contractor** or a substantially-owned affiliated company thereof for participation in an international boycott in violation of the provisions of the Export Administration Act of 1979, as amended, or the regulations promulgated thereunder, the **Comptroller** may, at his/her option, render forfeit and void this **Contract**.

66.3 The **Contractor** shall comply in all respects, with the provisions of Section 6-114 of the Administrative Code and the rules and regulations issued by the **Comptroller** thereunder.

#### **ARTICLE 67. LOCALLY BASED ENTERPRISE PROGRAM**

67.1 This **Contract** is subject to the requirements of Section 6-108.1 of the Administrative Code and regulations promulgated thereunder. No construction contract shall be awarded unless and until these requirements have been complied with in their entirety; however, compliance with this Article 67 is not required if the Agency sets Subcontractor Participation Goals for Minority- and Women-Owned Business Enterprises (M/WBEs).

67.2 Unless specifically waived by the Commissioner with the approval of the Division of Economic and Financial Opportunity of the City Department of Business Services, if any portion of the Contract is subcontracted, not less than ten (10%) percent of the total dollar amount of the Contract shall be awarded to locally based enterprises (LBEs); except that where less than ten (10%) percent of the total dollar amount of the Contract is subcontracted, such lesser percentage shall be so awarded.

67.3 The Contractor shall not require performance and payment bonds from LBE Subcontractors.

67.4 If the Contractor has indicated prior to award that no Work will be subcontracted, no Work shall be subcontracted without the prior approval of the Commissioner, which shall be granted only if the Contractor makes a good faith effort beginning at least six (6) weeks before the Work is to be performed to obtain LBE Subcontractors to perform the Work.

67.5 If the Contractor has not identified sufficient LBE Subcontractors prior to award, it shall sign a letter of compliance stating that it complies with Section 6-108.1 of the Administrative Code, recognizes that achieving the LBE requirement is a condition of its Contract, and shall submit documentation demonstrating its good faith efforts to obtain LBEs. After award, the Contractor shall begin to solicit LBE's to perform subcontracted Work at least six (6) weeks before the date such Work is to be performed and shall demonstrate that a good faith effort has been made to obtain LBEs on each subcontract until it meets the required percentage.

67.6 Failure of the Contractor to comply with the requirements of Section 6-108.1 of the Administrative Code and the regulations promulgated thereunder shall constitute a material breach of this Contract. Remedy for such breach may include the imposition of any or all of the following sanctions:

67.6.1 Reducing the Contractor's compensation by an amount equal to the dollar value of the percentage of the LBE subcontracting requirement not complied with;

67.6.2 Declaring the Contractor in default;

67.6.3 If the Contractor is an LBE, de-certifying and declaring the Contractor ineligible to participate in the LBE program for a period of up to three (3) years.

#### ARTICLE 68. ANTITRUST

68.1 The Contractor hereby assigns, sells, and transfers to the City all right, title, and interest in and to any claims and causes of action arising under the antitrust Laws of New York State or of the United States relating to the particular goods or services purchased or procured by the City under this Contract.

#### ARTICLE 69. MacBRIDE PRINCIPLES PROVISIONS

69.1 Notice To All Prospective Contractors:

69.1.1 Local Law No. 34 of 1991 became effective on September 10, 1991 and added Section 6-115.1 of the Administrative Code. The local Law provides for certain restrictions on City Contracts to express the opposition of the people of the City to employment discrimination practices in Northern Ireland to promote freedom of work-place opportunity.

69.1.2 Pursuant to Section 6-115.1, prospective Contractors for Contracts to provide goods or services involving an expenditure of an amount greater than ten thousand



(\$10,000.) dollars, or for construction involving an amount greater than fifteen thousand (\$15,000.) dollars, are asked to sign a rider in which they covenant and represent, as a material condition of their Contract, that any business operations in Northern Ireland conducted by the Contractor and any individual or legal entity in which the Contractor holds a ten (10%) percent or greater ownership interest in the Contractor will be conducted in accordance with the MacBride Principles of nondiscrimination in employment.

69.1.3 Prospective Contractors are not required to agree to these conditions. However, in the case of Contracts let by competitive sealed bidding, whenever the lowest responsible bidder has not agreed to stipulate to the conditions set forth in this notice and another bidder who has agreed to stipulate to such conditions has submitted a bid within five (5%) percent of the lowest responsible bid for a Contract to supply goods, services or construction of comparable quality, the Agency shall refer such bids to the Mayor, the Speaker or other officials, as appropriate, who may determine, in accordance with applicable Law, that it is in the best interest of the City that the Contract be awarded to other than the lowest responsible pursuant to Section 313(b)(2) of the City Charter.

69.1.4 In the case of Contracts let by other than competitive sealed bidding, if a prospective Contractor does not agree to these conditions, no Agency, elected official or the City Council shall award the Contract to that bidder unless the Agency seeking to use the goods, services or construction certifies in writing that the Contract is necessary for the Agency to perform its functions and there is no other responsible Contractor who will supply goods, services or construction of comparable quality at a comparable price.

69.2 In accordance with Section 6-115.1 of the Administrative Code, the Contractor stipulates that such Contractor and any individual or legal entity in which the Contractor holds a ten (10%) percent or greater ownership interest in the Contractor either:

69.2.1 Have no business operations in Northern Ireland, or

69.2.2 Shall take lawful steps in good faith to conduct any business operations they have in Northern Ireland in accordance with the MacBride Principles, and shall permit independent monitoring of their compliance with such principles.

69.3 For purposes of this Article, the following terms shall have the following meanings:

69.3.1 "MacBride Principles" shall mean those principles relating to nondiscrimination in employment and freedom of work-place opportunity which require employers doing business in Northern Ireland to:

69.3.1(a) increase the representation of individuals from under-represented religious groups in the workforce, including managerial, supervisory, administrative, clerical and technical jobs;

69.3.1(b) take steps to promote adequate security for the protection of employees from under-represented religious groups both at the work-place and while traveling to and from Work;

69.3.1(c) ban provocative religious or political emblems from the workplace;

69.3.1(d) publicly advertise all job openings and make special recruitment efforts to attract applicants from under-represented religious groups;

69.3.1(e) establish layoff, recall, and termination procedures which do not in practice favor a particular religious group;

69.3.1(f) abolish all job reservations, apprenticeship restrictions and different employment criteria which discriminate on the basis of religion;

69.3.1(g) develop training programs that will prepare substantial numbers of current employees from under-represented religious groups for skilled jobs, including the expansion of existing programs and the creation of new programs to train, upgrade, and improve the skills of workers from under-represented religious groups;

69.3.1(h) establish procedures to assess, identify, and actively recruit employees from under-represented religious groups with potential for further advancement; and

69.3.1(i) appoint a senior management staff member to oversee affirmative action efforts and develop a timetable to ensure their full implementation.

69.4 The Contractor agrees that the covenants and representations in Article 69.2 are material conditions to this Contract. In the event the Agency receives information that the Contractor who made the stipulation required by this Article 69 is in violation thereof, the Agency shall review such information and give the Contractor an opportunity to respond. If the Agency finds that a violation has occurred, the Agency shall have the right to declare the Contractor in default and/or terminate this Contract for cause and procure supplies, services or Work from another source in the manner the Agency deems proper. In the event of such termination, the Contractor shall pay to the Agency, or the Agency in its sole discretion may withhold from any amounts otherwise payable to the Contractor, the difference between the Contract price for the uncompleted portion of this Contract and the cost to the Agency of completing performance of this Contract either itself or by engaging another Contractor or Contractors. In the case of a requirement Contract, the Contractor shall be liable for such difference in price for the entire amount of supplies required by the Agency for the uncompleted term of Contractor's Contract. In the case of a construction Contract, the Agency shall also have the right to hold the Contractor in partial or total default in accordance with the default provisions of this Contract, and/or may seek debarment or suspension of the Contractor. The rights and remedies of the Agency hereunder shall be in addition to, and not in lieu of, any rights and remedies the Agency has pursuant to this Contract or by operation of Law.

#### **ARTICLE 70. ELECTRONIC FILING/NYC DEVELOPMENT HUB**

70.1 The Contractor shall electronically file all alteration type-2 and alteration type-3 applications via the New York City Development Hub Web site, except applications for the following types of minor alterations: enlargements, curb cuts, legalizations, fire alarms, builders pavement plans, and jobs filed on Landmark Preservation Commission calendared properties. All such filings must be professionally certified. Information about electronic filing via the New York City Development Hub is available on the City Department of Buildings Web site at [www.nyc.gov/buildings](http://www.nyc.gov/buildings).

#### **ARTICLE 71. PROHIBITION OF TROPICAL HARDWOODS**

71.1 Tropical hardwoods, as defined in Section 165 of the New York State Finance Law (Finance Law), shall not be utilized in the performance of this Contract except as expressly permitted by Section 165 of the Finance Law.

ARTICLE 72. CONFLICTS OF INTEREST

72.1 Section 2604 of the City Charter and other related provisions of the City Charter, the Administrative Code, and the Penal Law are applicable under the terms of this Contract in relation to conflicts of interest and shall be extended to Subcontractors authorized to perform Work, labor and services pursuant to this Contract and further, it shall be the duty and responsibility of the Contractor to so inform its respective Subcontractors. Notice is hereby given that, under certain circumstances, penalties may be invoked against the donor as well as the recipient of any form of valuable gift.

ARTICLE 73. MERGER CLAUSE

73.1 The written Contract herein, contains all the terms and conditions agreed upon by the parties hereto, and no other agreement, oral or otherwise, regarding the subject matter of this Contract shall be deemed to exist or to bind any of the parties hereto, or to vary any of the terms contained herein.

ARTICLE 74. STATEMENT OF WORK

74.1 The Contractor shall furnish all labor and materials and perform all Work in strict accordance with the Specifications and Addenda thereto, numbered 1.

ARTICLE 75. COMPENSATION TO BE PAID TO CONTRACTOR

75.1 The City will pay and the Contractor will accept in full consideration for the performance of the Contract, subject to additions and deductions as provided herein, the total sum of Four Million Dollars, (\$ 4,865,000.00 ), this said sum being the amount at which the Contract was awarded to the Contractor at a public letting thereof, based upon the Contractor's bid for the Contract.

Eight Hundred Sixty-Five Thousand and 00/100.

ARTICLE 76. ELECTRONIC FUNDS TRANSFER

76.1 In accordance with Section 6-107.1 of the Administrative Code, the Contractor agrees to accept payments under this Contract from the City by electronic funds transfer (EFT). An EFT is any transfer of funds, other than a transaction originated by check, draft or similar paper instrument, which is initiated through an electronic terminal, telephonic instrument or computer or magnetic tape so as to order, instruct or authorize a financial institution to debit or credit an account. Prior to the first payment made under this Contract, the Contractor shall designate one financial institution or other authorized payment agent and shall complete the attached "EFT Vendor Payment Enrollment Form" in order to provide the Commissioner of the City Department of Finance with information necessary for the Contractor to receive electronic funds transfer payments through a designated financial institution or authorized payment agent. The crediting of the amount of a payment to the appropriate account on the books of a financial institution or other authorized payment agent designated by the Contractor shall constitute full satisfaction by the City for the amount of the payment under this Contract. The account information supplied by the Contractor to facilitate the electronic funds transfer shall remain confidential to the fullest extent provided by Law.

76.2 The Commissioner may waive the application of the requirements of this Article 76 to payments on contracts entered into pursuant to Section 315 of the City Charter. In addition, the Commissioner of the Department of Finance and the Comptroller may jointly issue standards pursuant to CITY OF NEW YORK

which the Agency may waive the requirements of this Article 76 for payments in the following circumstances: (i) for individuals or classes of individuals for whom compliance imposes a hardship; (ii) for classifications of types of checks; or (iii) in other circumstances as may be necessary in the interest of the City.

#### ARTICLE 77. RECORDS RETENTION

77.1 The Contractor agrees to retain all books, records, and other documents relevant to this Contract for six years after the final payment or termination of this Contract, whichever is later. City, state, and federal auditors and any other persons duly authorized by the City shall have full access to and the right to examine any such books, records, and other documents during the retention period.

#### ARTICLE 78. PARTICIPATION BY MINORITY-OWNED AND WOMEN-OWNED BUSINESS ENTERPRISES IN CITY PROCUREMENT

##### NOTICE TO ALL PROSPECTIVE CONTRACTORS

#### ARTICLE I. M/WBE PROGRAM

Local Law No. 129 of 2005 added and Local Law 1 of 2013 amended Section 6-129 of the Administrative Code of the City of New York (hereinafter "Section 6-129"). Section 6-129 establishes the program for participation in City procurement ("M/WBE Program") by minority-owned business enterprises ("MBEs") and women-owned business enterprises ("WBEs"), certified in accordance with Section 1304 of the New York City Charter. As stated in Section 6-129, the intent of the program is to address the impact of discrimination on the City's procurement process, and to promote the public interest in avoiding fraud and favoritism in the procurement process, increasing competition for City business, and lowering contract costs. The contract provisions contained herein are pursuant to Section 6-129, and the rules of the Department of Small Business Services ("DSBS") promulgated thereunder.

If this Contract is subject to the M/WBE Program established by Section 6-129, the specific requirements of MBE and/or WBE participation for this Contract are set forth in Schedule B of the Contract (entitled the "M/WBE Utilization Plan"), and are detailed below. The Contractor must comply with all applicable MBE and WBE requirements for this Contract.

All provisions of Section 6-129 are hereby incorporated in the Contract by reference and all terms used herein that are not defined herein shall have the meanings given such terms in Section 6-129. Article I, Part A, below, sets forth provisions related to the participation goals for construction, standard and professional services contracts. Article I, Part B, below, sets forth miscellaneous provisions related to the M/WBE Program.

#### PART A

#### PARTICIPATION GOALS FOR CONSTRUCTION, STANDARD AND PROFESSIONAL SERVICES CONTRACTS OR TASK ORDERS

1. The MBE and/or WBE Participation Goals established for this Contract or Task Orders issued pursuant to this Contract, ("Participation Goals"), as applicable, are set forth on Schedule B, Part I to this Contract (see Page 1, line 1 Total Participation Goals) or will be set forth on Schedule B, Part I to Task Orders issued pursuant to this Contract, as applicable.

The Participation Goals represent a percentage of the total dollar value of the Contract or Task Order, as applicable, that may be achieved by awarding subcontracts to firms certified with New York City Department of Small Business Services as MBEs and/or WBEs, and/or by crediting the participation of prime contractors and/or qualified joint ventures as provided in Section 3 below, unless the goals have been waived or modified by Agency in accordance with Section 6-129 and Part A, Sections 10 and 11 below, respectively.

2. If Participation Goals have been established for this Contract or Task Orders issued pursuant to this Contract, Contractor agrees or shall agree as a material term of the Contract that Contractor shall be subject to the Participation

Goals, unless the goals are waived or modified by Agency in accordance with Section 6-129 and Part A, Sections 10 and 11 below, respectively.

3. If **Participation Goals** have been established for this Contract or Task Order issued pursuant to this Contract, a Contractor that is an MBE and/or WBE shall be permitted to count its own participation toward fulfillment of the relevant **Participation Goal**, provided that in accordance with Section 6-129 the value of Contractor's participation shall be determined by subtracting from the total value of the Contract or Task Order, as applicable, any amounts that the Contractor pays to direct subcontractors (as defined in Section 6-129(c)(13)), and provided further that a Contractor that is certified as both an MBE and a WBE may count its own participation either toward the goal for MBEs or the goal for WBEs, but not both.

A Contractor that is a qualified joint venture (as defined in Section 6-129(c)(30)) shall be permitted to count a percentage of its own participation toward fulfillment of the relevant **Participation Goal**. In accordance with Section 6-129, the value of Contractor's participation shall be determined by subtracting from the total value of the Contract or Task Order, as applicable, any amounts that Contractor pays to direct subcontractors, and then multiplying the remainder by the percentage to be applied to total profit to determine the amount to which an MBE or WBE is entitled pursuant to the joint venture agreement, provided that where a participant in a joint venture is certified as both an MBE and a WBE, such amount shall be counted either toward the goal for MBEs or the goal for WBEs, but not both.

4. A. If **Participation Goals** have been established for this Contract, a prospective contractor shall be required to submit with its bid or proposal, as applicable, a completed Schedule B, M/WBE Utilization Plan, Part II (see Pages 2-4) indicating: (a) whether the contractor is an MBE or WBE, or qualified joint venture; (b) the percentage of work it intends to award to direct subcontractors; and (c) in cases where the contractor intends to award direct subcontracts, a description of the type and dollar value of work designated for participation by MBEs and/or WBEs, and the time frames in which such work is scheduled to begin and end. In the event that this M/WBE Utilization Plan indicates that the bidder or proposer, as applicable, does not intend to meet the **Participation Goals**, the bid or proposal, as applicable, shall be deemed non-responsive, unless Agency has granted the bidder or proposer, as applicable, a pre-award waiver of the **Participation Goals** in accordance with Section 6-129 and Part A, Section 10 below.

B. (i) If this Contract is for a master services agreement or other requirements type contract that will result in the issuance of Task Orders that will be individually registered ("Master Services Agreement") and is subject to M/WBE **Participation Goals**, a prospective contractor shall be required to submit with its bid or proposal, as applicable, a completed Schedule B, M/WBE Participation Requirements for Master Services Agreements That Will Require Individually Registered Task Orders, Part II (page 2) indicating the prospective contractor's certification and required affirmations to make all reasonable good faith efforts to meet participation goals established on each individual Task Order issued pursuant to this Contract, or if a partial waiver is obtained or such goals are modified by the Agency, to meet the modified **Participation Goals** by soliciting and obtaining the participation of certified MBE and/or WBE firms. In the event that the Schedule B indicates that the bidder or proposer, as applicable, does not intend to meet the **Participation Goals** that may be established on Task Orders issued pursuant to this Contract, the bid or proposal, as applicable, shall be deemed nonresponsive.

(ii) **Participation Goals** on a Master Services Agreement will be established for individual Task Orders issued after the Master Services Agreement is awarded. If **Participation Goals** have been established on a Task Order, a contractor shall be required to submit a Schedule B - M/WBE Utilization Plan For Independently Registered Task Orders That Are Issued Pursuant to Master Services Agreements, Part II (see Pages 2-4) indicating: (a) whether the contractor is an MBE or WBE, or qualified joint venture; (b) the percentage of work it intends to award to direct subcontractors; and (c) in cases where the contractor intends to award direct subcontracts, a description of the type and dollar value of work designated for participation by MBEs and/or WBEs, and the time frames in which such work is scheduled to begin and end. The contractor must engage in good faith efforts to meet the **Participation Goals** as established for the Task Order unless Agency has granted the contractor a pre-award waiver of the **Participation Goals** in accordance with Section 6-129 and Part A, Section 10 below.

C. **THE BIDDER/PROPOSER MUST COMPLETE THE SCHEDULE B INCLUDED HEREIN (SCHEDULE B, PART II). A SCHEDULE B SUBMITTED BY THE BIDDER/PROPOSER WHICH DOES NOT INCLUDE THE VENDOR CERTIFICATION AND REQUIRED AFFIRMATIONS (SEE SECTION V OF PART II) WILL BE DEEMED TO BE NON-RESPONSIVE, UNLESS A FULL WAIVER OF THE PARTICIPATION GOALS IS GRANTED (SCHEDULE B, PART III). IN THE EVENT THAT THE CITY DETERMINES THAT THE BIDDER/PROPOSER HAS SUBMITTED A SCHEDULE B WHERE THE VENDOR CERTIFICATION AND REQUIRED AFFIRMATIONS ARE COMPLETED BUT OTHER**

ASPECTS OF THE SCHEDULE B ARE NOT COMPLETE, OR CONTAIN A COPY OR COMPUTATION ERROR THAT IS AT ODDS WITH THE VENDOR CERTIFICATION AND AFFIRMATIONS, THE BIDDER/PROPOSER WILL BE NOTIFIED BY THE AGENCY AND WILL BE GIVEN FOUR (4) CALENDAR DAYS FROM RECEIPT OF NOTIFICATION TO CURE THE SPECIFIED DEFICIENCIES AND RETURN A COMPLETED SCHEDULE B TO THE AGENCY. FAILURE TO DO SO WILL RESULT IN A DETERMINATION THAT THE BID/PROPOSAL IS NON-RESPONSIVE. RECEIPT OF NOTIFICATION IS DEFINED AS THE DATE NOTICE IS E-MAILED OR FAXED (IF THE BIDDER/PROPOSER HAS PROVIDED AN E-MAIL ADDRESS OR FAX NUMBER), OR NO LATER THAN FIVE (5) CALENDAR DAYS FROM THE DATE OF MAILING OR UPON DELIVERY, IF DELIVERED.

5. Where an M/WBE Utilization Plan has been submitted, the Contractor shall, within 30 days of issuance by Agency of a notice to proceed, submit a list of proposed persons or entities to which it intends to award subcontracts within the subsequent 12 months. In the case of multiyear contracts, such list shall also be submitted every year thereafter. The Agency may also require the Contractor to report periodically about the contracts awarded by its direct subcontractors to indirect subcontractors (as defined in Section 6-129(c)(22)). **PLEASE NOTE:** If this Contract is a public works project subject to GML §101(5) (i.e., a contract valued at or below \$3M for projects in New York City) or if the Contract is subject to a project labor agreement in accordance with Labor Law §222, and the bidder is required to identify at the time of bid submission its intended subcontractors for the Wicks trades (plumbing and gas fitting; steam heating, hot water heating, ventilating and air conditioning (HVAC); and electric wiring), the Contractor must identify all those to which it intends to award construction subcontracts for any portion of the Wicks trade work at the time of bid submission, regardless of what point in the life of the contract such subcontracts will occur. In identifying intended subcontractors in the bid submission, bidders may satisfy any Participation Goals established for this Contract by proposing one or more subcontractors that are MBEs and/or WBEs for any portion of the Wicks trade work. In the event that the Contractor's selection of a subcontractor is disapproved, the Contractor shall have a reasonable time to propose alternate subcontractors.

6. MBE and WBE firms must be certified by DSBS in order for the Contractor to credit such firms' participation toward the attainment of the Participation Goals. Such certification must occur prior to the firms' commencement of work. A list of MBE and WBE firms may be obtained from the DSBS website at [www.nyc.gov/buycertified](http://www.nyc.gov/buycertified), by emailing DSBS at [buyer@sbs.nyc.gov](mailto:buyer@sbs.nyc.gov), by calling (212) 513-6356, or by visiting or writing DSBS at 110 William St., New York, New York, 10038, 7th floor. Eligible firms that have not yet been certified may contact DSBS in order to seek certification by visiting [www.nyc.gov/getcertified](http://www.nyc.gov/getcertified), emailing [MWBE@sbs.nyc.gov](mailto:MWBE@sbs.nyc.gov), or calling the DSBS certification helpline at (212) 513-6311. A firm that is certified as both an MBE and a WBE may be counted either toward the goal for MBEs or the goal for WBEs, but not both. No credit shall be given for participation by a graduate MBE or graduate WBE, as defined in Section 6-129(c)(20).

7. Where an M/WBE Utilization Plan has been submitted, the Contractor shall, with each voucher for payment, and/or periodically as Agency may require, submit statements, certified under penalty of perjury, which shall include, but not be limited to: the total amount the Contractor paid to its direct subcontractors, and, where applicable pursuant to Section 6-129(j), the total amount direct subcontractors paid to indirect subcontractors; the names, addresses and contact numbers of each MBE or WBE hired as a subcontractor by the Contractor, and, where applicable, hired by any of the Contractor's direct subcontractors; and the dates and amounts paid to each MBE or WBE. The Contractor shall also submit, along with its voucher for final payment: the total amount it paid to subcontractors, and, where applicable pursuant to Section 6-129(j), the total amount its direct subcontractors paid directly to their indirect subcontractors; and a final list, certified under penalty of perjury, which shall include the name, address and contact information of each subcontractor that is an MBE or WBE, the work performed by, and the dates and amounts paid to each.

8. If payments made to, or work performed by, MBEs or WBEs are less than the amount specified in the Contractor's M/WBE Utilization Plan, Agency shall take appropriate action, in accordance with Section 6-129 and Article II below, unless the Contractor has obtained a modification of its M/WBE Utilization Plan in accordance with Section 6-129 and Part A, Section 11 below.

9. Where an M/WBE Utilization Plan has been submitted, and the Contractor requests a change order the value of which exceeds the greater of 10 percent of the Contract or Task Order, as applicable, or \$500,000, Agency shall review the scope of work for the Contract or Task Order, as applicable, and the scale and types of work involved in the change order, and determine whether the Participation Goals should be modified.

10. Pre-award waiver of the Participation Goals. (a) A bidder or proposer, or contractor with respect to a Task Order, may seek a pre-award full or partial waiver of the Participation Goals in accordance with Section 6-129, which

requests that Agency change one or more Participation Goals on the grounds that the Participation Goals are unreasonable in light of the availability of certified firms to perform the services required, or by demonstrating that it has legitimate business reasons for proposing a lower level of subcontracting in its M/WBE Utilization Plan.

(b) To apply for a full or partial waiver of the Participation Goals, a bidder, proposer, or contractor, as applicable, must complete Part III (Page 5) of Schedule B and submit such request no later than seven (7) calendar days prior to the date and time the bids, proposals, or Task Orders are due, in writing to the Agency by email at [poped@ddc.nyc.gov](mailto:poped@ddc.nyc.gov) or via facsimile at (718) 391-1886. Bidders, proposers, or contractors, as applicable, who have submitted requests will receive an Agency response by no later than two (2) calendar days prior to the due date for bids, proposals, or Task Orders; provided, however, that if that date would fall on a weekend or holiday, an Agency response will be provided by close-of-business on the business day before such weekend or holiday date.

(c) If the Agency determines that the Participation Goals are unreasonable in light of the availability of certified firms to perform the services required, it shall revise the solicitation and extend the deadline for bids and proposals, or revise the Task Order, as applicable.

(d) Agency may grant a full or partial waiver of the Participation Goals to a bidder, proposer or contractor, as applicable, who demonstrates—before submission of the bid, proposal or Task Order, as applicable—that it has legitimate business reasons for proposing the level of subcontracting in its M/WBE Utilization Plan. In making its determination, Agency shall consider factors that shall include, but not be limited to, whether the bidder, proposer or contractor, as applicable, has the capacity and the bona fide intention to perform the Contract without any subcontracting, or to perform the Contract without awarding the amount of subcontracts represented by the Participation Goals. In making such determination, Agency may consider whether the M/WBE Utilization Plan is consistent with past subcontracting practices of the bidder, proposer or contractor, as applicable, whether the bidder, proposer or contractor, as applicable, has made efforts to form a joint venture with a certified firm, and whether the bidder, proposer, or contractor, as applicable, has made good faith efforts to identify other portions of the Contract that it intends to subcontract.

11. **Modification of M/WBE Utilization Plan.** (a) A Contractor may request a modification of its M/WBE Utilization Plan after award of this Contract. **PLEASE NOTE: If this Contract is a public works project subject to GML §101(5) (i.e., a contract valued at or below \$3M for projects in New York City) or if the Contract is subject to a project labor agreement in accordance with Labor Law §222, and the bidder is required to identify at the time of bid submission its intended subcontractors for the Wicks trades (plumbing and gas fitting; steam heating, hot water heating, ventilating and air conditioning (HVAC); and electric wiring), the Contractor may request a Modification of its M/WBE Utilization Plan as part of its bid submission.** The Agency may grant a request for Modification of a Contractor's M/WBE Utilization Plan if it determines that the Contractor has established, with appropriate documentary and other evidence, that it made reasonable, good faith efforts to meet the Participation Goals. In making such determination, Agency shall consider evidence of the following efforts, as applicable, along with any other relevant factors:

- (i) The Contractor advertised opportunities to participate in the Contract, where appropriate, in general circulation media, trade and professional association publications and small business media, and publications of minority and women's business organizations;
- (ii) The Contractor provided notice of specific opportunities to participate in the Contract, in a timely manner, to minority and women's business organizations;
- (iii) The Contractor sent written notices, by certified mail or facsimile, in a timely manner, to advise MBEs or WBEs that their interest in the Contract was solicited;
- (iv) The Contractor made efforts to identify portions of the work that could be substituted for portions originally designated for participation by MBEs and/or WBEs in the M/WBE Utilization Plan, and for which the Contractor claims an inability to retain MBEs or WBEs;
- (v) The Contractor held meetings with MBEs and/or WBEs prior to the date their bids or proposals were due, for the purpose of explaining in detail the scope and requirements of the work for which their bids or proposals were solicited;
- (vi) The Contractor made efforts to negotiate with MBEs and/or WBEs as relevant to perform specific subcontracts, or act as suppliers or service providers;
- (vii) Timely written requests for assistance made by the Contractor to Agency's M/WBE liaison officer and to DSBS;

- (viii) Description of how recommendations made by DSBS and Agency were acted upon and an explanation of why action upon such recommendations did not lead to the desired level of participation of MBEs and/or WBEs.

Agency's M/WBE officer shall provide written notice to the Contractor of the determination.

(b) The Agency may modify the **Participation Goals** when the scope of the work has been changed by the Agency in a manner that affects the scale and types of work that the Contractor indicated in its M/WBE Utilization Plan would be awarded to subcontractors.

12. If this Contract is for an indefinite quantity of construction, standard or professional services or is a requirements type contract and the Contractor has submitted an M/WBE Utilization Plan and has committed to subcontract work to MBEs and/or WBEs in order to meet the **Participation Goals**, the Contractor will not be deemed in violation of the M/WBE Program requirements for this Contract with regard to any work which was intended to be subcontracted to an MBE and/or WBE to the extent that the Agency has determined that such work is not needed.

13. If **Participation Goals** have been established for this Contract or a Task Order issued pursuant to this Contract, at least once annually during the term of the Contract or Task Order, as applicable, Agency shall review the Contractor's progress toward attainment of its M/WBE Utilization Plan, including but not limited to, by reviewing the percentage of work the Contractor has actually awarded to MBE and/or WBE subcontractors and the payments the Contractor made to such subcontractors.

14. If **Participation Goals** have been established for this Contract or a Task Order issued pursuant to this Contract, Agency shall evaluate and assess the Contractor's performance in meeting those goals, and such evaluation and assessment shall become part of the Contractor's overall contract performance evaluation.

#### **PART B: MISCELLANEOUS**

1. The Contractor shall take notice that, if this solicitation requires the establishment of an M/WBE Utilization Plan, the resulting contract may be audited by DSBS to determine compliance with Section 6-129. See §6-129(e)(10). Furthermore, such resulting contract may also be examined by the City's Comptroller to assess compliance with the M/WBE Utilization Plan.

2. Pursuant to DSBS rules, construction contracts that include a requirement for an M/WBE Utilization Plan shall not be subject to the law governing Locally Based Enterprises set forth in Section 6-108.1 of the Administrative Code of the City of New York.

3. DSBS is available to assist contractors and potential contractors in determining the availability of MBEs and/or WBEs to participate as subcontractors, and in identifying opportunities that are appropriate for participation by MBEs and/or WBEs in contracts.

4. Prospective contractors are encouraged to enter into qualified joint venture agreements with MBEs and/or WBEs as defined by Section 6-129(c)(30).

5. By submitting a bid or proposal the Contractor hereby acknowledges its understanding of the M/WBE Program requirements set forth herein and the pertinent provisions of Section 6-129, and any rules promulgated thereunder, and if awarded this Contract, the Contractor hereby agrees to comply with the M/WBE Program requirements of this Contract and pertinent provisions of Section 6-129, and any rules promulgated thereunder, all of which shall be deemed to be material terms of this Contract. The Contractor hereby agrees to make all reasonable, good faith efforts to solicit and obtain the participation of MBEs and/or WBEs to meet the required **Participation Goals**.

#### **ARTICLE II. ENFORCEMENT**

1. If Agency determines that a bidder or proposer, as applicable, has, in relation to this procurement, violated Section 6-129 or the DSBS rules promulgated pursuant to Section 6-129, Agency may disqualify such bidder or proposer, as applicable, from competing for this Contract and the Agency may revoke such bidder's or proposer's prequalification status, if applicable.



2. Whenever Agency believes that the Contractor or a subcontractor is not in compliance with Section 6-129 or the DSBS rules promulgated pursuant to Section 6-129, or any provision of this Contract that implements Section 6-129, including, but not limited to any M/WBE Utilization Plan, Agency shall send a written notice to the Contractor describing the alleged noncompliance and offering the Contractor an opportunity to be heard. Agency shall then conduct an investigation to determine whether such Contractor or subcontractor is in compliance.

3. In the event that the Contractor has been found to have violated Section 6-129, the DSBS rules promulgated pursuant to Section 6-129, or any provision of this Contract that implements Section 6-129, including, but not limited to, any M/WBE Utilization Plan, Agency may determine that one of the following actions should be taken:

- (a) entering into an agreement with the Contractor allowing the Contractor to cure the violation;
- (b) revoking the Contractor's pre-qualification to bid or make proposals for future contracts;
- (c) making a finding that the Contractor is in default of the Contract;
- (d) terminating the Contract;
- (e) declaring the Contractor to be in breach of Contract;
- (f) withholding payment or reimbursement;
- (g) determining not to renew the Contract;
- (h) assessing actual and consequential damages;
- (i) assessing liquidated damages or reducing fees, provided that liquidated damages may be based on amounts representing costs of delays in carrying out the purposes of the M/WBE Program, or in meeting the purposes of the Contract, the costs of meeting utilization goals through additional procurements, the administrative costs of investigation and enforcement, or other factors set forth in the Contract;
- (j) exercising rights under the Contract to procure goods, services or construction from another contractor and charge the cost of such contract to the Contractor that has been found to be in noncompliance; or
- (k) taking any other appropriate remedy.

4. If an M/WBE Utilization Plan has been submitted, and pursuant to this Article II, Section 3, the Contractor has been found to have failed to fulfill its Participation Goals contained in its M/WBE Utilization Plan or the Participation Goals as modified by Agency pursuant to Article I, Part A, Section 11, Agency may assess liquidated damages in the amount of ten percent (10%) of the difference between the dollar amount of work required to be awarded to MBE and/or WBE firms to meet the Participation Goals and the dollar amount the Contractor actually awarded and paid, and/or credited, to MBE and/or WBE firms. In view of the difficulty of accurately ascertaining the loss which the City will suffer by reason of Contractor's failure to meet the Participation Goals, the foregoing amount is hereby fixed and agreed as the liquidated damages that the City will suffer by reason of such failure, and not as a penalty. Agency may deduct and retain out of any monies which may become due under this Contract the amount of any such liquidated damages; and in case the amount which may become due under this Contract shall be less than the amount of liquidated damages suffered by the City, the Contractor shall be liable to pay the difference.


5. Whenever Agency has reason to believe that an MBE and/or WBE is not qualified for certification, or is participating in a contract in a manner that does not serve a commercially useful function (as defined in Section 6-129(c)(8)), or has violated any provision of Section 6-129, Agency shall notify the Commissioner of DSBS who shall determine whether the certification of such business enterprise should be revoked.

6. Statements made in any instrument submitted to Agency pursuant to Section 6-129 shall be submitted under penalty of perjury and any false or misleading statement or omission shall be grounds for the application of any applicable criminal and/or civil penalties for perjury. The making of a false or fraudulent statement by an MBE and/or WBE in any instrument submitted pursuant to Section 6-129 shall, in addition, be grounds for revocation of its certification.

7. The Contractor's record in implementing its M/WBE Utilization Plan shall be a factor in the evaluation of its performance. Whenever Agency determines that a Contractor's compliance with an M/WBE Utilization Plan has been unsatisfactory, Agency shall, after consultation with the City Chief Procurement Officer, file an advice of caution form for inclusion in VENDEX as caution data.

IN WITNESS WHEREOF, the Commissioner, on behalf of the City of New York, and the Contractor, have executed this agreement in quadruplicate, two parts of which are to remain with the Commissioner, another to be filed with the Comptroller of the City, and the fourth to be delivered to the Contractor.

THE CITY OF NEW YORK

By:   
Deputy Commissioner

CONTRACTOR:

By:   
(Member of Firm or Officer of Corporation)

Title: President

(Where Contractor is a Corporation, add):  
Attest:

  
Secretary

(Seal)

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of NEW YORK County of Queens ss:

On this 9<sup>th</sup> day of NOV. 2015, before me personally came MUHAMMAD IQBAL to me known, who, being by me duly sworn did depose and say that he resides at 64 Fulton St Suite 703 NYC NY 10038 that he is the President of Five Star of the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation, and that he signed his name thereto by like order.

STATE OF NEW YORK  
Commissioner of Deeds  
City of New York No. 44780  
Certificate Filed in New York County  
Commission Expires 7/1/16

[Signature]  
Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP

State of \_\_\_\_\_ County of \_\_\_\_\_ ss:

On this \_\_\_\_\_ day of \_\_\_\_\_, before me personally appeared \_\_\_\_\_ to me known, and known to me to be one of the members of the firm of \_\_\_\_\_ described in and who executed the foregoing instrument; and he acknowledged to me that he executed the same as and for the act and deed of said firm.

\_\_\_\_\_  
Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of \_\_\_\_\_ County of \_\_\_\_\_ ss:

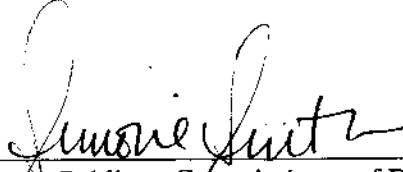
On this \_\_\_\_\_ day of \_\_\_\_\_, before me personally appeared \_\_\_\_\_ to me known, and known to me to be the person described in and who executed the foregoing instrument; and acknowledged that he executed the same.

\_\_\_\_\_  
Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT BY COMMISSIONER

State of New York County of Queens ss:

On this 10<sup>th</sup> day of Nov. 2015, before me personally came Eric Macfarlane to me known, and known to be the Deputy Commissioner of the Department of Design and Construction of The City of New York, the person described as such in and who as such executed the foregoing instrument and he acknowledged to me that he executed the same as Deputy Commissioner for the purposes therein mentioned.



Notary Public or Commissioner of Deeds

SMIONE SMITH  
Commissioner of Deeds  
City of New York No. 4-6780  
Certificate Filed in New York County  
Commission Expires 7/1/16

AUTHORITY

MAYOR'S CERTIFICATE NO. CBX  
BUDGET DIRECTOR'S CERTIFICATE NO.

DATED  
DATED

APPROPRIATION  
COMMISSIONER'S CERTIFICATE

In conformity with the provisions of Section 6-101 of the Administrative Code of the City of New York, it is hereby certified that the estimated cost of the work, materials and supplies required by the within Contract, amounting to

Four Million Eight Hundred Sixty-Five  
Thousand and 00/100.

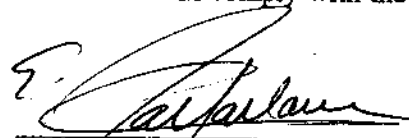
Dollars (\$ 4,865,000.00)

is chargeable to the fund of the Department of Design and Construction entitled Code

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Department of Design and Construction

I hereby certify that the specifications contained herein comply with the terms and conditions of the BUDGET.

  
\_\_\_\_\_  
Deputy Commissioner

COMPTROLLER'S CERTIFICATE

The City of New York \_\_\_\_\_

Pursuant to the provisions of Section 6-101 of the Administrative Code of the City of New York, I hereby certify that there remains unapplied and unexpended a balance of the above mentioned fund applicable to this Contract sufficient to pay the estimated expense of executing the same viz:

\$ \_\_\_\_\_

\_\_\_\_\_  
Comptroller

**MAYOR'S CERTIFICATE OR  
CERTIFICATE OF THE DIRECTOR  
OF THE BUDGET**

**Performance Bond #1 (Pages 90 to 93):** Use if the total contract price is \$5 Million Or Less. Performance Bond #1 has been approved by the U.S. Small Business Administration ("SBA") for participation in its Bond Guarantee Program.

PERFORMANCE BOND #1 (Page 1)

PERFORMANCE BOND #1

KNOW ALL PERSONS BY THESE PRESENTS, That we, \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

hereinafter referred to as the "Principal", and \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

hereinafter referred to as the "Surety" ("Sureties") are held and firmly bound to THE CITY OF NEW YORK, hereinafter referred to as the "City" or to its successors and assigns, in the penal sum of

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(\$ \_\_\_\_\_) Dollars, lawful money of the United States, for the payment of which said sum of money well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal is about to enter, or has entered, into a Contract in writing with the City for

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

a copy of which Contract is annexed to and hereby made a part of this bond as though herein set forth in full;

**Performance Bond #1 (Pages 90 to 93):** Use if the total contract price is \$5 Million Or Less. Performance Bond #1 has been approved by the U.S. Small Business Administration ("SBA") for participation in its Bond Guarantee Program.

PERFORMANCE BOND #1 (Page 2)

NOW, THEREFORE, the conditions of this obligation are such that if the Principal, his or its representatives or assigns, shall well and faithfully perform the said Contract and all modifications, amendments, additions and alterations thereto that may hereafter be made, according to its terms and its true intent and meaning, including repair and or replacement of defective work and guarantees of maintenance for the periods stated in the Contract, and shall fully indemnify and save harmless the City from all cost and damage which it may suffer by reason of the Principal's default of the Contract, and shall fully reimburse and repay the City for all outlay and expense which the City may incur in making good any such default and shall protect the said City of New York against, and pay any and all amounts, damages, cost and judgments which may or shall be recovered against said City or its officers or agents or which the said City of New York may be called upon to pay any person or corporation by reason of any damages arising or growing out of the Principal's default of the Contract, then this obligation shall be null and void, otherwise to remain in full force and effect.

The Surety (Sureties), for value received, hereby stipulates and agrees, upon written notice from the City that the City has determined that the Principal is in default of the Contract, to (1) pay the City the cost to complete the contract as determined by the City in excess of the balance of the Contract held by the City, plus any damages or costs to which the City is entitled, up to the full amount of the above penal sum, (2) fully perform and complete the Work to be performed under the Contract, pursuant to the terms, conditions, and covenants thereof, or (3) tender a completion Contractor that is acceptable to the City. The Surety (Sureties) further agrees, at its option, either to notify the City that it elects to pay the city the cost of completion plus any applicable damages and costs under option (1) above, or to commence and diligently perform the Work specified in the Contract, including physical site work, within twenty-five (25) business days after written notice thereof from the City and, if the Surety elects to fully perform and complete the Work, then to complete all Work within the time set forth in the Contract or such other time as agreed to between the City and Surety in accordance with the Contract. If the Surety elects to tender payment pursuant to (1) above, then the Surety shall tender such amount within fifteen (15) business days notification from the City of the cost of completion. The Surety and the City reserve all rights and defenses each may have against the other; provided, however, that the Surety expressly agrees that its reservation of rights shall not provide a basis for non-performance of its obligation to pay the City the cost of completion, to commence and complete all Work as provided herein, or to tender a completion contractor.

The Surety (Sureties), for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of said Surety (Sureties) and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition, or change in or to the said Contract or the Work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or any moneys due or to become due thereunder; and said Surety (Sureties) does hereby waive notice of any and all of such extensions, modifications, omissions, additions, changes, payments, and waivers, and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to subcontractors shall have the same effect as to said Surety (Sureties) as though done or omitted to be done by or in relation to said Principal. Notwithstanding the above, if the City makes payments to the Principal before the time required by the contract that in the aggregate exceed \$100,000 or 10% of the Contract price, whichever is less, and that have not become earned prior to the Principal being found to be in default, then all payments made to the Principal before the time required by the Contract shall be added to the remaining contract value available to be paid for the completion of the Contract as if such sums had not been paid to the Principal, but shall not provide a basis for non-performance of its obligation to pay the City the cost of completion, to commence and to complete all Work as provided herein, or to tender a completion contractor.



**Performance Bond #1 (Pages 90 to 93):** Use if the total contract price is \$5 Million Or Less. Performance Bond #1 has been approved by the U.S. Small Business Administration ("SBA") for participation in its Bond Guarantee Program.

PERFORMANCE BOND #1 (Page 3)

IN WITNESS WHEREOF, the Principal and the Surety (Sureties) have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereunto affixed and these presents to be signed by their proper officers, this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

(Seal) \_\_\_\_\_ (L.S.)  
Principal

By: \_\_\_\_\_

(Seal) \_\_\_\_\_  
Surety

By: \_\_\_\_\_

(Seal) \_\_\_\_\_  
Surety

By: \_\_\_\_\_

(Seal) \_\_\_\_\_  
Surety

By: \_\_\_\_\_

Bond Premium Rate \_\_\_\_\_

Bond Premium Cost \_\_\_\_\_

If the Contractor (Principal) is a partnership, the bond should be signed by each of the individuals who are partners.

If the Contractor (Principal) is a corporation, the bond should be signed in its correct corporate name by a duly authorized officer, agent, or attorney-in-fact.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Contract.

**Performance Bond #1 (Pages 90 to 93): Use if the total contract price is \$5 Million Or Less. Performance Bond #1 has been approved by the U.S. Small Business Administration ("SBA") for participation in its Bond Guarantee Program.**

PERFORMANCE BOND #1 (Page 4)

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of \_\_\_\_\_ County of \_\_\_\_\_ ss:

On this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, before me personally came \_\_\_\_\_ to me known, who, being by me duly sworn did depose and say that he resides at \_\_\_\_\_ that he is the \_\_\_\_\_ of the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation, and that he signed his name thereto by like order.

\_\_\_\_\_  
Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP

State of \_\_\_\_\_ County of \_\_\_\_\_ ss:

On this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ before me personally appeared \_\_\_\_\_ to me known, and known to me to be one of the members of the firm of \_\_\_\_\_ described in and who executed the foregoing instrument; and he acknowledged to me that he executed the same as and for the act and deed of said firm.

\_\_\_\_\_  
Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of \_\_\_\_\_ County of \_\_\_\_\_ ss:

On this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ before me personally appeared \_\_\_\_\_ to me known, and known to me to be the person described in and who executed the foregoing instrument; and acknowledged that he executed the same.

\_\_\_\_\_  
Notary Public or Commissioner of Deeds

Each executed bond should be accompanied by: (a) appropriate acknowledgments of the respective parties; (b) appropriate duly certified copy of Power of Attorney or other certificate of authority where bond is executed by agent, officer or other representative of Principal or Surety; (c) a duly certified extract from By-Laws or resolutions of Surety under which Power of Attorney or other certificate of authority of its agent, officer or representative was issued, and (d) certified copy of latest published financial statement of assets and liabilities of Surety.

\* \* \* \* \*

Affix Acknowledgments and Justification of Sureties

Performance Bond #2 (Pages 94 to 97): Use if the total contract price is more than \$5 Million.

PERFORMANCE BOND #2 (Page 1)

PERFORMANCE BOND #2

KNOW ALL PERSONS BY THESE PRESENTS, That we, \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

hereinafter referred to as the "Principal", and \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

hereinafter referred to as the "Surety" ("Sureties") are held and firmly bound to THE CITY OF NEW YORK, hereinafter referred to as the "City" or to its successors and assigns, in the penal sum of

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(\$ \_\_\_\_\_) Dollars, lawful money of the United States, for the payment of which said sum of money well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal is about to enter, or has entered, into a Contract in writing with the City for

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

a copy of which Contract is annexed to and hereby made a part of this bond as though herein set forth in full;

NOW, THEREFORE, the conditions of this obligation are such that if the Principal, his or its representatives or assigns, shall well and faithfully perform the said Contract and all modifications, amendments, additions and alterations thereto that may hereafter be made, according to its terms and its true intent and meaning, including repair and or replacement of defective work and guarantees of maintenance for the periods stated in the Contract, and shall fully indemnify and save harmless the City from all cost and damage which it may suffer by reason of the Principal's default of the Contract, and shall fully reimburse and repay the City for all outlay and expense which the City may incur in making good any such default and shall protect the said City of New York against, and pay any and all amounts, damages, cost and judgments which may or shall be recovered against said City or its officers or agents or which the said City of New York may be called upon to pay any person or corporation by reason of any damages arising or growing out of the Principal's default of the Contract, then this obligation shall be null and void, otherwise to remain in full force and effect.

The Surety (Sureties), for value received, hereby stipulates and agrees, upon written notice from the City that the City has determined that the Principal is in default of the Contract, to either (1) pay the full amount of the above penal sum in complete discharge and exoneration of this bond and of all the liabilities of the Surety relating to this bond, or (2) fully perform and complete the Work to be performed under the Contract, pursuant to the terms, conditions, and covenants thereof. The Surety (Sureties) further agrees, at its option, either to tender the penal sum or to commence and diligently perform the Work specified in the Contract, including physical site work, within twenty-five (25) business days after written notice thereof from the City and to complete all Work within the time set forth in the Contract or such other time as agreed to between the City and Surety in accordance with the Contract. The Surety and the City reserve all rights and defenses each may have against the other, provided, however, that the Surety expressly agrees that its reservation of rights shall not provide a basis for non-performance of its obligation to commence and to complete all Work as provided herein.

The Surety (Sureties), for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of said Surety (Sureties) and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition, or change in or to the said Contract or the Work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any Work to be performed or any moneys due or to become due thereunder; and said Surety (Sureties) does hereby waive notice of any and all of such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers, and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees, subcontractors, and other transferees shall have the same effect as to said Surety (Sureties) as though done or omitted to be done by or in relation to said Principal.

**Performance Bond #2 (Pages 94 to 97): Use if the total contract price is more than \$5 Million.**

PERFORMANCE BOND #2 (Page 3)

IN WITNESS WHEREOF, the Principal and the Surety (Sureties) have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereunto affixed and these presents to be signed by their proper officers, this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

(Seal) \_\_\_\_\_ (L.S.)  
Principal

By: \_\_\_\_\_

(Seal) \_\_\_\_\_  
Surety

By: \_\_\_\_\_

(Seal) \_\_\_\_\_  
Surety

By: \_\_\_\_\_

(Seal) \_\_\_\_\_  
Surety

By: \_\_\_\_\_

(Seal) \_\_\_\_\_  
Surety

By: \_\_\_\_\_

(Seal) \_\_\_\_\_  
Surety

Bond Premium Rate \_\_\_\_\_

Bond Premium Cost \_\_\_\_\_

If the Contractor (Principal) is a partnership, the bond should be signed by each of the individuals who are partners.

If the Contractor (Principal) is a corporation, the bond should be signed in its correct corporate name by a duly authorized officer, agent, or attorney-in-fact.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Contract.

**Performance Bond #1 (Pages 90 to 93): Use if the total contract price is \$5 Million Or Less. Performance Bond #1 has been approved by the U.S. Small Business Administration ("SBA") for participation in its Bond Guarantee Program.**

Bond No. EAIC011600368

PERFORMANCE BOND #1 (Page 1)

PERFORMANCE BOND #1

KNOW ALL PERSONS BY THESE PRESENTS, That we, \_\_\_\_\_

Five Star Contracting Companies Inc.

64 Fulton Street, Suite 703

New York, NY 10038

hereinafter referred to as the "Principal", and \_\_\_\_\_ Endurance American Insurance Company

750 Third Avenue, 2nd Floor

New York, NY 10017

hereinafter referred to as the "Surety" ("Sureties") are held and firmly bound to THE CITY OF NEW YORK, hereinafter referred to as the "City" or to its successors and assigns, in the penal sum of

Four Million Eight Hundred Sixty Five Thousand Dollars and 00/100

(\$ 4,865,000.00 ) Dollars, lawful money of the United States, for the payment of which said sum of money well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal is about to enter, or has entered, into a Contract in writing with the City for

FMS ID: HH112BLEL/E-PIN: 85015B0101001/DDC PIN: 8502015HL0002C

Bellevue Men's Shelter Elevator Rehabilitation

Borough of Manhattan, NY

a copy of which Contract is annexed to and hereby made a part of this bond as though herein set forth in full;

**Performance Bond #1 (Pages 90 to 93):** Use if the total contract price is \$5 Million Or Less. Performance Bond #1 has been approved by the U.S. Small Business Administration ("SBA") for participation in its Bond Guarantee Program.

PERFORMANCE BOND #1 (Page 2)

NOW, THEREFORE, the conditions of this obligation are such that if the Principal, his or its representatives or assigns, shall well and faithfully perform the said Contract and all modifications, amendments, additions and alterations thereto that may hereafter be made, according to its terms and its true intent and meaning, including repair and or replacement of defective work and guarantees of maintenance for the periods stated in the Contract, and shall fully indemnify and save harmless the City from all cost and damage which it may suffer by reason of the Principal's default of the Contract, and shall fully reimburse and repay the City for all outlay and expense which the City may incur in making good any such default and shall protect the said City of New York against, and pay any and all amounts, damages, cost and judgments which may or shall be recovered against said City or its officers or agents or which the said City of New York may be called upon to pay any person or corporation by reason of any damages arising or growing out of the Principal's default of the Contract, then this obligation shall be null and void, otherwise to remain in full force and effect.

The Surety (Sureties), for value received, hereby stipulates and agrees, upon written notice from the City that the City has determined that the Principal is in default of the Contract, to (1) pay the City the cost to complete the contract as determined by the City in excess of the balance of the Contract held by the City, plus any damages or costs to which the City is entitled, up to the full amount of the above penal sum, (2) fully perform and complete the Work to be performed under the Contract, pursuant to the terms, conditions, and covenants thereof, or (3) tender a completion Contractor that is acceptable to the City. The Surety (Sureties) further agrees, at its option, either to notify the City that it elects to pay the city the cost of completion plus any applicable damages and costs under option (1) above, or to commence and diligently perform the Work specified in the Contract, including physical site work, within twenty-five (25) business days after written notice thereof from the City and, if the Surety elects to fully perform and complete the Work, then to complete all Work within the time set forth in the Contract or such other time as agreed to between the City and Surety in accordance with the Contract. If the Surety elects to tender payment pursuant to (1) above, then the Surety shall tender such amount within fifteen (15) business days notification from the City of the cost of completion. The Surety and the City reserve all rights and defenses each may have against the other; provided, however, that the Surety expressly agrees that its reservation of rights shall not provide a basis for non-performance of its obligation to pay the City the cost of completion, to commence and complete all Work as provided herein, or to tender a completion contractor.

The Surety (Sureties), for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of said Surety (Sureties) and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition, or change in or to the said Contract or the Work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or any moneys due or to become due thereunder; and said Surety (Sureties) does hereby waive notice of any and all of such extensions, modifications, omissions, additions, changes, payments, and waivers, and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to subcontractors shall have the same effect as to said Surety (Sureties) as though done or omitted to be done by or in relation to said Principal. Notwithstanding the above, if the City makes payments to the Principal before the time required by the contract that in the aggregate exceed \$100,000 or 10% of the Contract price, whichever is less, and that have not become earned prior to the Principal being found to be in default, then all payments made to the Principal before the time required by the Contract shall be added to the remaining contract value available to be paid for the completion of the Contract as if such sums had not been paid to the Principal, but shall not provide a basis for non-performance of its obligation to pay the City the cost of completion, to commence and to complete all Work as provided herein, or to tender a completion contractor.

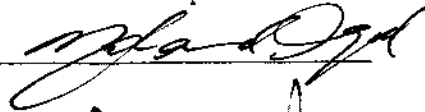
**Performance Bond #1 (Pages 90 to 93):** Use if the total contract price is \$5 Million Or Less. Performance Bond #1 has been approved by the U.S. Small Business Administration ("SBA") for participation in its Bond Guarantee Program.

PERFORMANCE BOND #1 (Page 3)

IN WITNESS WHEREOF, the Principal and the Surety (Sureties) have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereunto affixed and these presents to be signed by their proper officers, this 13th day of November, 2015.

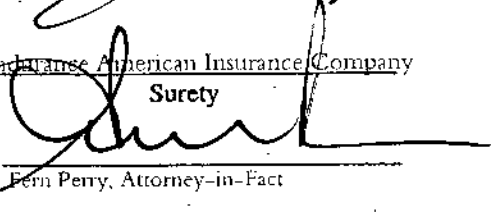
(Seal)

Five Star Contracting Companies Inc(L.S.)  
Principal

By: 

(Seal)

Endurance American Insurance Company  
Surety

By:   
Fern Perry, Attorney-in-Fact

(Seal)

\_\_\_\_\_  
Surety

By: \_\_\_\_\_

(Seal)

\_\_\_\_\_  
Surety

By: \_\_\_\_\_

Bond Premium Rate \_\_\_\_\_

Bond Premium Cost \_\_\_\_\_

If the Contractor (Principal) is a partnership, the bond should be signed by each of the individuals who are partners.

If the Contractor (Principal) is a corporation, the bond should be signed in its correct corporate name by a duly authorized officer, agent, or attorney-in-fact.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Contract.



**Performance Bond #1 (Pages 90 to 93):** Use if the total contract price is \$5 Million Or Less. Performance Bond #1 has been approved by the U.S. Small Business Administration ("SBA") for participation in its Bond Guarantee Program.

PERFORMANCE BOND #1 (Page 4)

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of New York County of NASSAU ss:

On this 18<sup>th</sup> day of November, 2015, before me personally came MOHAMMAD IQBAL to me known, who, being by me duly sworn did depose and say that he resides at 64 Fulton Street Suite 703 New York NY 10038 that he is the President of the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation, and that he signed his name thereto by like order.

TRUPTI S. PATEL  
Notary Public, State of New York  
No. 01PA6214266  
Qualified in Nassau County  
Commission Expires December 7, 2017

Trupti Patel  
Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP

State of \_\_\_\_\_ County of \_\_\_\_\_ ss:

On this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ before me personally appeared \_\_\_\_\_ to me known, and known to me to be one of the members of the firm of \_\_\_\_\_ described in and who executed the foregoing instrument; and he acknowledged to me that he executed the same as and for the act and deed of said firm.

\_\_\_\_\_  
Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of \_\_\_\_\_ County of \_\_\_\_\_ ss:

On this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ before me personally appeared \_\_\_\_\_ to me known, and known to me to be the person described in and who executed the foregoing instrument; and acknowledged that he executed the same.

\_\_\_\_\_  
Notary Public or Commissioner of Deeds

Each executed bond should be accompanied by: (a) appropriate acknowledgments of the respective parties; (b) appropriate duly certified copy of Power of Attorney or other certificate of authority where bond is executed by agent, officer or other representative of Principal or Surety; (c) a duly certified extract from By-Laws or resolutions of Surety under which Power of Attorney or other certificate of authority of its agent, officer or representative was issued, and (d) certified copy of latest published financial statement of assets and liabilities of Surety.

\* \* \* \* \*

Affix Acknowledgments and Justification of Sureties

## ACKNOWLEDGMENT OF SURETY

STATE OF NEW YORK }  
COUNTY OF NASSAU } <sup>ss:</sup>

On November 13, 2015 before me personally came Fern Perry to me known who, being by me duly sworn, did depose and say that he/she resides at 255 Executive Drive, Plainview, New York 11803, that he/she is the Attorney-In-Fact of Endurance American Insurance Company the corporation described in and which executed the foregoing instrument; and that he/she signed his/her name thereto by order of the Board of Directors of said corporation.



-----  
**Notary Public**  
Peter Henry  
Notary Public State of NY  
No. 01HE4784829  
Qualified in Nassau County  
Commission Expires January 31, 2018

POWER OF ATTORNEY

Know all Men by these Presents, that ENDURANCE AMERICAN INSURANCE COMPANY, a Delaware corporation (the "Corporation"), with offices at 750 Third Avenue, New York, New York 10017, has made, constituted and appointed and by these presents, does make, constitute and appoint

ROBERT FINNELL, FERN PERRY, DEBORAH L. SEVERIN, JANICE R. FISCINA, JENNIFER LAURA JOHNSTON-OGEKA, ROSANNE CALLAHAN, PETER HENRY

its true and lawful Attorney(s)-in-fact, at PLAINVIEW in the State of NY and each of them to have full power to act without the other or others, to make, execute, seal and deliver for and on its behalf bonds, undertakings or obligations in surety or co-surety with others, also to execute and deliver on its behalf renewals, extensions, agreements, waivers, consents or stipulations relating to such aforesaid bonds, undertakings or obligations provided, however, that no single bond or undertaking so made, executed and delivered shall obligate the Corporation for any portion of the penal sum thereof in excess of the sum of SEVEN MILLION FIVE HUNDRED THOUSAND Dollars (\$7,500,000.00).

Such bonds and undertakings for said purposes, when duly executed by said attorney(s)-in-fact, shall be binding upon the Corporation as fully and to the same extent as if signed by the President of the Corporation under its corporate seal attested by its Corporate Secretary.42

This appointment is made under and by authority of certain resolutions adopted by the Board of Directors of the Corporation by unanimous written consent on the 21<sup>st</sup> day of July, 2011, a copy of which appears below under the heading entitled "Certificate".

42  
This Power of Attorney is signed and sealed by facsimile under and by authority of the following resolution adopted by the Board of Directors of the Corporation by unanimous written consent on the 21<sup>st</sup> day of July, 2011 and said resolution has not since been revoked, amended or repealed:

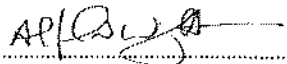
RESOLVED, that in granting powers of attorney pursuant to certain resolutions adopted by the Board of Directors of the Corporation by unanimous written consent on the 21<sup>st</sup> day of July, 2011, the signature of such directors and officers and the seal of the Corporation may be affixed to any such power of attorney or any certificate relating thereto by facsimile, and any such power of attorney or certificate bearing such facsimile signature or seal shall be valid and binding upon the Corporation in the future with respect to any bond or undertaking to which it is attached.

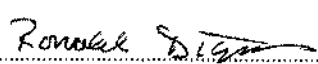
This Power of Attorney shall expire and all authority hereunder shall terminate without notice at 12:01 a.m. (Standard Timer where said attorney(s)-in-fact is authorized to act.)  
JUNE 10TH, 2016.

IN WITNESS WHEREOF, the Corporation has caused these presents to be duly signed and its corporate seal to be hereunto affixed and attested this 11TH day of JUNE, 2015 at New York, New York.

(Corporate Seal)

ENDURANCE AMERICAN INSURANCE COMPANY

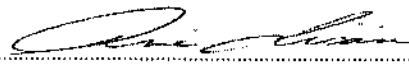
ATTEST   
Alfred N. Wright, Senior Vice President

By   
Ronald Diggs, Vice President

STATE OF NEW YORK ss: MANHATTAN  
COUNTY OF NEW YORK

On the 11TH day of JUNE, 2015 before me personally came RONALD DIGGS to me known, who being by me duly sworn, did depose and say that (s)he resides in HELLERTOWN, PENNSYLVANIA that (s)he is a VICE PRESIDENT of ENDURANCE AMERICAN INSURANCE COMPANY, the corporation described in and which executed the above instrument; that (s)he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that (s)he signed his (her) name thereto by like order.

(Notarial Seal)

  
Anie Lican, Notary Public - My Commission Expires: October 29, 2015

CERTIFICATE

STATE OF NEW YORK ss: MANHATTAN  
COUNTY OF NEW YORK

I, Doug Woman, the Chief Executive Officer of ENDURANCE AMERICAN INSURANCE COMPANY, a Delaware Corporation (the "Corporation"), hereby certify:

- 1. That the original power of attorney of which the foregoing is a copy was duly executed on behalf of the Corporation and has not since been revoked, amended or modified; that the undersigned has compared the foregoing copy thereof with the original power of attorney, and that the same is a true and correct copy of the original power of attorney and of the whole thereof;
- 2. The following are resolutions which were adopted by the Board of Directors of the Corporation by unanimous written consent on the 21<sup>st</sup> day of July, 2011 and said resolutions have not since been revoked, amended or modified:

\*RESOLVED, that each of the individuals named below is authorized to make, execute, seal and deliver for and on behalf of the Corporation any and all bonds, undertakings or obligations in surety or co-surety with others and to execute and deliver for and on behalf of the Corporation renewals, extensions, agreements, waivers, consents or stipulations relating to such aforesaid bonds, undertakings or obligations:

ALFRED N. WRIGHT, RONALD DIGGS

And

RESOLVED FURTHER, that each of the individuals named above is authorized to appoint attorneys-in-fact for the purpose of making, executing, sealing and delivering bonds, undertakings or obligations in surety or co-surety for, and on behalf of the Corporation.

3. The undersigned further certifies that the above resolutions are true and correct copies of the resolutions as so recorded and of the whole thereof.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the corporate seal this NOV 13 2015, 20 20 day of

(Corporate Seal)

  
Doug Woman, Chief Executive Officer of U.S. Insurance

**ENDURANCE AMERICAN INSURANCE COMPANY**  
**Balance Sheet - Statutory - Basis**  
**December 31, 2014**

<b>Assets:</b>	
Bonds	\$ 300,479,343
Common stocks	90,259,052
Cash	28,823,471
Receivable for securities	7,034,443
Total cash and invested assets	<u>426,596,309</u>
Agents' balances or uncollected premiums	611,326,868
Reinsurance recoverable on loss and loss adjustment expense payments	188,836,551
Funds held by or deposited with reinsurers companies	12,577,282
Current federal and foreign income tax recoverable	222,552
Investment income due and accrued	1,380,223
Receivables from parent, subsidiaries and affiliates	2,916,663
Total admitted assets	<u>\$ 1,243,856,448</u>
<b>Liabilities:</b>	
Loss and loss adjustment expenses	\$ 204,125,794
Reinsurance payable on paid loss and loss adjustment expenses	330,820,037
Unearned premiums	78,904,134
Ceded reinsurance premiums payable	357,992,680
Provision for reinsurance	1,037,000
Payable to parent, subsidiaries and affiliates	6,457,166
Payable for securities	14,792,578
Other liabilities	8,525,697
Total liabilities	<u>1,002,655,086</u>
<b>Capital and surplus:</b>	
Common capital stock	6,000,000
Gross paid in and contributed surplus	531,153,297
Unassigned funds (surplus)	(295,951,935)
Total capital and surplus	<u>241,201,362</u>
Total liabilities and capital and surplus	<u>\$ 1,243,856,448</u>

I, Stan Osofsky, Treasurer of Endurance American Insurance Company (the "Company") do hereby certify that to the best of my knowledge and belief, the foregoing is a full and true Statutory Statement of Admitted Assets, Liabilities, Capital and Surplus of the Company as of December 31, 2014 prepared in conformity with accounting practices prescribed or permitted by the State of Delaware Department of Insurance. The foregoing statement should not be taken as a complete statement of financial condition of the Company. Such a statement is available upon request at the Company's office located at 4 Manhattanville Road, 3rd Floor, Purchase, NY 10577.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of the Company at New York, New York.

  
 Stan Osofsky, Treasurer

Subscribed and sworn to before me this

12<sup>th</sup> day of March, 2015

**ROSE CHARLES**  
 Notary Public, State of New York  
 No. 02345172844  
 Qualified in New York County  
 My Commission Expires Aug 18, 2015



**Payment Bond (Pages 98 to 101): Use for any contract for which a Payment Bond is required.**

Bond No. EAIC011600368

PAYMENT BOND (Page 1)

**PAYMENT BOND**

KNOW ALL PERSONS BY THESE PRESENTS, That we, \_\_\_\_\_

Five Star Contracting Companies Inc.

64 Fulton Street, Suite 703

New York, NY 10038

hereinafter referred to as the "Principal", and \_\_\_\_\_ Endurance American Insurance Company

750 Third Avenue, 2nd Floor

New York, NY 10017

hereinafter referred to as the "Surety" ("Sureties") are held and firmly bound to THE CITY OF NEW YORK, hereinafter referred to as the "City" or to its successors and assigns, in the penal sum of

Four Million Eight Hundred Sixty Five Thousand Dollars and 00/100

(\$ 4,865,000.00 ) Dollars, lawful money of the United States, for the payment of which said sum of money well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal is about to enter, or has entered, into a Contract in writing with the City for

FMS-ID: HH112BLEL/E-PIN: 85015B0101001/DDC PIN: 8502015HL0002C

Bellevue Men's Shelter Elevator Rehabilitation

Borough of Manhattan, NY

a copy of which Contract is annexed to and hereby made a part of this bond as though herein set forth in full;

NOW, THEREFORE, the conditions of this obligation are such that if the Principal, his or its representatives or assigns and other Subcontractors to whom Work under this Contract is sublet and his or their successors and assigns shall promptly pay or cause to be paid all lawful claims for

(a) Wages and compensation for labor performed and services rendered by all persons engaged in the prosecution of the Work under said Contract, and any amendment or extension thereof or addition thereto, whether such persons be agents servants or employees of the Principal or any such Subcontractor, including all persons so

**Payment Bond (Pages 98 to 101): Use for any contract for which a Payment Bond is required.**

PAYMENT BOND (Page 2)

engaged who perform the work of laborers or mechanics at or in the vicinity of the site of the Project regardless of any contractual relationship between the Principal or such Subcontractors, or his or their successors or assigns, on the one hand and such laborers or mechanics on the other, but not including office employees not regularly stationed at the site of the project; and

(b) Materials and supplies (whether incorporated in the permanent structure or not), as well as teams, fuels, oils, implements or machinery furnished, used or consumed by said Principal or any subcontractor at or in the vicinity of the site of the Project in the prosecution of the Work under said Contract and any amendment or extension thereof or addition thereto; then this obligation shall be void, otherwise to remain in full force and effect.

This bond is subject to the following additional conditions, limitations and agreements:

(a) The Principal and Surety (Sureties) agree that this bond shall be for the benefit of any materialmen or laborer having a just claim, as well as the City itself.

(b) All persons who have performed labor, rendered services or furnished materials and supplies, as aforesaid, shall have a direct right of action against the Principal and his, its or their successors and assigns, and the Surety (Sureties) herein, or against either or both or any of them and their successors and assigns. Such persons may sue in their own name, and may prosecute the suit to judgment and execution without the necessity of joining with any other persons as party plaintiff.

(c) The Principal and Surety (Sureties) agree that neither of them will hold the City liable for any judgment for costs of otherwise, obtained by either or both of them against a laborer or materialman in a suit brought by either a laborer or materialman under this bond for moneys allegedly due for performing work or furnishing material.

(d) The Surety (Sureties) or its successors and assigns shall not be liable for any compensation recoverable by an employee or laborer under the Workmen's Compensation Law.

(e) In no event shall the Surety (Sureties), or its successors or assigns, be liable for a greater sum than the penalty of this bond or be subject to any suit, action or proceeding hereon that is instituted by any person, firm, or corporation hereunder later than two years after the complete performance of said Contract and final settlement thereof.

The Principal, for himself and his successors and assigns, and the Surety (Sureties), for itself and its successors and assigns, do hereby expressly waive any objection that might be interposed as to the right of the City to require a bond containing the foregoing provisions, and they do hereby further expressly waive any defense which they or either of them might interpose to an action brought hereon by any person, firm or corporation, including subcontractors, materialmen and third persons, for work, labor, services, supplies or material performed rendered, or furnished as aforesaid upon the ground that there is no law authorizing the City to require the foregoing provisions to be placed in this bond.

And the Surety (Sureties), for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of said Surety (Sureties), and its bonds shall be in no way impaired or affected by any extension of time, modification, omission, addition, or change in or of the said Contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any part thereof, or of any Work to be performed, or any moneys due to become due thereunder and said Surety (Sureties) does hereby waive notice of any and all of such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers, and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees, Subcontractors, and other transferees shall have the same effect as to said Surety (Sureties) as though done or omitted to be done or in relation to said Principal.

Payment Bond (Pages 98 to 101): Use for any contract for which a Payment Bond is required.

PAYMENT BOND (Page 3)

IN WITNESS WHEREOF, the Principal and the Surety (Sureties) have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereunto affixed and these presents to be signed by their proper officers, this 13th day of November, 2015.

(Seal)

Five Star Contracting Companies Inc. (L.S.)  
Principal

By: 

(Seal)

Endurance American Insurance Company  
Surety

By: 

Fern Perry, Attorney-in-Fact

(Seal)

\_\_\_\_\_  
Surety

By: \_\_\_\_\_

(Seal)

\_\_\_\_\_  
Surety

By: \_\_\_\_\_

(Seal)

\_\_\_\_\_  
Surety

By: \_\_\_\_\_

If the Contractor (Principal) is a partnership, the bond should be signed by each of the individuals who are partners.

If the Contractor (Principal) is a corporation, the bond should be signed in its correct corporate name by a duly authorized officer, agent, or attorney-in-fact.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Contract.

**Payment Bond (Pages 98 to 101): Use for any contract for which a Payment Bond is required.**

PAYMENT BOND (Page 4)

**ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION**

State of New York County of NASSAU ss:

On this 18<sup>th</sup> day of November, 2015 before me personally came MOHAMMAD IQBAL to me known, who, being by me duly sworn did depose and say that he resides at 64 Fulton St. Suite 703 NEW YORK, NY 10038 that he is the President of the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation, and that he signed his name thereto by like order.

TRUPTI S. PATEL  
Notary Public, State of New York  
No. 01PA6214268  
Qualified in Nassau County  
Commission Expires December 7, 2017

Trupti Patel  
Notary Public or Commissioner of Deeds

**ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP**

State of \_\_\_\_\_ County of \_\_\_\_\_ ss:

On this \_\_\_\_\_ day of \_\_\_\_\_ before me personally appeared \_\_\_\_\_ to me known, and known to me to be one of the members of the firm of \_\_\_\_\_ described in and who executed the foregoing instrument; and he acknowledged to me that he executed the same as and for the act and deed of said firm.

\_\_\_\_\_  
Notary Public or Commissioner of Deeds

**ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL**

State of \_\_\_\_\_ County of \_\_\_\_\_ ss:

On this \_\_\_\_\_ day of \_\_\_\_\_ before me personally appeared \_\_\_\_\_ to me known, and known to me to be the person described in and who executed the foregoing instrument; and acknowledged that he executed the same.

\_\_\_\_\_  
Notary Public or Commissioner of Deeds

Each executed bond should be accompanied by: (a) appropriate acknowledgments of the respective parties; (b) appropriate duly certified copy of Power of Attorney or other certificate of authority where bond is executed by agent, officer or other representative of Principal or Surety; (c) a duly certified extract from By-Laws or resolutions of Surety under which Power of Attorney or other certificate of authority of its agent, officer or representative was issued, and (d) certified copy of latest published financial statement of assets and liabilities of Surety.

\* \* \* \* \*

Affix Acknowledgments and Justification of Sureties



## ACKNOWLEDGMENT OF SURETY

STATE OF NEW YORK }  
COUNTY OF NASSAU } <sup>ss:</sup>

On November 13, 2015 before me personally came Fern Perry to me known who, being by me duly sworn, did depose and say that he/she resides at 255 Executive Drive, Plainview, New York 11803, that he/she is the Attorney-In-Fact of Endurance American Insurance Company the corporation described in and which executed the foregoing instrument; and that he/she signed his/her name thereto by order of the Board of Directors of said corporation.



---

**Notary Public**  
Peter Henry  
Notary Public State of NY  
No. 01HE4784829  
Qualified in Nassau County  
Commission Expires January 31, 2018

POWER OF ATTORNEY

Know all Men by these Presents, that ENDURANCE AMERICAN INSURANCE COMPANY, a Delaware corporation (the "Corporation"), with offices at 750 Third Avenue, New York, New York 10017, has made, constituted and appointed and by these presents, does make, constitute and appoint

ROBERT FINNELL, FERN PERRY, DEBORAH L. SEVERIN, JANICE R. FISCINA, JENNIFER LAURA JOHNSTON-OGEKA, ROSANNE CALLAHAN, PETER HENRY

its true and lawful Attorney(s)-in-fact, at PLAINVIEW in the State of NY and each of them to have full power to act without the other or others, to make, execute, seal and deliver for and on its behalf bonds, undertakings or obligations in surety or co-surety with others, also to execute and deliver on its behalf renewals, extensions, agreements, waivers, consents or stipulations relating to such aforesaid bonds, undertakings or obligations provided, however, that no single bond or undertaking so made, executed and delivered shall obligate the Corporation for any portion of the penal sum thereof in excess of the sum of SEVEN MILLION FIVE HUNDRED THOUSAND Dollars (\$7,500,000.00).

Such bonds and undertakings for said purposes, when duly executed by said attorney(s)-in-fact, shall be binding upon the Corporation as fully and to the same extent as if signed by the President of the Corporation under its corporate seal attested by its Corporate Secretary.

This appointment is made under and by authority of certain resolutions adopted by the Board of Directors of the Corporation by unanimous written consent on the 21<sup>st</sup> day of July, 2011, a copy of which appears below under the heading entitled "Certificate".

This Power of Attorney is signed and sealed by facsimile under and by authority of the following resolution adopted by the Board of Directors of the Corporation by unanimous written consent on the 21<sup>st</sup> day of July, 2011 and said resolution has not since been revoked, amended or repealed:

RESOLVED, that in granting powers of attorney pursuant to certain resolutions adopted by the Board of Directors of the Corporation by unanimous written consent on the 21<sup>st</sup> day of July, 2011, the signature of such directors and officers and the seal of the Corporation may be affixed to any such power of attorney or any certificate relating thereto by facsimile, and any such power of attorney or certificate bearing such facsimile signature or seal shall be valid and binding upon the Corporation in the future with respect to any bond or undertaking to which it is attached.

This Power of Attorney shall expire and all authority hereunder shall terminate without notice at 12:01 a.m. (Standard Time) where said attorney(s)-in-fact is authorized to act) JUNE 10<sup>th</sup> 2016.

IN WITNESS WHEREOF, the Corporation has caused these presents to be duly signed and its corporate seal to be hereunto affixed and attested this 11TH day of JUNE, 2015 at New York, New York.  
(Corporate Seal)

ENDURANCE AMERICAN INSURANCE COMPANY

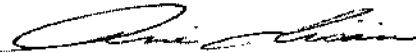
ATTEST   
Alfred N. Wright, Senior Vice President

By   
Ronald Diggs, Vice President

STATE OF NEW YORK ss: MANHATTAN  
COUNTY OF NEW YORK

On the 11TH day of JUNE, 2015 before me personally came RONALD DIGGS to me known, who being by me duly sworn, did depose and say that (s)he resides in HELLETTOWN, PENNSYLVANIA that (s)he is a VICE PRESIDENT of ENDURANCE AMERICAN INSURANCE COMPANY, the corporation described in and which executed the above instrument; that (s)he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that (s)he signed his (her) name thereto by like order.  
(Notarial Seal)



  
Anie Licari, Notary Public - My Commission Expires: October 29, 2015

CERTIFICATE

STATE OF NEW YORK ss: MANHATTAN  
COUNTY OF NEW YORK

I, Doug Woman, the Chief Executive Officer of ENDURANCE AMERICAN INSURANCE COMPANY, a Delaware Corporation (the "Corporation"), hereby certify:

- 1. That the original power of attorney of which the foregoing is a copy was duly executed on behalf of the Corporation and has not since been revoked, amended or modified; that the undersigned has compared the foregoing copy thereof with the original power of attorney, and that the same is a true and correct copy of the original power of attorney and of the whole thereof;
- 2. The following are resolutions which were adopted by the Board of Directors of the Corporation by unanimous written consent on the 21<sup>st</sup> day of July, 2011 and said resolutions have not since been revoked, amended or modified:

\*RESOLVED, that each of the individuals named below is authorized to make, execute, seal and deliver for and on behalf of the Corporation any and all bonds, undertakings or obligations in surety or co-surety with others and to execute and deliver for and on behalf of the Corporation renewals, extensions, agreements, waivers, consents or stipulations relating to such aforesaid bonds, undertakings or obligations:

ALFRED N. WRIGHT, RONALD DIGGS

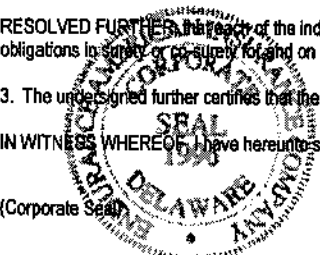
And

RESOLVED FURTHER, that each of the individuals named above is authorized to appoint attorneys-in-fact for the purpose of making, executing, sealing and delivering bonds, undertakings or obligations in surety or co-surety for and on behalf of the Corporation.

- 3. The undersigned further certifies that the above resolutions are true and correct copies of the resolutions as so recorded and of the whole thereof.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the corporate seal this day of NOV 13 2015, 20

  
Doug Woman, Chief Executive Officer of U.S. Insurance



**ENDURANCE AMERICAN INSURANCE COMPANY**  
**Balance Sheet - Statutory - Basis**  
**December 31, 2014**

<b>Assets:</b>	
Bonds	\$ 300,479,343
Common stocks	90,259,052
Cash	28,823,471
Receivable for securities	<u>7,034,443</u>
Total cash and invested assets	426,596,309
Agents' balances or uncollected premiums	611,326,868
Reinsurance recoverable on loss and loss adjustment expense payments	188,836,551
Funds held by or deposited with reinsurers companies	12,577,282
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Investment income due and accrued	1,380,223
Receivables from parent, subsidiaries and affiliates	<u>2,916,663</u>
Total admitted assets	<u>\$ 1,243,856,448</u>
<b>Liabilities:</b>	
Loss and loss adjustment expenses	\$ 204,125,794
Reinsurance payable on paid loss and loss adjustment expenses	330,820,037
Unearned premiums	78,904,134
Ceded reinsurance premiums payable	357,992,680
Provision for reinsurance	1,037,000
Payable to parent, subsidiaries and affiliates	6,457,166
Payable for securities	14,792,578
Other liabilities	<u>8,525,697</u>
Total liabilities	1,002,655,086
<b>Capital and surplus:</b>	
Common capital stock	6,000,000
Gross paid in and contributed surplus	531,153,297
Unassigned funds (surplus)	<u>(295,951,935)</u>
Total capital and surplus	241,201,362
Total liabilities and capital and surplus	<u>\$ 1,243,856,448</u>

I, Stan Osofsky, Treasurer of Endurance American Insurance Company (the "Company") do hereby certify that to the best of my knowledge and belief, the foregoing is a full and true Statutory Statement of Admitted Assets, Liabilities, Capital and Surplus of the Company as of December 31, 2014 prepared in conformity with accounting practices prescribed or permitted by the State of Delaware Department of Insurance. The foregoing statement should not be taken as a complete statement of financial condition of the Company. Such a statement is available upon request at the Company's office located at 4 Manhattanville Road, 3rd Floor, Purchase, NY 10577.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of the Company at New York, New York.

  
 Stan Osofsky, Treasurer

Subscribed and sworn to before me this

12<sup>th</sup> day of March, 2015

ROSE CHARLES  
 Notary Public, State of New York  
 No. 02078172944  
 Qualified in New York County  
 My Commission Expires AUG 13, 2015





# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

11/12/2015

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER COSMOS ASSOCIATES INSURANCE BROKERAGE CORP. 36-19 30 AVENUE ASTORIA NY 11103	CONTACT NAME: PHONE (A/C No. Ext): (718) 545-3100 FAX (A/C No.): (718) 545-5634 E-MAIL ADDRESS: marielacosmos@nyc.rr.com
INSURED Five Star Contracting Companies Inc 64 FULTON STREET SUITE 703 NEW YORK NY 10038	INSURER(S) AFFORDING COVERAGE INSURER A: <u>Endurance American Specialty</u> INSURER B: INSURER C: INSURER D: INSURER E: INSURER F:

## COVERAGES

CERTIFICATE NUMBER: CL15111217761

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSD WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR		CBC10001593802	5/14/2015	5/14/2016	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Eq. occurrence) \$ 100,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000 Employee Benefits \$
	GENL AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:					
	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> NON-OWNED AUTOS					COMBINED SINGLE LIMIT (Eq. accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	UMBRELLA LIAB EXCESS LIAB DED RETENTION \$	<input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS-MADE				EACH OCCURRENCE \$ AGGREGATE \$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	<input type="checkbox"/> Y/N <input type="checkbox"/> N/A				PER STATUTE OTH-ER E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

FMS ID : RH112BEL, E-PIN: 85015B0101001. DDC PIN: 8502015H10002C, BELLEVUE MEN'S SHELTER ELEVATOR REHABILITATION - BOROUGH OF MANHATTAN.

As concerns work performed by the insured at 400 East 30th St New York, NY 10016, CITY OF NEW YORK, including its officials and employees, are included as Additional Insured. Additional Insured status is granted for General Liability as required by signed written contract subject to policy terms and conditions.

## CERTIFICATE HOLDER

THE CITY OF NEW YORK DEPARTMENT  
OF DESIGN AND CONSTRUCTION  
INSURANCE UNIT  
30-30 THOMSON AVENUE  
LONG ISLAND CITY, NY 11101

## CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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### CERTIFICATION BY BROKER

The undersigned insurance broker represents to the City of New York that the attached Certificate of Insurance, dated November 12, 2015, concerning insurance policy number CBC10001593802 is accurate in all material respects, and that the described insurance is effective as of the date of this Certification.

The undersigned insurance broker further represents to the City of New York that the Commercial General Liability insurance policy, referenced in the Certificate of Liability, is issued by a company or companies that may lawfully issue the required policy and has an A.M. Best rating of at least A - VII or a Standard and Poor's rating of at least AA.

Cosmos Associates Insurance Brokerage, Corp.

[Name of broker (typewritten)]

36-19 30<sup>th</sup> Avenue, Astoria, NY 11103

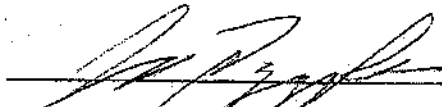
[Address of broker (typewritten)]

JOHNRPCAI@GMAIL.COM

[Email address of broker (typewritten)]

718-545-3100/718-545-5634

[Phone number/Fax number of broker (typewritten)]



[Signature of authorized official or broker]

John Papazoglou Broker

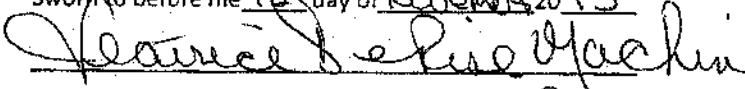
[Name and title of authorized official (typewritten)]

State of New York

)ss.:

County of Queens

Sworn to before me 12 day of November 2015



NOTARY PUBLIC FOR THE STATE OF New York

**LEATRICE DERISE-MACHIN**  
Notary Public, State of New York  
No. 01DES066004  
Qualified in Queens County  
Commission Expires Feb. 20, 2018



# CERTIFICATE OF LIABILITY INSURANCE

FIVES-1 OP ID: SM

DATE (MM/DD/YYYY)  
11/09/2015

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> INSIGHT COMPANIES INC. 226 Old Country Road No Wing Melville, NY 11747 Commercial House Account	<b>CONTACT NAME:</b> Laura Coleman	
	<b>PHONE (A.C. No. Ext):</b> 631-393-0500	<b>FAX (A.C. No.):</b> 631-393-0505
<b>E-MAIL ADDRESS:</b> L.Coleman@Insightins.com		
<b>INSURER(S) AFFORDING COVERAGE</b>		<b>NAIC #</b>
<b>INSURER A:</b> Wesco Insurance Company		25011
<b>INSURER B:</b>		
<b>INSURER C:</b>		
<b>INSURER D:</b>		
<b>INSURER E:</b>		
<b>INSURER F:</b>		

**INSURED**  
**Five Star Contracting Co. Inc.**  
**64 Fulton Street - Suite 703**  
**New York, NY 10038**

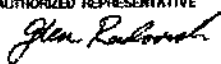
**COVERAGES****CERTIFICATE NUMBER:****REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTH	TYPE OF INSURANCE	ADDL INSR	SUBR TO/FR	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	<b>GENERAL LIABILITY</b> <input type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR  GENL AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO: <input type="checkbox"/> DEPT <input type="checkbox"/> LOC						EACH OCCURRENCE \$ DAMAGE TO RENTED PREMISES (EA OCCURRENCE) \$ MED EXP (ANY ONE PERSON) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$ PRODUCTS - COMP/OPAGG \$
A	<b>AUTOMOBILE LIABILITY</b> <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALLOWED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS  <input checked="" type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS			WPP122946500	04/04/2015	04/04/2016	COMBINED SINGLE LIMIT (EA ACCIDENT) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (PER ACCIDENT) \$ \$
	<b>UMBRELLA LIAB</b> <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS-MADE  DED: <input type="checkbox"/> RETENTION: <input type="checkbox"/>						EACH OCCURRENCE \$ AGGREGATE \$ \$
	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? <input type="checkbox"/> Y/N N/A (Mandatory in NY) If Yes, describe under DESCRIPTION OF OPERATIONS below						WC STAT/TORY LIMITS OTHER E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)  
 FMS ID KH112BEL, E-Pin 85015B0101001, DDC PIN 85020 15BL0002C, Bellevue  
 Men's Shelter Elevator Rehabilitation, Borough of Manhattan

**CERTIFICATE HOLDER****CANCELLATION**

<b>CITY OF NY</b>  <b>The City of New York</b> <b>Department of Design and</b> <b>Construction - Insurance Unit</b> <b>30-30 Thomson Avenue</b> <b>Long Island City, NY 11101</b>	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.  <b>AUTHORIZED REPRESENTATIVE</b> 
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SCHEDULE A (FOR PUBLICLY BID PROJECTS)

Relation to Article 22 - Insurance

PART III. Broker's Certification

(Pursuant to Article 22.3.3 of the Contract, every Certificate of Insurance must be accompanied by either the following certification by the broker setting forth the following text and required information and signatures or certified copies of all policies referenced in the Certificate of Insurance.)

**CERTIFICATION BY BROKER**

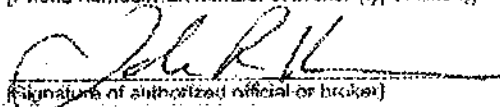
The undersigned insurance broker represents to the City of New York that the attached Certificate of Insurance is accurate in all material respects, and that the described Insurance is effective as of the date of this Certification.

Insight Companies Inc.  
[Name of broker (typewritten)]

225 Old Country Road, Melville NY 11747  
[Address of broker (typewritten)]

LColeman@insightins.com  
[Email address of broker (typewritten)]

634-393-0500  
[Phone number/Fax number of broker (typewritten)]

  
[Signature of authorized official or broker]

John R. Keane, President  
[Name and title of authorized official (typewritten)]

State of NEW YORK )  
County of Suffolk ) ss:

Sworn to before me this  
9<sup>th</sup> day of NOVEMBER, 2015

  
NOTARY PUBLIC FOR THE STATE OF NY

VIRGINIA CAPPIELLO  
Notary Public, State of New York  
No. G1CA8157198  
Qualified in Nassau County  
Commission Expires 12/31/18

**STATE OF NEW YORK  
WORKER'S COMPENSATION BOARD  
CERTIFICATE OF NYS WORKERS' COMPENSATION INSURANCE COVERAGE**

<p><b>1a. Legal Name and address of Insured (Use street address only)</b>                  Five Star Contracting                  64 Fulton Suite 703                  New York, NY 10038</p> <p>DBA: Companies Inc.</p> <p><i>Work Location of Insured (Only required if coverage is specifically limited to certain location in New York State, i.e. a Wrap-Up Policy)</i></p>	<p><b>1b. Business Telephone Number of Insured</b>                  212-406-8900</p> <p><b>1c. NYS Unemployment Insurance Employer Registration Number of Insured</b></p> <p><b>1d. Federal Employer Identification Number of Insured or Social Security Number</b>                  133983478</p>
<p><b>2. Name and Address of the Entity Requesting Proof of Coverage (Entity Being Listed as the Certificate Holder)</b>                  THE NEW YORK CITY DEPARTMENT                  OF DESIGN AND CONSTRUCTION                  30-30 THOMSON AVENUE                  LONG ISLAND CITY, NY 11401</p>	<p><b>3a. Name of Insurance Carrier</b>                  Wesco Insurance Company</p> <p><b>3b. Policy Number of entity listed in box "1a":</b>                  WWC3143791</p> <p><b>3c. Policy effective period:</b>                  5/14/2015 to 5/14/2016</p> <p><b>3d. The Proprietor, Partners or Executive Officers are:</b></p> <p><input type="checkbox"/> Included (Only check box if all partners/officers included)</p> <p><input checked="" type="checkbox"/> All excluded or certain partners/officers excluded</p>

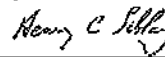
This certifies that the insurance carrier indicated above in box "3" insures the business referenced above in box "1a" for workers' compensation under the New York State Workers' Compensation Law. (To use this form, New York (NY) must be listed under Item 3A on the INFORMATION PAGE of the workers' compensation insurance policy). The Insurance Carrier or its licensed agent will send this Certificate of Insurance to the entity listed above as the certificate holder in box "2".

The Insurance Carrier will also notify the above certificate holder within 10 days IF a policy is canceled due to nonpayment of premiums or within 30 days IF there are reasons other than nonpayment of premiums that cancel the policy or eliminate the insured from the coverage indicated on this Certificate (These notices may be sent by regular mail.) Otherwise, this Certificate is valid for one year after this form is approved by the insurance carrier or its licensed agent, or until the policy expiration date listed in box "3c", whichever is earlier.

Please Note: Upon the cancellation of the workers' compensation policy indicated on this form, if the business continues to be named on a permit, license or contract issued by a certificate holder, the business must provide that certificate holder with a new Certificate of Workers' Compensation Coverage or other authorized proof that the business is complying with the mandatory coverage requirements of the New York State Workers' Compensation Law.

Under penalty of perjury, I certify that I am an authorized representative or licensed agent of the insurance carrier referenced above and that the named insured has the coverage as depicted on this form.

Approved By: Henry C. Sibley  
(Print name of authorized representative or licensed agent of insurance carrier)

Approved By:  11/6/2015  
(Signature) (Date)

Title: Underwriting Manager

Telephone Number of authorized representative or licensed agent of insurance carrier: Circle 1/Phone

Please Note: Only insurance carriers and their licensed agents are authorized to issue the C-105.2 form. Insurance brokers are NOT authorized to issue it.



### **Workers' Compensation Law**

#### **Section 57. Restriction on Issue of permits and the entering contracts unless compensation is secured.**

1. The head of a state or municipal department, board, commission or office authorized or required by law to issue any permit for or in connection with any work involving the employment of employees in a hazardous employment defined by this chapter, and notwithstanding any general or special statute requiring or authorizing the issue of such permits, shall not issue such permit unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that compensation for all employees has been secured as provided by this chapter. Nothing herein, however, shall be construed as creating any liability on the part of such state or municipal department, board, commission or office to pay any compensation to any such employee if so employed.

2. The head of a state or municipal department, board, commission or office authorized or required by law to enter into any contract for or in connection with any work involving the employment of employees in a hazardous employment defined by this chapter, notwithstanding any general or special statute requiring or authorizing any such contract, shall not enter into any such contract unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that compensation for all employees has been secured as provided by this chapter.

C-105.2 (9-07) Reverse


**CERTIFICATION BY BROKER**

The undersigned insurance broker represents to the City of New York that the attached Certificate of Insurance is accurate in all material respects, and that the described insurance is effective as of the date of this Certification.

Kimberly A. Broccoli  
[Name of broker (typewritten)]

1142B South Railroad Ave, Staten Island, New York 10306  
[Address of broker (typewritten)]

(718)980-4855 (718)980-3622  
[Phone number/fax number of broker (typewritten)]



[Signature of authorized official or broker]

Kimberly A. Broccoli  
[Name and title of authorized official (typewritten)]

State of NY

County of Richmond

Sworn to before me this

6 day of NOV 2015  
Angelo Juma

NOTARY PUBLIC FOR THE STATE OF NY

ANGELO J. PUMA  
Notary Public, State of New York  
No. 01PU6254912  
Qualified in Richmond County  
Commission Expires January 30, 2016

NAIC 81434

STATE OF NEW YORK  
WORKER'S COMPENSATION BOARD  
CERTIFICATE OF INSURANCE COVERAGE UNDER THE NYS DISABILITY BENEFITS LAW

PART 1. To be completed by Disability Benefits Carrier or Licensed Insurance Agent of that Carrier

<p>1a. Legal Name and Address of Insured (Use street address only) <b>FIVE STAR CONTRACTING COMPANIES INC.</b></p> <p><b>64 FULTON STREET, SUITE 703 NEW YORK, NY 10038</b></p>	<p>1b. Business Telephone Number of Insured 212-406-8900</p> <p>1c. NYS Unemployment Insurance Employer Registration Number of Insured</p> <p>1d. Federal Employer Identification Number of Insured or Social Security Number 133983478</p>
<p>2. Name and Address of the Entity requesting Proof of Coverage (Entity being listed as the Certificate Holder) <b>The New York City Department of Design and Construction 30-30 Thomson Avenue Long Island City, New York 11101</b></p>	<p>3a. Name of Insurance Carrier <b>ShelterPoint Life Insurance Company</b></p> <p>3b. Policy Number of Entity listed in box "1a": DBL463712</p> <p>3c. Policy effective period: 05/14/2015 to 05/13/2016</p>

4. Policy covers:

a.  All of the employer's employees eligible under the New York Disability Benefits Law

b.  Only the following class or classes of the employer's employees:

Under penalty of perjury, I certify that I am an authorized representative or licensed agent of the insurance carrier referenced above and that the named insured has NYS Disability Benefits insurance coverage as described above.

Date Signed 11/6/2015 By   
(Signature of insurance carrier's authorized representative or NYS Licensed Insurance Agent of that insurance carrier)

Telephone Number 516-829-8100 Title Chief Executive Officer

**IMPORTANT:** If box "4a" is checked, and this form is signed by the insurance carrier's authorized representative or NYS Licensed Insurance Agent of that carrier, this certificate is COMPLETE. Mail it directly to the certificate holder.  
If box "4b" is checked, this certificate is NOT COMPLETE for the purposes of Section 220, Subd. 8 of the Disability Benefits Law. It must be mailed for completion to the Worker's Compensation Board, DB Plans Acceptance Unit, 328 State Street, Schenectady, NY 12305.

PART 2. To be completed by NYS Worker's Compensation Board (Only if box "4b" of Part 1 has been checked)

**State of New York  
Worker's Compensation Board**

According to information maintained by the NYS Worker's Compensation Board, the above named employer has complied with the NYS Disability Benefits Law with respect to all of his/her employees.

Date Signed \_\_\_\_\_ By \_\_\_\_\_  
(Signature of NYS Worker's Compensation Board Employee)

Telephone Number \_\_\_\_\_ Title \_\_\_\_\_

Please Note: Only insurance carriers licensed to write NYS Disability Benefits insurance policies and NYS Licensed Insurance Agents of those insurance carriers are authorized to issue Form DB-120.1. Insurance brokers are NOT authorized to issue this form.

### Additional Instructions for Form DB-120.1

By signing this form, the insurance carrier identified in Box "3" on this form is certifying that it is insuring the business referenced in Box "1a" for disability benefits under the New York State Disability Benefits Law. The insurance carrier or its licensed agent will send this Certificate of Insurance to the entity listed as the certificate holder in Box "2". This certificate is valid for the earlier of one year after this form is approved by the insurance carrier or its licensed agent, or the policy expiration date listed in Box "3c".

Please Note: Upon the cancellation of the disability benefits policy indicated on this form, if the business continues to be named on a permit, license or contract issued by a certificate holder, the business must provide that certificate holder with a new Certificate of NYS Disability Benefits Coverage or other authorized proof that the business is complying with the mandatory coverage requirements of the New York State Disability Benefits Law.

### DISABILITY BENEFITS LAW

#### §220. Subd. 8

(a) The head of state or municipal department, board, commission or office authorized or required by law to issue any permit for or in connection with any work involving the employment of employees in employment as defined in this article, and notwithstanding any general or special statute requiring or authorizing the issue of such permits, shall not issue such permit unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that the payment of disability benefits for all employees has been secured as provided by this article. Nothing herein, however, shall be construed as creating any liability on the part of such state or municipal department, board, commission or office to pay any disability benefits to any such employee if so employed.

(b) The head of state or municipal department, board, commission, or office authorized or required by law to enter into any contract for or in connection with any work involving the employment of employees in employment as defined in this article, and notwithstanding any general or special statute requiring or authorizing any such contract, shall not enter into any such contract unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that the payment of disability benefits for all employees has been secured as provided by this article.

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of \_\_\_\_\_ County of \_\_\_\_\_ ss:

On this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ before me personally came \_\_\_\_\_ to me known, who, being by me duly sworn did depose and say that he/she resides at \_\_\_\_\_; that he/she is the \_\_\_\_\_ of \_\_\_\_\_ the corporation described in and which executed the foregoing instrument; and that he signed his name to the foregoing instrument by order of the directors of said corporation as the duly authorized and binding act thereof.

\_\_\_\_\_  
Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP

State of \_\_\_\_\_ County of \_\_\_\_\_ ss:

On this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ before me personally came \_\_\_\_\_ to me known, who, being by me duly sworn did depose and say that he/she resides at \_\_\_\_\_; that he/she is \_\_\_\_\_ partner of \_\_\_\_\_, a limited/general partnership existing under the laws of the State of \_\_\_\_\_ the partnership described in and which executed the foregoing instrument; and that he/she signed his/her name to the foregoing instrument as the duly authorized and binding act of said partnership.

\_\_\_\_\_  
Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of \_\_\_\_\_ County of \_\_\_\_\_ ss:

On this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_ before me personally came \_\_\_\_\_ to me known, who, being by me duly sworn did depose and say that he/she resides at \_\_\_\_\_, and that he/she is the individual whose name is subscribed to the within instrument and acknowledged to me that by his/her signature on the instrument, said individual executed the instrument.

\_\_\_\_\_  
Notary Public or Commissioner of Deeds

Each executed bond should be accompanied by: (a) appropriate acknowledgments of the respective parties; (b) appropriate duly certified copy of Power of Attorney or other certificate of authority where bond is executed by agent, officer or other representative of Principal or Surety; (c) a duly certified extract from By-Laws or resolutions of Surety under which Power of Attorney or other certificate of authority of its agent, officer or representative was issued, and (d) certified copy of latest published financial statement of assets and liabilities of Surety.

\* \* \* \* \*

Affix Acknowledgments and Justification of Sureties.

**Payment Bond (Pages 98 to 101): Use for any contract for which a Payment Bond is required.**

PAYMENT BOND (Page 1)

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS, That we, \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

hereinafter referred to as the "Principal", and \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

hereinafter referred to as the "Surety" ("Sureties") are held and firmly bound to THE CITY OF NEW YORK, hereinafter referred to as the "City" or to its successors and assigns, in the penal sum of

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(\$ \_\_\_\_\_) Dollars, lawful money of the United States, for the payment of which said sum of money well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal is about to enter, or has entered, into a Contract in writing with the City for

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

a copy of which Contract is annexed to and hereby made a part of this bond as though herein set forth in full;

NOW, THEREFORE, the conditions of this obligation are such that if the Principal, his or its representatives or assigns and other Subcontractors to whom Work under this Contract is sublet and his or their successors and assigns shall promptly pay or cause to be paid all lawful claims for

(a) Wages and compensation for labor performed and services rendered by all persons engaged in the prosecution of the Work under said Contract, and any amendment or extension thereof or addition thereto, whether such persons be agents servants or employees of the Principal or any such Subcontractor, including all persons so

**Payment Bond (Pages 98 to 101): Use for any contract for which a Payment Bond is required.**

PAYMENT BOND (Page 2)

engaged who perform the work of laborers or mechanics at or in the vicinity of the site of the Project regardless of any contractual relationship between the Principal or such Subcontractors, or his or their successors or assigns, on the one hand and such laborers or mechanics on the other, but not including office employees not regularly stationed at the site of the project; and

(b) Materials and supplies (whether incorporated in the permanent structure or not), as well as teams, fuels, oils, implements or machinery furnished, used or consumed by said Principal or any subcontractor at or in the vicinity of the site of the Project in the prosecution of the Work under said Contract and any amendment or extension thereof or addition thereto; then this obligation shall be void, otherwise to remain in full force and effect.

This bond is subject to the following additional conditions, limitations and agreements:

(a) The Principal and Surety (Sureties) agree that this bond shall be for the benefit of any materialmen or laborer having a just claim, as well as the City itself.

(b) All persons who have performed labor, rendered services or furnished materials and supplies, as aforesaid, shall have a direct right of action against the Principal and his, its or their successors and assigns, and the Surety (Sureties) herein, or against either or both or any of them and their successors and assigns. Such persons may sue in their own name, and may prosecute the suit to judgment and execution without the necessity of joining with any other persons as party plaintiff.

(c) The Principal and Surety (Sureties) agree that neither of them will hold the City liable for any judgment for costs of otherwise, obtained by either or both of them against a laborer or materialman in a suit brought by either a laborer or materialman under this bond for moneys allegedly due for performing work or furnishing material.

(d) The Surety (Sureties) or its successors and assigns shall not be liable for any compensation recoverable by an employee or laborer under the Workmen's Compensation Law.

(e) In no event shall the Surety (Sureties), or its successors or assigns, be liable for a greater sum than the penalty of this bond or be subject to any suit, action or proceeding hereon that is instituted by any person, firm, or corporation hereunder later than two years after the complete performance of said Contract and final settlement thereof.

The Principal, for himself and his successors and assigns, and the Surety (Sureties), for itself and its successors and assigns, do hereby expressly waive any objection that might be interposed as to the right of the City to require a bond containing the foregoing provisions, and they do hereby further expressly waive any defense which they or either of them might interpose to an action brought hereon by any person, firm or corporation, including subcontractors, materialmen and third persons, for work, labor, services, supplies or material performed rendered, or furnished as aforesaid upon the ground that there is no law authorizing the City to require the foregoing provisions to be placed in this bond.

And the Surety (Sureties), for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of said Surety (Sureties), and its bonds shall be in no way impaired or affected by any extension of time, modification, omission, addition, or change in or of the said Contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any part thereof, or of any Work to be performed, or any moneys due to become due thereunder and said Surety (Sureties) does hereby waive notice of any and all of such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers, and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees, Subcontractors, and other transferees shall have the same effect as to said Surety (Sureties) as though done or omitted to be done or in relation to said Principal.

**Payment Bond (Pages 98 to 101): Use for any contract for which a Payment Bond is required.**

PAYMENT BOND (Page 3)

IN WITNESS HEREOF, the Principal and the Surety (Sureties) have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereunto affixed and these presents to be signed by their proper officers, this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

(Seal) \_\_\_\_\_ (L.S.)  
Principal

By: \_\_\_\_\_

(Seal) \_\_\_\_\_  
Surety

By: \_\_\_\_\_

(Seal) \_\_\_\_\_  
Surety

By: \_\_\_\_\_

(Seal) \_\_\_\_\_  
Surety

By: \_\_\_\_\_

(Seal) \_\_\_\_\_  
Surety

By: \_\_\_\_\_

If the Contractor (Principal) is a partnership, the bond should be signed by each of the individuals who are partners.

If the Contractor (Principal) is a corporation, the bond should be signed in its correct corporate name by a duly authorized officer, agent, or attorney-in-fact.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Contract.



Payment Bond (Pages 98 to 101): Use for any contract for which a Payment Bond is required.

PAYMENT BOND (Page 4)

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of \_\_\_\_\_ County of \_\_\_\_\_ ss:

On this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ before me personally came to me known, who, being by me duly sworn did depose and say that he resides at \_\_\_\_\_ that he is the \_\_\_\_\_ of the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation, and that he signed his name thereto by like order.

\_\_\_\_\_  
Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP

State of \_\_\_\_\_ County of \_\_\_\_\_ ss:

On this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ before me personally appeared to me known, and known to me to be one of the members of the firm of \_\_\_\_\_ described in and who executed the foregoing instrument; and he acknowledged to me that he executed the same as and for the act and deed of said firm.

\_\_\_\_\_  
Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of \_\_\_\_\_ County of \_\_\_\_\_ ss:

On this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ before me personally appeared to me known, and known to me to be the person described in and who executed the foregoing instrument; and acknowledged that he executed the same.

\_\_\_\_\_  
Notary Public or Commissioner of Deeds

Each executed bond should be accompanied by: (a) appropriate acknowledgments of the respective parties; (b) appropriate duly certified copy of Power of Attorney or other certificate of authority where bond is executed by agent, officer or other representative of Principal or Surety; (c) a duly certified extract from By-Laws or resolutions of Surety under which Power of Attorney or other certificate of authority of its agent, officer or representative was issued, and (d) certified copy of latest published financial statement of assets and liabilities of Surety.

\* \* \* \* \*

Affix Acknowledgments and Justification of Sureties

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OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

LABOR LAW §220 PREVAILING WAGE SCHEDULE

Workers, Laborers and Mechanics employed on a public work project must receive not less than the prevailing rate of wage and benefits for the classification of work performed by each upon such public work. Pursuant to Labor Law §220 the Comptroller of the City of New York has promulgated this schedule solely for Workers, Laborers and Mechanics engaged by private contractors on New York City public work contracts.

This schedule is a compilation of separate determinations of the prevailing rate of wage and supplements made by the Comptroller for each trade classification listed herein pursuant to New York State Labor Law section 220 (5). The source of the wage and supplement rates, whether a collective bargaining agreement, survey data or other, is listed at the end of each classification.

Agency Chief Contracting Officers should contact the Bureau of Labor Law's Classification Unit with any questions concerning trade classifications, prevailing rates or prevailing practices with respect to procurement on New York City public works contracts. Contractors are advised to review the Comptroller's Prevailing Wage Schedule before bidding on public works contracts. Contractors with questions concerning trade classifications, prevailing rates or prevailing practices with respect to public works contracts in the procurement stage must contact the contracting agency responsible for the procurement.

Any error as to compensation under the prevailing wage law or other information as to trade classification, made by the contracting agency in the contract documents or in any other communication, will not preclude a finding against the contractor of prevailing wage violation.

Any questions concerning trade classifications, prevailing rates or prevailing practices on New York City public works contracts that have already been awarded may be directed to the Bureau of Labor Law's Classification Unit by calling (212) 669-7974. All callers must have the agency name and contract registration number available when calling with questions on public works contracts. Please direct all other compliance issues to: Bureau of Labor Law, Attn: Wasyl Kinach, P.E., Office of the Comptroller, 1 Centre Street, Room 1122, New York, N.Y. 10007; Fax (212) 669-4002.

The appropriate schedule of prevailing wages and benefits must be posted at all public work sites pursuant to Labor Law §220 (3-a) (a).

This schedule is applicable to work performed during the effective period, unless otherwise noted. Changes to this schedule are published on our web site [www.comptroller.nyc.gov](http://www.comptroller.nyc.gov). Contractors must pay the wages and supplements in effect when the worker, laborer, mechanic performs the work. Preliminary schedules for future one-year periods appear in the City Record on or about June 1 each succeeding year. Final schedules appear on or about July 1 in the City Record and on our web site [www.comptroller.nyc.gov](http://www.comptroller.nyc.gov).

The Comptroller's Office has attempted to include all overtime, shift and night differential, Holiday, Saturday, Sunday or other premium time work. However, this schedule does not set forth every prevailing practice with respect to such rates with which employers must comply. All such practices are nevertheless part of the employer's prevailing wage obligation and contained in the collective bargaining agreements of the prevailing wage unions. These collective bargaining agreements are available for inspection by appointment. Requests for appointments may be made by calling (212) 669-4443, Monday through Friday between the hours of 9 a.m. and 5 p.m.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

Prevailing rates and ratios for apprentices are attached to this schedule in the Appendix. Pursuant to Labor Law §220 (3-e), only apprentices who are individually registered in a bona fide program to which the employer contractor is a participant, registered with the New York State Department of Labor, may be employed on a public work project. Workers who are not journey persons or not registered apprentices pursuant to Labor Law §220 (3-e) may not be substituted for apprentices and must be paid as journey persons.

Public Work construction, reconstruction, demolition, excavation, rehabilitation, repair, renovation, alteration, or improvement contracts awarded pursuant to a Project Labor Agreement ("PLA") in accordance with Labor Law section 222 may have different labor standards for shift, premium and overtime work. Please refer to the PLA's pre-negotiated labor agreements for wage and benefit rates applicable to work performed outside of the regular workday. More information is available at the Mayor's Office of Contract Services (MOCS) web page at <http://www.nyc.gov/html/mocs/html/vendors/pla.shtml>.

All the provisions of Labor Law section 220 remain applicable to PLA work including, but not limited to, the enforcement of prevailing wage requirements by the Comptroller; however, we will enforce shift, premium, overtime and other non-standard rates as they appear in a project's pre-negotiated labor agreement.

In order to meet their obligation to provide prevailing supplemental benefits to each covered employee, employers must either:

- 1) Provide bona-fide benefits which cost the employer no less than the prevailing supplemental benefits rate; or
- 2) Supplement the employee's hourly wage by an amount no less than the prevailing supplemental benefits rate; or
- 3) Provide a combination of bona-fide benefits and wage supplements which cost the employer no less than the prevailing supplemental benefits rate in total.

Particular attention should be given to the supplemental benefits requirement. Although in most instances the payment or provision for supplemental benefits is for each hour worked, some classifications require the payment or provision of supplemental benefits for each hour paid. Consequently, some prevailing practices require benefits to be purchased at the overtime, shift differential, Holiday, Saturday, Sunday or other premium time rate.

**Benefits are paid for EACH HOUR WORKED unless otherwise noted.**

Wasył Kinach, P.E.  
Director of Classifications  
Bureau of Labor Law

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

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§220 PREVAILING WAGE SCHEDULE

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## **ASBESTOS HANDLER**

(Hazardous Material; Disturbs, removes, encapsulates, repairs, or encloses friable asbestos material)

### **Asbestos Handler**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$36.00**

Supplemental Benefit Rate per Hour: **\$15.45**

### **Overtime**

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Sunday.

Time and one half the regular hourly rate after 40 hours in any work week.

### **Overtime Holidays**

Time and one half the regular rate for work on the following holiday(s).

New Year's Day

Good Friday

Memorial Day

Independence Day

Labor Day

Thanksgiving Day

Christmas Day

Easter

### **Paid Holidays**

None

(Local #78 and Local #12A)

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## **BLASTER**

### **Blaster**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$45.70**

Supplemental Benefit Rate per Hour: **\$39.69**

### **Blaster (Hydraulic)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$46.49**

Supplemental Benefit Rate per Hour: **\$39.69**

**Blaster - Trac Drill Hydraulic**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$41.20  
Supplemental Benefit Rate per Hour: \$39.69

**Blaster - Wagon: Air Trac: Quarry Bar: Drillrunners**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$40.44  
Supplemental Benefit Rate per Hour: \$39.69

**Blaster - Operators of Jack Hammers**

Chippers: Spaders: Concrete Breakers: and all other pneumatic tools of like usage: Walk Behind Self Propelled Hydraulic Asphalt and Concrete Breakers: Hydro (Water) Demolition

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$39.43  
Supplemental Benefit Rate per Hour: \$39.69

**Blaster - Powder Carriers**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$35.66  
Supplemental Benefit Rate per Hour: \$39.69

**Blaster - Hydraulic Trac Drill Chuck Tender**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$34.42  
Supplemental Benefit Rate per Hour: \$39.69

**Blaster - Chuck Tender & Nipper**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$33.69  
Supplemental Benefit Rate per Hour: \$39.69

**Blaster - Magazine Keepers: (Watch Person)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$20.30  
Supplemental Benefit Rate per Hour: \$39.69

**Overtime Description**

Magazine Keepers:



OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

Time and one half for work performed in excess of forty (40) hours per week and for work performed on Saturdays, Sundays and Holidays.

**All Other Employees:**

Time and one-half for the first eight hours of work on Saturday and for Make-up Time. Double time for all hours over eight Monday through Friday (except make-up hours) and for all hours worked on Sunday and Holidays.

**Overtime**

Double time the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

**Overtime Holidays**

Double time the regular rate for work on the following holiday(s).

New Year's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Presidential Election Day

Thanksgiving Day

Christmas Day

**Paid Holidays**

None

**Shift Rates**

A single shift shall be 8 hours plus an unpaid lunch, starting at 8:00 A.M (or between 6:00 A.M. and 10:00 A.M. on weekdays). When two (2) shifts are employed, each shift shall be 8 hours plus ½ hour unpaid lunch. When three (3) shifts are employed, each shift will work seven and one-half (7 ½) hours, but will be paid for eight (8) hours, since only one-half (½) hour is allowed for mealtime. When two (2) or more shifts are employed, single time will be paid for each shift. The first 8 hours of any and all work performed Monday through Friday inclusive of any off-shift shall be at the single time rate.

(Local #29)

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**BOILERMAKER**

**Boilermaker**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$50.45**

Supplemental Benefit Rate per Hour: **\$41.31**

Supplemental Note: For time and one half overtime - \$61.37; For double overtime - \$81.43.

**Overtime Description**

For Repair and Maintenance work:

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

Double time the regular rate for Sunday.  
For New Construction work:  
Double time the regular rate after an 8 hour day.  
Double time the regular time rate for Saturday.  
Double time the regular rate for Sunday.

### Overtime Holidays

Double time the regular rate for work on the following holiday(s).

New Year's Day  
President's Day  
Memorial Day  
Independence Day  
Columbus Day  
Election Day  
Veteran's Day  
Thanksgiving Day  
Christmas Day

Quadruple time the regular rate for work on the following holiday(s).

Labor Day

### Paid Holidays

Good Friday  
Day after Thanksgiving  
Day before Christmas  
Day before New Year's Day

### Shift Rates

When shifts are required, the first shift shall work eight (8) hours at the regular straight-time hourly rate. The second shift shall work seven and one-half (7 ½) hours and receive eight hours at the regular straight time hourly rate plus twenty-five cents (\$0.25) per hour. The third shift shall work seven (7) hours and receive eight hours at the regular straight time hourly rate plus fifty cents (\$0.50) per hour. A thirty (30) minute lunch period shall not be considered as time worked. Work in excess of the above shall be paid overtime at the appropriate new construction work or repair work overtime wage and supplemental benefit hourly rate.

(Local #5)

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## BRICKLAYER

### Bricklayer

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$47.78

Supplemental Benefit Rate per Hour: \$28.03

### Overtime

Time and one half the regular rate after a 7 hour day.  
Time and one half the regular rate for Saturday.  
Double time the regular rate for Sunday.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

### Overtime Holidays

Double time the regular rate for work on the following holiday(s).

New Year's Day  
Memorial Day  
Independence Day  
Labor Day  
Thanksgiving Day  
Christmas Day

### Paid Holidays

None

### Shift Rates

Overtime rates to be paid outside the regular scheduled work day.

(Bricklayer District Council)

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## CARPENTER - BUILDING COMMERCIAL

### Building Commercial

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$49.88

Supplemental Benefit Rate per Hour: \$44.10

### Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

### Overtime Holidays

Double time the regular rate for work on the following holiday(s).

New Year's Day  
Washington's Birthday  
Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Presidential Election Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

**Paid Holidays**

None

**Shift Rates**

The second shift will receive one hour at the double time rate of pay for the last hour of the shift; eight hours pay for seven hours of work, nine hours pay for eight hours of work. There must be a first shift in order to work a second shift.

(Carpenters District Council)

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**CARPENTER - HEAVY CONSTRUCTION WORK  
(Construction of Engineering Structures and Building Foundations)**

**Heavy Construction Work**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$48.35

Supplemental Benefit Rate per Hour: \$46.12

**Overtime**

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

**Overtime Holidays**

Double time the regular rate for work on the following holiday(s).

New Year's Day

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Presidential Election Day

Thanksgiving Day

Christmas Day

**Paid Holidays**

None

**Shift Rates**

Off shift work commencing between 5:00 P.M. and 11:00 P.M. shall work eight and one half hours allowing for one half hour for lunch. The wage rate shall be 113% of the straight time hourly wage rate.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

(Carpenters District Council)

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## CEMENT & CONCRETE WORKER

### Cement & Concrete Worker

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$42.38**

Supplemental Benefit Rate per Hour: **\$26.17**

Supplemental Note: **\$28.92 on Saturdays; \$31.67 on Sundays & Holidays**

### Overtime Description

Time and one half the regular rate after 7 hour day (time and one half the regular rate after an 8 hour day when working with Dockbuilders on pile cap forms and for work below street level to the top of the foundation wall, not to exceed 2 feet or 3 feet above the sidewalk-brick shelf, when working on the foundation and structure.)

### Overtime

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

### Overtime Holidays

Double time the regular rate for work on the following holiday(s).

New Year's Day

President's Day

Good Friday

Memorial Day

Independence Day

Labor Day

Columbus Day

Presidential Election Day

Thanksgiving Day

Christmas Day

### Paid Holidays

1/2 day before Christmas Day

1/2 day before New Year's Day

### Shift Rates

On shift work extending over a twenty-four hour period, all shifts are paid at straight time.

(Cement Concrete Workers District Council)

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## CEMENT MASON

### Cement Mason

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$38.88

Supplemental Benefit Rate per Hour: \$39.80

Supplemental Note: For time and one half overtime - \$49.05; For double overtime - \$58.30

### Overtime Description

Time and one-half the regular rate after an 8 hour day, double time the regular rate after 10 hours. Time and one-half the regular rate on Saturday, double time the regular rate after 10 hours. Double time the regular rate on Sunday.

### Overtime Holidays

Double time the regular rate for work on the following holiday(s).

New Year's Day

President's Day

Good Friday

Memorial Day

Independence Day

Labor Day

Columbus Day

Presidential Election Day

Thanksgiving Day

Christmas Day

### Paid Holidays

Any worker who reports to work on Christmas Eve or New Year's Eve pursuant to his employer's instruction shall be entitled to three (3) hours afternoon pay without working.

### Shift Rates

For an off shift day, (work at times other than the regular 7:00 A.M. to 3:30 P.M. work day) a cement mason shall be paid at the regular hourly rate plus a 25% per hour differential. Four Days a week at Ten (10)hour day.

(Local #780)

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## CORE DRILLER

### Core Driller

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$35.71

Supplemental Benefit Rate per Hour: \$21.69

### Core Driller Helper

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$28.60

Supplemental Benefit Rate per Hour: \$21.69

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

**Core Driller Helper(Third year in the industry)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$25.74

Supplemental Benefit Rate per Hour: \$21.69

**Core Driller Helper (Second year in the industry)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$22.88

Supplemental Benefit Rate per Hour: \$21.69

**Core Driller Helper (First year in the industry)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$20.02

Supplemental Benefit Rate per Hour: \$21.69

**Overtime Description**

Time and one half the regular rate for work on a holiday plus Holiday pay when worked.

**Overtime**

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Time and one half the regular rate for work on the following holiday(s).

**Paid Holidays**

New Year's Day

Memorial Day

Independence Day

Labor Day

Thanksgiving Day

Christmas Day

**Shift Rates**

The shift day shall be the continuous eight and one-half (8½) hours from 6:00 A.M. to 2:30 P.M. and from 2:30 P.M. to 11:00 P.M., including one-half (½) hour of employees regular rate of pay for lunch. When two (2) or more shifts are employed, single time shall be paid for each shift, but those employees employed on a shift other than from 8:00 A.M. to 5:00 P.M. shall, in addition, receive seventy-five cents (\$0.75) per hour differential for each hour worked. When three (3) shifts are needed, each shift shall work seven and one-half (7 ½) hours paid for eight (8) hours of labor and be permitted one-half (½) hour for mealtime.

(Carpenters District Council)

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OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

**DERRICKPERSON AND RIGGER**

**Derrick Person & Rigger**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$42.25

Supplemental Benefit Rate per Hour: \$47.81

Supplemental Note: The above supplemental rate applies for work performed in Manhattan, Bronx, Brooklyn and Queens. \$49.23 - For work performed in Staten Island.

**Overtime Description**

The first two hours of overtime on weekdays and the first seven hours of work on Saturdays are paid at time and one half for wages and supplemental benefits. All additional overtimes is paid at double time for wages and supplemental benefits. Deduct \$1.42 from the Staten Island hourly benefits rate before computing overtime.

**Overtime**

Double time the regular rate for Sunday.

**Overtime Holidays**

Double time the regular rate for work on the following holiday(s).

New Year's Day

Washington's Birthday

Good Friday

Memorial Day

Independence Day

Labor Day

Thanksgiving Day

Christmas Day

**Paid Holidays**

1/2 day on Christmas Eve if work is performed in the A.M.

(Local #197)

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**DIVER**

**Diver (Marine)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$61.30

Supplemental Benefit Rate per Hour: \$46.12

**Diver Tender (Marine)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$43.45

Supplemental Benefit Rate per Hour: \$46.12



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**Overtime**

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

**Overtime Holidays**

Double time the regular rate for work on the following holiday(s).

New Year's Day

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Presidential Election Day

Thanksgiving Day

Christmas Day

**Paid Holidays**

None

**Shift Rates**

When three shifts are utilized each shift shall work seven and one half-hours (7 1/2 hours) and paid for 8 hours, allowing for one half hour for lunch.

(Carpenters District Council)

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**DOCKBUILDER - PILE DRIVER**

**Dockbuilder - Pile Driver**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$48.35

Supplemental Benefit Rate per Hour: \$46.12

**Overtime**

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

**Overtime Holidays**

Double time the regular rate for work on the following holiday(s).

New Year's Day

President's Day

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Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Presidential Election Day  
Thanksgiving Day  
Christmas Day

### **Paid Holidays**

None

### **Shift Rates**

Off shift work commencing between 5:00 P.M. and 11:00 P.M. shall work eight and one half hours allowing for one half hour for lunch. The wage rate shall be 113% of the straight time hourly wage rate.

(Carpenters District Council)

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## **DRIVER: TRUCK (TEAMSTER)**

### **Driver - Dump Truck**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$38.86**

Supplemental Benefit Rate per Hour: **\$40.44**

Supplemental Note: Over 40 hours worked: time and one half rate \$16.94, double time rate \$22.59

### **Driver - Tractor Trailer**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$38.88**

Supplemental Benefit Rate per Hour: **\$41.70**

Supplemental Note: For over 40 hours worked: at time and one half - \$15.90; at double time - \$21.21

### **Driver - Euclid & Turnpull Operator**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$39.44**

Supplemental Benefit Rate per Hour: **\$41.70**

Supplemental Note: Over 40 hours worked: time and one half rate \$15.90, double time rate \$21.21

### **Overtime Description**

For Paid Holidays: Holiday pay for all holidays shall be prorated based two hours per day for each day worked in the holiday week, not to exceed 8 hours of holiday pay. For Thanksgiving week, the prorated share shall be 5 1/3 hours of holiday pay for each day worked in Thanksgiving week.

### **Overtime**

Time and one half the regular rate after an 8 hour day.

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Time and one half the regular rate for Saturday.  
Double time the regular rate for Sunday.

### Overtime Holidays

Double time the regular rate for work on the following holiday(s).

New Year's Day  
President's Day  
Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Veteran's Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day

### Paid Holidays

New Year's Day  
President's Day  
Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Veteran's Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day

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### Driver Redi-Mix (Sand & Gravel)

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$36.05

Supplemental Benefit Rate per Hour: \$38.60

Supplemental Note: Over 40 hours worked: time and one half rate \$13.53, double time rate \$18.04

### Overtime Description

For Paid Holidays: Employees working two (2) days in the calendar week in which the holiday falls are to paid for these holidays, provided they shape each remaining workday during that calendar week.

### Overtime

Time and one half the regular rate after an 8 hour day.  
Time and one half the regular rate for Saturday.  
Double time the regular rate for Sunday.

### Overtime Holidays

Double time the regular rate for work on the following holiday(s).

President's Day  
Columbus Day  
Veteran's Day

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
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Triple time the regular rate for work on the following holiday(s).

New Year's Day  
Memorial Day  
Independence Day  
Labor Day  
Thanksgiving Day  
Christmas Day

**Paid Holidays**

New Year's Day  
President's Day  
Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Election Day  
Thanksgiving Day  
Christmas Day

(Local #282)

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**ELECTRICIAN**

(Including all low voltage cabling carrying data; video; and voice in combination with data and or video.)

**Electrician "A" (Regular Day)**

Effective Period: 7/1/2014 - 5/12/2015

Wage Rate per Hour: \$53.00

Supplemental Benefit Rate per Hour: \$47.54

Effective Period: 5/13/2015 - 6/30/2015

Wage Rate per Hour: \$54.00

Supplemental Benefit Rate per Hour: \$50.03

**Electrician "A" (Regular Day Overtime)**

Effective Period: 7/1/2014 - 5/12/2015

Wage Rate per Hour: \$79.50

Supplemental Benefit Rate per Hour: \$50.86

Effective Period: 5/13/2015 - 6/30/2015

Wage Rate per Hour: \$81.00

Supplemental Benefit Rate per Hour: \$53.41

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
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**Electrician "A" (Day Shift)**

Effective Period: 7/1/2014 - 5/12/2015

Wage Rate per Hour: **\$53.00**

Supplemental Benefit Rate per Hour: **\$47.54**

Effective Period: 5/13/2015 - 6/30/2015

Wage Rate per Hour: **\$54.00**

Supplemental Benefit Rate per Hour: **\$50.03**

**Electrician "A" (Day Shift Overtime After 8 hours)**

Effective Period: 7/1/2014 - 5/12/2015

Wage Rate per Hour: **\$79.50**

Supplemental Benefit Rate per Hour: **\$50.86**

Effective Period: 5/13/2015 - 6/30/2015

Wage Rate per Hour: **\$81.00**

Supplemental Benefit Rate per Hour: **\$53.41**

**Electrician "A" (Swing Shift)**

Effective Period: 7/1/2014 - 5/12/2015

Wage Rate per Hour: **\$62.19**

Supplemental Benefit Rate per Hour: **\$54.07**

Effective Period: 5/13/2015 - 6/30/2015

Wage Rate per Hour: **\$63.36**

Supplemental Benefit Rate per Hour: **\$56.94**

**Electrician "A" (Swing Shift Overtime After 7.5 hours)**

Effective Period: 7/1/2014 - 5/12/2015

Wage Rate per Hour: **\$93.29**

Supplemental Benefit Rate per Hour: **\$57.97**

Effective Period: 5/13/2015 - 6/30/2015

Wage Rate per Hour: **\$95.04**

Supplemental Benefit Rate per Hour: **\$60.91**

**Electrician "A" (Graveyard Shift)**

Effective Period: 7/1/2014 - 5/12/2015

Wage Rate per Hour: **\$69.66**

Supplemental Benefit Rate per Hour: **\$59.59**

Effective Period: 5/13/2015 - 6/30/2015

Wage Rate per Hour: **\$70.97**

Supplemental Benefit Rate per Hour: **\$62.78**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
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**Electrician "A" (Graveyard Shift Overtime After 7 hours)**

Effective Period: 7/1/2014 - 5/12/2015

Wage Rate per Hour: **\$104.49**

Supplemental Benefit Rate per Hour: **\$63.96**

Effective Period: 5/13/2015 - 6/30/2015

Wage Rate per Hour: **\$106.46**

Supplemental Benefit Rate per Hour: **\$67.23**

**Overtime**

Time and one half the regular rate after a 7 hour day.

Time and one half the regular rate for Saturday.

Time and one half the regular rate for Sunday.

**Overtime Holidays**

Time and one half the regular rate for work on a holiday.

New Year's Day

Martin Luther King Jr. Day

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Veteran's Day

Thanksgiving Day

Day after Thanksgiving

Christmas Day

**Paid Holidays**

None

**Shift Rates**

When so elected by the Employer, one or more shifts of at least five days duration may be scheduled as follows:

Day Shift: 8:00 am to 4:30 pm, Swing Shift 4:30 pm to 12:30 am, Graveyard Shift: 12:30 am to 8:00 am.

For multiple shifts of temporary light and/or power, the temporary light and/or power employee shall be paid for 8 hours at the straight time rate. For three or less workers performing 8 hours temporary light and/or power the supplemental benefit rate is \$23.63. Effective 5/13/2015 - \$24.39.

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**Electrician "M" (First 8 hours)**

"M" rated work shall be defined as jobbing: electrical work of limited duration and scope, also consisting of repairs and/or replacement of electrical and tele-data equipment. Includes all work necessary to retrofit, service, maintain and repair all kinds of lighting fixtures and local lighting controls and washing and cleaning of foregoing fixtures.

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Effective Period: 7/1/2014 - 5/12/2015

Wage Rate per Hour: **\$27.00**

Supplemental Benefit Rate per Hour: **\$20.32**

First and Second Year "M" Wage Rate Per Hour - Hired on or before 5/10/07: **\$26.30**

First and Second Year "M" Supplemental Rate- Hired on or before 5/10/07: **\$19.96**

First and Second Year "M" Wage Rate Per Hour - Hired after 5/10/07: **\$22.50**

First and Second Year "M" Supplemental Rate- Hired after 5/10/07: **\$18.06**

Effective Period: 5/13/2015 - 6/30/2015

Wage Rate per Hour: **\$27.50**

Supplemental Benefit Rate per Hour: **\$20.82**

First and Second Year "M" Wage Rate Per Hour - Hired on or before 5/10/07: **\$26.80**

First and Second Year "M" Supplemental Rate- Hired on or before 5/10/07: **\$20.46**

First and Second Year "M" Wage Rate Per Hour - Hired after 5/10/07: **\$23.00**

First and Second Year "M" Supplemental Rate- Hired after 5/10/07: **\$18.56**

### Electrician "M" (Overtime After First 8 hours)

"M" rated work shall be defined as jobbing: electrical work of limited duration and scope, also consisting of repairs and/or replacement of electrical and tele-data equipment. Includes all work necessary to retrofit, service, maintain and repair all kinds of lighting fixtures and local lighting controls and washing and cleaning of foregoing fixtures.

Effective Period: 7/1/2014 - 5/12/2015

Wage Rate per Hour: **\$40.50**

Supplemental Benefit Rate per Hour: **\$22.01**

First and Second Year "M" Wage Rate Per Hour - Hired on or before 5/10/07: **\$39.45**

First and Second Year "M" Supplemental Rate- Hired on or before 5/10/07: **\$21.61**

First and Second Year "M" Wage Rate Per Hour - Hired after 5/10/07: **\$33.75**

First and Second Year "M" Supplemental Rate- Hired after 5/10/07: **\$19.47**

Effective Period: 5/13/2015 - 6/30/2015

Wage Rate per Hour: **\$41.25**

Supplemental Benefit Rate per Hour: **\$22.54**

First and Second Year "M" Wage Rate Per Hour - Hired on or before 5/10/07: **\$40.20**

First and Second Year "M" Supplemental Rate- Hired on or before 5/10/07: **\$22.14**

First and Second Year "M" Wage Rate Per Hour - Hired after 5/10/07: **\$34.50**

First and Second Year "M" Supplemental Rate- Hired after 5/10/07: **\$20.00**

### **Overtime**

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Time and one half the regular rate for Sunday.

### **Overtime Holidays**

Time and one half the regular rate for work on the following holiday(s).

New Year's Day

Martin Luther King Jr. Day

President's Day

Memorial Day

Independence Day

Labor Day

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

Columbus Day  
Veteran's Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day

**Paid Holidays**

None

(Local #3)

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**ELECTRICIAN - ALARM TECHNICIAN**

(Scope of Work - Inspect, test, repair, and replace defective, malfunctioning, or broken devices, components and controls of Fire, Burglar and Security Systems)

**Alarm Technician**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$30.40**

Supplemental Benefit Rate per Hour: **\$13.90**

Supplemental Note: \$12.40 only after 8 hours worked in a day

**Overtime Description**

Time and one half the regular rate for work on the following holidays: Columbus Day, Veterans Day, Day after Thanksgiving.

Double time the regular rate for work on the following holidays: New Year's day, Martin Luther King Jr. Day, President's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day.

**Overtime**

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

**Paid Holidays**

New Year's Day  
Martin Luther King Jr. Day  
President's Day  
Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Veteran's Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day



OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
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**Shift Rates**

Night Differential is based upon a ten percent (10%) differential between the hours of 4:00 P.M. and 12:30 A.M. and a fifteen percent (15%) differential for the hours 12:00 A.M. to 8:00 A.M.

**Vacation**

At least 1 year of employment.....ten (10) days  
5 years or more of employment.....fifteen (15) days  
10 years of employment.....twenty (20) days  
Plus one Personal Day per year

Sick Days:  
One day per Year

(Local #3)

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**ELECTRICIAN-STREET LIGHTING WORKER**

**Electrician - Electro Pole Electrician**

Effective Period: 7/1/2014 - 5/19/2015  
Wage Rate per Hour: \$53.00  
Supplemental Benefit Rate per Hour: \$49.34

Effective Period: 5/20/2015 - 6/30/2015  
Wage Rate per Hour: \$54.00  
Supplemental Benefit Rate per Hour: \$51.86

**Electrician - Electro Pole Foundation Installer**

Effective Period: 7/1/2014 - 5/19/2015  
Wage Rate per Hour: \$40.18  
Supplemental Benefit Rate per Hour: \$37.73

Effective Period: 5/20/2015 - 6/30/2015  
Wage Rate per Hour: \$40.93  
Supplemental Benefit Rate per Hour: \$39.46

**Electrician - Electro Pole Maintainer**

Effective Period: 7/1/2014 - 5/19/2015  
Wage Rate per Hour: \$34.40  
Supplemental Benefit Rate per Hour: \$34.00

Effective Period: 5/20/2015 - 6/30/2015  
Wage Rate per Hour: \$35.05  
Supplemental Benefit Rate per Hour: \$35.51

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**Overtime Description**

Electrician - Electro Pole Electrician: Time and one half the regular rate after a 7 hour day and after 5 consecutive days worked per week.

Electrician - Electro Pole Foundation Installer: Time and one half the regular rate after 8 hours within a 24 hour period and Saturday and Sunday.

Electrician - Electro Pole Maintainer: Time and one half the regular rate after a 7 hour day and after 5 consecutive days worked per week. Saturdays and Sundays may be used as a make-up day at straight time when a day is lost during the week to inclement weather.

**Overtime Holidays**

Time and one half the regular rate for work on the following holiday(s).

- New Year's Day
- Martin Luther King Jr. Day
- President's Day
- Memorial Day
- Independence Day
- Labor Day
- Columbus Day
- Veteran's Day
- Thanksgiving Day
- Day after Thanksgiving
- Christmas Day

**Paid Holidays**

None

(Local #3)

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**ELEVATOR CONSTRUCTOR**

**Elevator Constructor**

Effective Period: 7/1/2014 - 3/16/2015

Wage Rate per Hour: **\$58.23**

Supplemental Benefit Rate per Hour: **\$29.47**

Effective Period: 3/17/2015 - 6/30/2015

Wage Rate per Hour: **\$59.55**

Supplemental Benefit Rate per Hour: **\$31.07**

**Overtime Description**

For New Construction: work performed after 7 or 8 hour day, Saturday, Sunday or between 4:30pm and 7:00am shall be paid at double time rate.

Existing buildings: work performed after an 8 hour day, Saturday, Sunday or between 5:30pm and 7:00 am shall be paid time and one half.

**Overtime**

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Double time the regular rate for work on the following holiday(s).

**Paid Holidays**

New Year's Day  
President's Day  
Good Friday  
Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Veteran's Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day

**Vacation**

Employer contributes 8% of regular basic hourly rate as vacation pay for employees with more than 15 years of service, and 6% for employees with 5 to 15 years of service, and 4% for employees with less than 5 years of service.

(Local #1)

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**ELEVATOR REPAIR & MAINTENANCE**

**Elevator Service/Modernization Mechanic**

Effective Period: 7/1/2014 - 3/16/2015

Wage Rate per Hour: **\$46.00**

Supplemental Benefit Rate per Hour: **\$28.78**

Effective Period: 3/17/2015 - 6/30/2015

Wage Rate per Hour: **\$46.92**

Supplemental Benefit Rate per Hour: **\$30.91**

**Overtime Description**

For Service Work: Double time - all work performed on Sundays, Holidays, and between midnight and 7:00am.

**Overtime**

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Time and one half the regular rate for Sunday.

Time and one half the regular rate for work on a holiday plus the day's pay.

**Paid Holidays**

New Year's Day  
President's Day  
Good Friday  
Memorial Day  
Independence Day

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
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Labor Day  
Columbus Day  
Veteran's Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day

### Shift Rates

For Modernization Work (4pm to 12:30am) - regularly hourly rate plus a (15%) fifteen percent differential.

### Vacation

Employer contributes 8% of regular basic hourly rate as vacation pay for employees with more than 15 years of service, and 6% for employees with 5 to 15 years of service, and 4% for employees with less than 5 years of service.

(Local #1)

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## ENGINEER

### Engineer - Heavy Construction Operating Engineer I

Cherry-pickers 20 tons and over and Loaders (rubber tired and/or tractor type with a manufacturer's minimum rated capacity of six cubic yards and over).

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$61.05

Supplemental Benefit Rate per Hour: \$31.93

Supplemental Note: \$57.46 on overtime

Shift Wage Rate: \$97.68

### Engineer - Heavy Construction Operating Engineer II

Backhoes, Basin Machines, Groover, Mechanical Sweepers, Bobcat, Boom Truck, Barrier Transport (Barrier Mover) & machines of similar nature. Operation of Churn Drills and machines of a similar nature, Stetco Silent Hoist and machines of similar nature, Vac-Alls, Meyers Machines, John Beam and machines of a similar nature, Ross Carriers and Travel Lifts and machines of a similar nature, Bulldozers, Scrapers and Turn-a-Pulls: Tugger Hoists (Used exclusively for handling excavated material); Tractors with attachments, Hyster and Roustabout Cranes, Cherry-pickers. Austin Western, Grove and machines of a similar nature, Scoopmobiles, Monorails, Conveyors, Trenchers: Loaders-Rubber Tired and Tractor: Barber Greene and Eimco Loaders and Eimco Backhoes; Mighty Midget and similar breakers and Tampers, Curb and Gutter Pavers and Motor Patrol, Motor Graders and all machines of a similar nature. Locomotives 10 Tons or under. Mini-Max, Break-Tech and machines of a similar nature; Milling machines, robotic and demolition machines and machines of a similar nature, shot blaster, skid steer machines and machines of a similar nature including bobcat, pile rig rubber-tired excavator (37,000 lbs. and under), 2 man auger.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$59.24

Supplemental Benefit Rate per Hour: \$31.93

Supplemental Note: \$57.46 on overtime

Shift Wage Rate: \$94.78

**Engineer - Heavy Construction Operating Engineer III**

Minor Equipment such as Tractors, Post Hole Diggers, Ditch Witch (Walk Behind), Road Finishing Machines, Rollers five tons and under, Tugger Hoists, Dual Purpose Trucks, Fork Lifts, and Dempsey Dumpers, Fireperson.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$56.22

Supplemental Benefit Rate per Hour: \$31.93

Supplemental Note: \$57.46 on overtime

Shift Wage Rate: \$89.95

**Engineer - Heavy Construction Maintenance Engineer I**

Installing, Repairing, Maintaining, Dismantling and Manning of all equipment including Steel Cutting, Bending and Heat Sealing Machines, Mechanical Heaters, Grout Pumps, Bentonite Pumps & Plants, Screening Machines, Fusion Coupling Machines, Tunnel Boring Machines Moles and Machines of a similar nature, Power Packs, Mechanical Hydraulic Jacks; all drill rigs including but not limited to Churn, Rotary Caisson, Raised Bore & Drills of a similar nature; Personnel, Inspection & Safety Boats or any boats used to perform functions of same, Mine Hoists, Whirlies, all Climbing Cranes, all Tower Cranes, including but not limited to Truck Mounted and Crawler Type and machines of similar nature; Maintaining Hydraulic Drills and machines of a similar nature; Well Point System-Installation and dismantling; Burning, Welding, all Pumps regardless of size and/or motor power, except River Cofferdam Pumps and Wells Point Pumps; Motorized Buggies (three or more); equipment used in the cleaning and televising of sewers, but not limited to jet-rodder/vacuum truck, vacall/vactor, closed circuit television inspection equipment; high powered water pumps, jet pumps; screed machines and concrete finishing machines of a similar nature; vermeers.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$58.97

Supplemental Benefit Rate per Hour: \$31.93

Supplemental Note: \$57.46 on overtime

Shift Wage Rate: \$94.35

**Engineer - Heavy Construction Maintenance Engineer II**

On Base Mounted Tower Cranes

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$77.30

Supplemental Benefit Rate per Hour: \$31.93

Supplemental Note: \$57.46 on overtime

Shift Wage Rate: \$123.68

**Engineer - Heavy Construction Maintenance Engineer III**

On Generators, Light Towers

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$39.10

Supplemental Benefit Rate per Hour: \$31.93

Supplemental Note: \$57.46 on overtime

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Shift Wage Rate: \$62.56

**Engineer - Heavy Construction Maintenance Engineer IV**

On Pumps and Mixers including mud sucking

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$40.11

Supplemental Benefit Rate per Hour: \$31.93

Supplemental Note: \$57.46 on overtime

Shift Wage Rate: \$64.18

**Engineer - Heavy Construction Oilers I**

Gradalls, Cold Planer Grader, Concrete Pumps, Driving Truck Cranes, Driving and Operating Fuel and Grease Trucks.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$53.22

Supplemental Benefit Rate per Hour: \$31.93

Supplemental Note: \$57.46 on overtime

Shift Wage Rate: \$85.15

**Engineer - Heavy Construction Oilers II**

All gasoline, electric, diesel or air operated Shovels, Draglines, Backhoes, Keystones, Pavers, Gunite Machines, Battery of Compressors, Crawler Cranes, two-person Trenching Machines.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$36.97

Supplemental Benefit Rate per Hour: \$31.93

Supplemental Note: \$57.46 on overtime

Shift Wage Rate: \$59.15

**Engineer - Steel Erection Maintenance Engineers**

Derrick, Travelers, Tower, Crawler Tower and Climbing Cranes

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$57.05

Supplemental Benefit Rate per Hour: \$31.93

Supplemental Note: \$57.46 on overtime

Shift Wage Rate: \$91.28

**Engineer - Steel Erection Oiler I**

On a Truck Crane

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$53.43

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Supplemental Benefit Rate per Hour: **\$31.93**  
Supplemental Note: \$57.46 on overtime  
Shift Wage Rate: **\$85.49**

**Engineer - Steel Erection Oiler II**

On a Crawler Crane

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: **\$40.84**  
Supplemental Benefit Rate per Hour: **\$31.93**  
Supplemental Note: \$57.46 on overtime  
Shift Wage Rate: **\$65.34**

**Overtime Description**

On jobs of more than one shift, if the next shift employee fails to report for work through any cause over which the employer has no control, the employee on duty who works the next shift continues to work at the single time rate.

**Overtime**

Double time the regular rate after an 8 hour day.  
Double time the regular time rate for Saturday.  
Double time the regular rate for Sunday.  
Double time the regular rate for work on the following holiday(s).

**Paid Holidays**

New Year's Day  
Lincoln's Birthday  
President's Day  
Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Veteran's Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day

Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

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**Engineer - Building Work Maintenance Engineers I**

Installing, repairing, maintaining, dismantling (of all equipment including: Steel Cutting and Bending Machines, Mechanical Heaters, Mine Hoists, Climbing Cranes, Tower Cranes, Linden Peine, Lorain, Liebherr, Mannes, or machines of a similar nature, Well Point Systems, Deep Well Pumps, Concrete Mixers with loading Device, Concrete Plants, Motor Generators when used for temporary power and lights), skid steer machines of a similar nature including bobcat.

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: **\$54.04**

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Supplemental Benefit Rate per Hour: **\$31.93**  
Supplemental Note: \$57.46 on overtime

**Engineer - Building Work Maintenance Engineers II**

On Pumps, Generators, Mixers and Heaters

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: **\$42.10**  
Supplemental Benefit Rate per Hour: **\$31.93**  
Supplemental Note: \$57.46 on overtime

**Engineer - Building Work Oilers I**

All gasoline, electric, diesel or air operated Gradealls: Concrete Pumps, Overhead Cranes in Power Houses: Their duties shall be to assist the Engineer in oiling, greasing and repairing of all machines; Driving Truck Cranes: Driving and Operating Fuel and Grease Trucks, Cherrypickers (hydraulic cranes) over 70,000 GVW, and machines of a similar nature.

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: **\$51.40**  
Supplemental Benefit Rate per Hour: **\$31.93**  
Supplemental Note: \$57.46 on overtime

**Engineer - Building Work Oilers II**

Oilers on Crawler Cranes, Backhoes, Trenching Machines, Gunite Machines, Compressors (three or more in Battery).

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: **\$38.31**  
Supplemental Benefit Rate per Hour: **\$31.93**  
Supplemental Note: \$57.46 on overtime

**Overtime Description**

On jobs of more than one shift, if an Employee fails to report for work through any cause over which the Employer has no control, the Employee on duty will continue to work at the rate of single time.

**Overtime**

Double time the regular rate after an 8 hour day.  
Double time the regular time rate for Saturday.  
Double time the regular rate for Sunday.  
Double time the regular rate for work on the following holiday(s).

**Paid Holidays**

New Year's Day  
Lincoln's Birthday  
President's Day  
Memorial Day  
Independence Day  
Labor Day



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Columbus Day  
Veteran's Day  
Thanksgiving Day  
Christmas Day

Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

### Shift Rates

Off Shift: double time the regular hourly rate.

(Local #15)

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## ENGINEER - CITY SURVEYOR AND CONSULTANT

### Party Chief

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$35.55

Supplemental Benefit Rate per Hour: \$17.65

### Instrument Person

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$29.41

Supplemental Benefit Rate per Hour: \$17.65

### Rodperson

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$25.54

Supplemental Benefit Rate per Hour: \$17.65

### Overtime Description

Overtime Benefit Rate - \$23.63 per hour (time & one half) \$29.95 per hour (double time).

Time and one half the regular rate after an 8 hour day, Time and one half the regular rate for Saturday for the first eight hours worked, Double time the regular time rate for Saturday for work performed in excess of eight hours, Double time the regular rate for Sunday and Double time the regular rate for work on a holiday.

### Paid Holidays

New Year's Day  
Lincoln's Birthday  
President's Day  
Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Veteran's Day  
Thanksgiving Day  
Day after Thanksgiving

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
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**Christmas Day**

Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

(Operating Engineer Local #15-D)

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**ENGINEER - FIELD (BUILDING CONSTRUCTION)**  
**(Construction of Building Projects, Concrete Superstructures, etc.)**

**Field Engineer - BC Party Chief**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$55.40**

Supplemental Benefit Rate per Hour: **\$30.62**

Supplemental Note: Overtime Benefit Rate - \$42.73 per hour (time & one half) \$54.84 per hour (double time).

**Field Engineer - BC Instrument Person**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$43.10**

Supplemental Benefit Rate per Hour: **\$30.62**

Supplemental Note: Overtime Benefit Rate - \$42.73 per hour (time & one half) \$54.84 per hour (double time).

**Field Engineer - BC Rodperson**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$27.96**

Supplemental Benefit Rate per Hour: **\$30.62**

Supplemental Note: Overtime Benefit Rate - \$42.73 per hour (time & one half) \$54.84 per hour (double time).

**Overtime Description**

Time and one half the regular rate after a 7 hour work and time and one half the regular rate for Saturday for the first seven hours worked, Double time the regular time rate for Saturday for work performed in excess of seven hours, Double time the regular rate for Sunday and Double time the regular rate for work on a holiday.

**Paid Holidays**

New Year's Day

President's Day

Good Friday

Memorial Day

Independence Day

Labor Day

Columbus Day

Veteran's Day

Thanksgiving Day

Christmas Day

Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
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(Operating Engineer Local #15-D)

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**ENGINEER - FIELD (HEAVY CONSTRUCTION)**  
(Construction of Roads, Tunnels, Bridges, Sewers, Building Foundations,  
Engineering Structures etc.)

**Field Engineer - HC Party Chief**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$62.61

Supplemental Benefit Rate per Hour: \$30.62

Supplemental Note: Overtime benefit rate - \$42.73 per hour (time & one half), \$54.84 per hour (double time).

**Field Engineer - HC Instrument Person**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$46.00

Supplemental Benefit Rate per Hour: \$30.62

Supplemental Note: Overtime benefit rate - \$42.73 per hour (time & one half), \$54.84 per hour (double time).

**Field Engineer - HC Rodperson**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$38.61

Supplemental Benefit Rate per Hour: \$30.62

Supplemental Note: Overtime benefit rate - \$42.73 per hour (time & one half), \$54.84 per hour (double time).

**Overtime Description**

Time and one half the regular rate after an 8 hour day, Time and one half the regular rate for Saturday for the first eight hours worked, Double time the regular time rate for Saturday for work performed in excess of eight hours, Double time the regular rate for Sunday and Double time the regular rate for work on a holiday.

**Paid Holidays**

New Year's Day

Lincoln's Birthday

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Veteran's Day

Thanksgiving Day

Christmas Day

Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
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(Operating Engineer Local #15-D)

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## **ENGINEER - FIELD (STEEL ERECTION)**

### **Field Engineer - Steel Erection Party Chief**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$58.50**

Supplemental Benefit Rate per Hour: **\$30.62**

Supplemental Note: Overtime benefit rate - \$42.73 per hour (time & one half), \$54.84 per hour (double time).

### **Field Engineer - Steel Erection Instrument Person**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$45.53**

Supplemental Benefit Rate per Hour: **\$30.62**

Supplemental Note: Overtime benefit rate - \$42.73 per hour (time & one half), \$54.84 per hour (double time).

### **Field Engineer - Steel Erection Rodperson**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$30.43**

Supplemental Benefit Rate per Hour: **\$30.62**

Supplemental Note: Overtime benefit rate - \$42.73 per hour (time & one half), \$54.84 per hour (double time).

### **Overtime Description**

Time and one half the regular rate for Saturday for the first eight hours worked.

Double time the regular rate for Saturday for work performed in excess of eight hours.

### **Overtime**

Time and one half the regular rate after an 8 hour day.

Double time the regular rate for Sunday.

Double time the regular rate for work on the following holiday(s).

### **Paid Holidays**

New Year's Day

Lincoln's Birthday

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Veteran's Day

Thanksgiving Day

Christmas Day

Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
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(Operating Engineer Local #15-D)

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**ENGINEER - OPERATING**

**Operating Engineer - Road & Heavy Construction I**

Back Filling Machines, Cranes, Mucking Machines and Dual Drum Paver.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$67.70**

Supplemental Benefit Rate per Hour: **\$28.60**

Supplemental Note: **\$51.75** overtime hours

Shift Wage Rate: **\$108.32**

**Operating Engineer - Road & Heavy Construction II**

Backhoes, Power Shovels, Hydraulic Clam Shells, Steel Erection, Moles and machines of a similar nature.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$70.10**

Supplemental Benefit Rate per Hour: **\$28.60**

Supplemental Note: **51.75** overtime hours

Shift Wage Rate: **\$112.16**

**Operating Engineer - Road & Heavy Construction III**

Mine Hoists, Cranes, etc. (Used as Mine Hoists)

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$72.34**

Supplemental Benefit Rate per Hour: **\$28.60**

Supplemental Note: **\$51.75** overtime hours

Shift Wage Rate: **\$115.74**

**Operating Engineer - Road & Heavy Construction IV**

Gradealls, Keystones, Cranes on land or water (with digging buckets), Bridge Cranes, Vermeer Cutter and machines of a similar nature, Trenching Machines.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$70.63**

Supplemental Benefit Rate per Hour: **\$28.60**

Supplemental Note: **\$51.75** overtime hours

Shift Wage Rate: **\$113.01**

**Operating Engineer - Road & Heavy Construction V**

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Pile Drivers & Rigs (employing Dock Builder foreperson): Derrick Boats, Tunnel Shovels.

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$69.23  
Supplemental Benefit Rate per Hour: \$28.60  
Supplemental Note: \$51.75 overtime hours  
Shift Wage Rate: \$110.77

**Operating Engineer - Road & Heavy Construction VI**

Mixers (Concrete with loading attachment), Concrete Pavers, Cableways, Land Derricks, Power Houses (Low Air Pressure Units).

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$65.76  
Supplemental Benefit Rate per Hour: \$28.60  
Supplemental Note: \$51.75 overtime hours  
Shift Wage Rate: \$105.22

**Operating Engineer - Road & Heavy Construction VII**

Barrier Movers , Barrier Transport and Machines of a Similar Nature.

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$53.08  
Supplemental Benefit Rate per Hour: \$28.60  
Supplemental Note: \$51.75 overtime hours  
Shift Wage Rate: \$84.93

**Operating Engineer - Road & Heavy Construction VIII**

Utility Compressors

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$41.18  
Supplemental Benefit Rate per Hour: \$28.60  
Supplemental Note: \$51.75 overtime hours  
Shift Wage Rate: \$51.93

**Operating Engineer - Road & Heavy Construction IX**

Horizontal Boring Rig

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$62.53  
Supplemental Benefit Rate per Hour: \$28.60  
Supplemental Note: \$51.75 overtime hours  
Shift Wage Rate: \$100.05

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**Operating Engineer - Road & Heavy Construction X**

Elevators (manually operated as personnel hoist).

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$57.46**

Supplemental Benefit Rate per Hour: **\$28.60**

Supplemental Note: \$51.75 overtime hours

Shift Wage Rate: **\$91.94**

**Operating Engineer - Road & Heavy Construction XI**

Compressors (Portable 3 or more in battery), Driving of Truck Mounted Compressors, Well-point Pumps, Tugger Machines Well Point Pumps, Churn Drill.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$44.63**

Supplemental Benefit Rate per Hour: **\$28.60**

Supplemental Note: \$51.75 overtime hours

Shift Wage Rate: **\$71.41**

**Operating Engineer - Road & Heavy Construction XII**

All Drills and Machines of a similar nature.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$66.45**

Supplemental Benefit Rate per Hour: **\$28.60**

Supplemental Note: \$51.75 overtime hours

Shift Wage Rate: **\$106.32**

**Operating Engineer - Road & Heavy Construction XIII**

Concrete Pumps, Concrete Plant, Stone Crushers, Double Drum Hoist, Power Houses (other than above).

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$64.34**

Supplemental Benefit Rate per Hour: **\$28.60**

Supplemental Note: \$51.75 overtime hours

Shift Wage Rate: **\$102.94**

**Operating Engineer - Road & Heavy Construction XIV**

Concrete Mixer

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$61.53**

Supplemental Benefit Rate per Hour: **\$28.60**

Supplemental Note: \$51.75 overtime hours

Shift Wage Rate: **\$98.45**

### Operating Engineer - Road & Heavy Construction XV

Compressors (Portable Single or two in Battery, not over 100 feet apart), Pumps (River Cofferdam) and Welding Machines, Push Button Machines, All Engines Irrespective of Power (Power-Pac) used to drive auxiliary equipment, Air, Hydraulic, etc.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$41.44

Supplemental Benefit Rate per Hour: \$28.60

Supplemental Note: \$51.75 overtime hours

Shift Wage Rate: \$66.30

### Operating Engineer - Road & Heavy Construction XVI

Concrete Breaking Machines, Hoists (Single Drum), Load Masters, Locomotives (over ten tons) and Dinkies over ten tons, Hydraulic Crane-Second Engineer.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$58.74

Supplemental Benefit Rate per Hour: \$28.60

Supplemental Note: \$51.85 overtime hours

Shift Wage Rate: \$93.98

### Operating Engineer - Road & Heavy Construction XVII

On-Site concrete plant engineer, On-site Asphalt Plant Engineer, and Vibratory console.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$59.21

Supplemental Benefit Rate per Hour: \$28.60

Supplemental Note: \$51.75 overtime hours

Shift Wage Rate: \$94.74

### Operating Engineer - Road & Heavy Construction XVIII

Tower Crane

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$85.00

Supplemental Benefit Rate per Hour: \$28.60

Supplemental Note: \$51.75 overtime hours

Shift Wage Rate: \$136.00

### Operating Engineer - Paving I

Asphalt Spreaders, Autogrades (C.M.I.), Roto/Mil

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$65.76



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Supplemental Benefit Rate per Hour: \$28.60  
Supplemental Note: \$51.75 overtime hours  
Shift Wage Rate: \$105.22

**Operating Engineer - Paving II**

Asphalt Roller

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$64.04  
Supplemental Benefit Rate per Hour: \$28.60  
Supplemental Note: \$51.75 overtime hours  
Shift Wage Rate: \$102.46

**Operating Engineer - Paving III**

Asphalt Plants

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$54.17  
Supplemental Benefit Rate per Hour: \$28.60  
Supplemental Note: \$51.75 overtime hours  
Shift Wage Rate: \$86.67

**Operating Engineer - Concrete I**

Cranes

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$70.32  
Supplemental Benefit Rate per Hour: \$28.60  
Supplemental Note: \$51.75 overtime hours

**Operating Engineer - Concrete II**

Compressors

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$41.76  
Supplemental Benefit Rate per Hour: \$28.60  
Supplemental Note: \$51.75 overtime hours

**Operating Engineer - Concrete III**

Micro-traps (Negative Air Machines), Vac-All Remediation System.

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$56.16  
Supplemental Benefit Rate per Hour: \$28.60  
Supplemental Note: \$51.75 overtime hours

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**Operating Engineer - Steel Erection I**

Three Drum Derricks

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$73.37

Supplemental Benefit Rate per Hour: \$28.60

Supplemental Note: \$51.75 overtime hours

Shift Wage Rate: \$117.39

**Operating Engineer - Steel Erection II**

Cranes, 2 Drum Derricks, Hydraulic Cranes, Fork Lifts and Boom Trucks.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$70.50

Supplemental Benefit Rate per Hour: \$28.60

Supplemental Note: \$51.75 overtime hours

Shift Wage Rate: \$112.80

**Operating Engineer - Steel Erection III**

Compressors, Welding Machines.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$41.84

Supplemental Benefit Rate per Hour: \$28.60

Supplemental Note: \$51.75 overtime hours

Shift Wage Rate: \$66.94

**Operating Engineer - Steel Erection IV**

Compressors - Not Combined with Welding Machine.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$39.85

Supplemental Benefit Rate per Hour: \$28.60

Supplemental Note: \$51.75 overtime hours

Shift Wage Rate: \$63.76

**Operating Engineer - Building Work I**

Forklifts, Plaster (Platform machine), Plaster Bucket, Concrete Pump and all other equipment used for hoisting material.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$57.82

Supplemental Benefit Rate per Hour: \$28.60

Supplemental Note: \$51.75 overtime hours

**Operating Engineer - Building Work II**

Compressors, Welding Machines (Cutting Concrete-Tank Work), Paint Spraying, Sandblasting, Pumps (with the exclusion of Concrete Pumps), All Engines irrespective of Power (Power-Pac) used to drive Auxiliary Equipment, Air, Hydraulic, Jacking System, etc.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$43.28

Supplemental Benefit Rate per Hour: \$28.60

Supplemental Note: \$51.75 overtime hours

**Operating Engineer - Building Work III**

Double Drum

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$65.83

Supplemental Benefit Rate per Hour: \$28.60

Supplemental Note: \$51.75 overtime hours

**Operating Engineer - Building Work IV**

Stone Derrick, Cranes, Hydraulic Cranes Boom Trucks.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$69.74

Supplemental Benefit Rate per Hour: \$28.60

Supplemental Note: \$51.75 overtime hours

**Operating Engineer - Building Work V**

Dismantling and Erection of Cranes, Relief Engineer.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$64.26

Supplemental Benefit Rate per Hour: \$28.60

Supplemental Note: \$51.75 overtime hours

**Operating Engineer - Building Work VI**

4 Pole Hoist, Single Drum Hoists.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$63.58

Supplemental Benefit Rate per Hour: \$28.60

Supplemental Note: \$51.75 overtime hours

**Operating Engineer - Building Work VII**

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**Rack & Pinion and House Cars**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$50.53

Supplemental Benefit Rate per Hour: \$28.60

Supplemental Note: \$51.75 overtime hours

For New House Car projects started after 7/1/11 only: Wage Rate per Hour \$40.31

**Overtime Description**

On jobs of more than one shift, if an Employee fails to report for work through any cause over which the Employer has no control, the Employee on duty will continue to work at the rate of single time.

For House Cars and Rack & Pinion only: Overtime paid at time and one-half for all hours in excess of eight hours in a day, Saturday, Sunday and Holidays worked.

**Overtime**

Double time the regular rate after an 8 hour day.

Double time the regular time rate for Saturday.

Double time the regular rate for Sunday.

Double time the regular rate for work on the following holiday(s).

**Paid Holidays**

New Year's Day

Lincoln's Birthday

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Veteran's Day

Thanksgiving Day

Day after Thanksgiving

Christmas Day

Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

**Shift Rates**

For Steel Erection Only: Shifts may be worked at the single time rate at other than the regular working hours (8:00 A.M. to 4:30 P.M.) on the following work ONLY: Heavy construction jobs on work below the street level, over railroad tracks and on building jobs.

(Operating Engineer Local #14)

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**FLOOR COVERER**

(Interior vinyl composition tile, sheath vinyl linoleum and wood parquet tile including site preparation and synthetic turf not including site preparation)

**Floor Coverer**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
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Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$49.88**

Supplemental Benefit Rate per Hour: **\$44.10**

### Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

### Overtime Holidays

Double time the regular rate for work on the following holiday(s).

New Year's Day

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Presidential Election Day

Thanksgiving Day

Day after Thanksgiving

Christmas Day

### Paid Holidays

1/2 day on Christmas Eve if work is performed in the A.M.

1/2 day on New Year's Eve if work is performed in the A.M.

### Shift Rates

Two shifts may be utilized with the first shift working 8:00 A.M. to the end of the shift at the straight time of pay.

The second shift will receive one hour at double time rate for the last hour of the shift. (eight for seven, nine for eight).

(Carpenters District Council)

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## GLAZIER

(New Construction, Remodeling, and Alteration)

### Glazier

Effective Period: 7/1/2014 - 10/31/2014

Wage Rate per Hour: **\$42.50**

Supplemental Benefit Rate per Hour: **\$35.09**

Supplemental Note: Supplemental Benefit Overtime Rate: **\$43.59**

Effective Period: 11/1/2014 - 6/30/2015

Wage Rate per Hour: **\$42.85**

Supplemental Benefit Rate per Hour: **\$35.59**

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Supplemental Note: Supplemental Benefit Overtime Rate: \$44.09

### Overtime Description

An optional 8th hour can be worked at straight time rate. If 9th hour is worked, then both hours or more (8th & 9th or more) will be at the double time rate of pay.

### Overtime

Double time the regular rate after a 7 hour day.  
Double time the regular time rate for Saturday.  
Double time the regular rate for Sunday.

### Overtime Holidays

Double time the regular rate for work on the following holiday(s).

New Year's Day  
President's Day  
Memorial Day  
Independence Day  
Labor Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day

### Paid Holidays

None

### Shift Rates

Shifts shall be any 7 hours beyond 4:00 P.M. for which the glazier shall receive 8 hours pay for 7 hours worked.

(Local #1281)

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## GLAZIER - REPAIR & MAINTENANCE

(For the Installation of Glass - All repair and maintenance work on a particular building, whenever performed, where the total cumulative contract value is under \$105,000. Except where enumerated (i.e. plate glass windows) does not apply to non-residential buildings.)

### Craft Jurisdiction for repair, maintenance and fabrication

Plate glass replacement, Residential glass replacement, Residential mirrors and shower doors, Storm windows and storm doors, Residential replacement windows, Herculite door repairs, Door closer repairs, Retrofit apartment house (non commercial buildings), Glass tinting.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$23.60

Supplemental Benefit Rate per Hour: \$19.04

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

**Overtime**

Time and one half the regular rate after an 8 hour day.  
Double time the regular rate for Sunday.  
Time and one half the regular hourly rate after 40 hours in any work week.

**Paid Holidays**

New Year's Day  
President's Day  
Memorial Day  
Independence Day  
Labor Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day

(Local #1281)

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**HEAT AND FROST INSULATOR**

**Heat & Frost Insulator**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$56.98  
Supplemental Benefit Rate per Hour: \$34.81

**Overtime Description**

Double time shall be paid for supplemental benefits during overtime work.  
8th hour paid at time and one half.

**Overtime**

Double time the regular rate after an 8 hour day.  
Double time the regular time rate for Saturday.  
Double time the regular rate for Sunday.

**Overtime Holidays**

Double time the regular rate for work on the following holiday(s).  
New Year's Day  
Martin Luther King Jr. Day  
President's Day  
Memorial Day  
Independence Day  
Columbus Day  
Veteran's Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day

Triple time the regular rate for work on the following holiday(s).  
Labor Day

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

## **Paid Holidays**

None

## **Shift Rates**

The first shift shall work seven hours at the regular straight time rate. The second and third shift shall work seven hours the regular straight time hourly rate plus a fourteen percent wage and benefit premium. Off hour work in occupied or retail buildings may be worked on weekdays with an increment of \$1.00 per hour and eight hours pay for seven (7) hours worked. Double time will apply for over seven (7) hours worked on weekdays, weekends or holidays.

(Local #12)

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## **HOUSE WRECKER (TOTAL DEMOLITION)**

### **House Wrecker - Tier A**

On all work sites the first, second, eleventh and every third House Wrecker thereafter will be Tier A House Wreckers (i.e. 1st, 2nd, 11th, 14th etc). Other House Wreckers may be Tier B House Wreckers.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$34.51**

Supplemental Benefit Rate per Hour: **\$25.59**

### **House Wrecker - Tier B**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$24.02**

Supplemental Benefit Rate per Hour: **\$19.12**

## **Overtime**

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

## **Overtime Holidays**

Double time the regular rate for work on the following holiday(s).

New Year's Day

President's Day

Memorial Day

Independence Day

Labor Day

Thanksgiving Day

Christmas Day



OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

**Paid Holidays**

None

(Mason Tenders District Council)

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**IRON WORKER - ORNAMENTAL**

**Iron Worker - Ornamental**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$42.70**

Supplemental Benefit Rate per Hour: **\$45.77**

Supplemental Note: Supplemental benefits are to be paid at the applicable overtime rate when overtime is in effect.

**Overtime Description**

Time and one half the regular rate after a 7 hour day for a maximum of two hours on any regular work day (the 8th and 9th hour) and double time shall be paid for all work on a regular work day thereafter, time and one half the regular rate for Saturday for the first seven hours of work and double time shall be paid for all work on a Saturday thereafter.

**Overtime**

Double time the regular rate for Sunday.

**Overtime Holidays**

Double time the regular rate for work on the following holiday(s).

New Year's Day

President's Day

Memorial Day

Independence Day

Labor Day

Thanksgiving Day

Christmas Day

**Paid Holidays**

None

**Shift Rates**

For off shift work - 8 hours pay for 7 hours of work. When two or three shifts are employed on a job, Monday through Friday, the workday for each shift shall be seven hours and paid for ten and one-half hours at the single time rate. When two or three shifts are worked on Saturday, Sunday or holidays, each shift shall be seven hours and paid fifteen and three-quarters hours.

(Local #580)

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## IRON WORKER - STRUCTURAL

### Iron Worker - Structural

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$47.75

Supplemental Benefit Rate per Hour: \$65.35

Supplemental Note: Supplemental benefits are to be paid at the applicable overtime rate when overtime is in effect.

### Overtime Description

Monday through Friday- the first eight hours are paid at straight time, the 9th and 10th hours are paid at time and one-half the regular rate, all additional weekday overtime is paid at double the regular rate. Saturdays- the first eight hours are paid at time and one-half the regular rate, double time thereafter. Sunday-all shifts are paid at double time.

### Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

### Overtime Holidays

Double time the regular rate for work on the following holiday(s).

New Year's Day

Good Friday

Memorial Day

Independence Day

Labor Day

Thanksgiving Day

Christmas Day

### Paid Holidays

1/2 day on Christmas Eve if work is performed in the A.M.

1/2 day on New Year's Eve if work is performed in the A.M.

### Shift Rates

Monday through Friday - First Shift: First eight hours are paid at straight time, the 9th & 10th hours are paid at time and a half, double time paid thereafter. Second and third Shifts: First eight hours are paid at time and one-half, double time thereafter. Saturdays: All shifts, first eight hours paid at time and one-half, double time thereafter. Sunday all shifts are paid at double time.

(Local #40 & #361)

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## LABORER

(Foundation, Concrete, Excavating, Street Pipe Layer and Common)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

**Laborer**

Excavation and foundation work for buildings, heavy construction, engineering work, and hazardous waste removal in connection with the above work. Landscaping tasks in connection with heavy construction work, engineering work and building projects. Projects include, but are not limited to pollution plants, sewers, parks, subways, bridges, highways, etc.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$39.85**

Supplemental Benefit Rate per Hour: **\$34.88**

**Overtime**

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

**Overtime Holidays**

Double time the regular rate for work on the following holiday(s).

New Year's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Presidential Election Day

Thanksgiving Day

Christmas Day

**Paid Holidays**

Labor Day

Thanksgiving Day

**Shift Rates**

When two shifts are employed, single time rate shall be paid for each shift. When three shifts are found necessary, each shift shall work seven and one half hours (7 ½), but shall be paid for eight (8) hours of labor, and be permitted one half hour for lunch.

(Local #731)

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**LANDSCAPING**

(Landscaping tasks, as well as tree pruning, tree removing, spraying and maintenance in connection with the planting of street trees and the planting of trees in city parks but not when such activities are performed as part of, or in connection with, other construction or reconstruction projects.)

**Landscaper (Above 6 years experience)**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$25.75  
Supplemental Benefit Rate per Hour: \$13.80

**Landscaper (3 - 6 years experience)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$24.75  
Supplemental Benefit Rate per Hour: \$13.80

**Landscaper (up to 3 years experience)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$22.25  
Supplemental Benefit Rate per Hour: \$13.80

**Groundperson**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$22.25  
Supplemental Benefit Rate per Hour: \$13.80

**Tree Remover / Pruner**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$30.75  
Supplemental Benefit Rate per Hour: \$13.80

**Landscaper Sprayer (Pesticide Applicator)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$20.75  
Supplemental Benefit Rate per Hour: \$13.80

**Watering - Plant Maintainer**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$15.75  
Supplemental Benefit Rate per Hour: \$13.80

**Overtime Description**

For all overtime work performed, supplemental benefits shall include an additional seventy-five (\$0.75) cents per hour.

**Overtime**

Time and one half the regular rate after an 8 hour day.  
Time and one half the regular rate for Saturday.  
Double time the regular rate for Sunday.  
Time and one half the regular rate for work on a holiday plus the day's pay.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

**Paid Holidays**

New Year's Day  
Memorial Day  
Independence Day  
Labor Day  
Thanksgiving Day  
Christmas Day

**Shift Rates**

Work performed on a 4pm to 12am shift has a 15% differential. Work performed on a 12am to 8am shift has a 20% differential.

(Local #175)

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**MARBLE MECHANIC**

**Marble Setter**

Effective Period: 7/1/2014 - 12/31/2014

Wage Rate per Hour: **\$50.85**

Supplemental Benefit Rate per Hour: **\$34.21**

Effective Period: 1/1/2015 - 6/30/2015

Wage Rate per Hour: **\$51.15**

Supplemental Benefit Rate per Hour: **\$34.87**

**Marble Finisher**

Effective Period: 7/1/2014 - 12/31/2014

Wage Rate per Hour: **\$39.99**

Supplemental Benefit Rate per Hour: **\$33.34**

Effective Period: 1/1/2015 - 6/30/2015

Wage Rate per Hour: **\$40.26**

Supplemental Benefit Rate per Hour: **\$33.90**

**Marble Polisher**

Effective Period: 7/1/2014 - 12/31/2014

Wage Rate per Hour: **\$35.96**

Supplemental Benefit Rate per Hour: **\$25.92**

Effective Period: 1/1/2015 - 6/30/2015

Wage Rate per Hour: **\$36.25**

Supplemental Benefit Rate per Hour: **\$26.28**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

### Overtime Description

Supplemental Benefit contributions are to be made at the applicable overtime rates. Time and one half the regular rate after a 7 hour day or time and one half the regular rate after an 8 hour day - chosen by Employer at the start of the project and then would last for the full duration of the project.

### Overtime

Time and one half the regular rate for Saturday.  
Double time the regular rate for Sunday.

### Overtime Holidays

Double time the regular rate for work on the following holiday(s).

New Year's Day  
President's Day  
Good Friday  
Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Veteran's Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day

### Paid Holidays

None

(Local #7)

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## MASON TENDER

### Mason Tender

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$36.05**

Supplemental Benefit Rate per Hour: **\$26.74**

### Overtime

Time and one half the regular rate after an 8 hour day.  
Time and one half the regular rate for Saturday.  
Double time the regular rate for Sunday.  
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

### Overtime Holidays

Double time the regular rate for work on the following holiday(s).

New Year's Day  
President's Day

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

Memorial Day  
Independence Day  
Labor Day  
Thanksgiving Day  
Christmas Day

**Paid Holidays**

None

**Shift Rates**

The Employer may work two (2) shifts with the first shift at the straight time wage rate and the second shift receiving eight (8) hours paid for seven (7) hours work at the straight time wage rate.

(Local #79)

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**MASON TENDER (INTERIOR DEMOLITION WORKER)**

(The erection, building, moving, servicing and dismantling of enclosures, scaffolding, barricades, protection and site safety structures etc., on Interior Demolition jobs.)

**Mason Tender Tier A**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$34.99

Supplemental Benefit Rate per Hour: \$21.10

**Mason Tender Tier B**

On Interior Demolition job sites 33 1/3 % of the employees shall be classified as Tier A Interior Demolition Workers and 66 2/3 % shall be classified as Tier B Interior Demolition Workers; provided that the employer may employ more than 33 1/3 % Tier A Interior Demolition Workers on the job site. Where the number of employees on a job site is not divisible by 3, the first additional employee (above the number of employees divisible by three) shall be a Tier B Interior Demolition Worker, and the second additional employee shall be a Tier A Interior Demolition Worker.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$24.18

Supplemental Benefit Rate per Hour: \$15.42

**Overtime**

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Sunday.

**Overtime Holidays**

Double time the regular rate for work on the following holiday(s).

New Year's Day

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

President's Day  
Memorial Day  
Independence Day  
Labor Day  
Thanksgiving Day  
Christmas Day

**Paid Holidays**  
None

(Local #79)

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## **METALLIC LATHER**

### **Metallic Lather**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$42.03

Supplemental Benefit Rate per Hour: \$41.07

Supplemental Note: Supplemental benefits for overtime are paid at the appropriate overtime rate.

### **Overtime Description**

Overtime would be time and one half the regular rate after a seven (7) or eight (8) hours workday, which would be set at the start of the job.

### **Overtime**

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

### **Overtime Holidays**

Double time the regular rate for work on the following holiday(s).

New Year's Day  
Washington's Birthday  
Good Friday  
Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Presidential Election Day  
Thanksgiving Day  
Christmas Day

### **Paid Holidays**

1/2 day on Christmas Eve if work is performed in the A.M.

1/2 day on New Year's Eve if work is performed in the A.M.

### **Shift Rates**



OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

There shall be either two (2) or three (3) shifts, each shift shall be eight (8) hours with nine (9) hours pay, including one half (½) hour for lunch. Off-Hour Start shall commence after 3:30 P.M. and shall conclude by 6:00 A.M. The first consecutive seven (7) hours shall be at straight time with a differential of twelve dollars (\$12.00) per hour. Fringes shall be paid at the straight time rate.

(Local #46)

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## MILLWRIGHT

### Millwright

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$48.44

Supplemental Benefit Rate per Hour: \$50.52

### Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

### Overtime Holidays

Double time the regular rate for work on the following holiday(s).

New Year's Day

President's Day

Good Friday

Memorial Day

Independence Day

Labor Day

Columbus Day

Presidential Election Day

Thanksgiving Day

Christmas Day

### Paid Holidays

1/2 day on Christmas Eve if work is performed in the A.M.

1/2 day on New Year's Eve if work is performed in the A.M.

### Shift Rates

The first shift shall receive the straight time rate of pay. The second shift receives the straight time rate of pay plus fifteen (15%) per cent. Members of the second shift shall be allowed one half hour to eat, with this time being included in the hours of the workday established. There must be a first shift to work a second shift. All additional hours worked shall be paid at the time and one-half rate of pay plus fifteen (15%) per cent for weekday hours.

(Local #740)

## **MOSAIC MECHANIC**

### **Mosaic Mechanic - Mosaic & Terrazzo Mechanic**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$45.23

Supplemental Benefit Rate per Hour: \$36.59

Supplemental Note: Supplemental benefits for overtime to be paid at the rate of \$47.56 per hour.

### **Mosaic Mechanic - Mosaic & Terrazzo Finisher**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$43.63

Supplemental Benefit Rate per Hour: \$36.57

Supplemental Note: Supplemental benefits for overtime to be paid at the rate of \$47.54 per hour.

### **Mosaic Mechanic - Machine Operator Grinder**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$43.63

Supplemental Benefit Rate per Hour: \$36.57

Supplemental Note: Supplemental benefits for overtime to be paid at the rate of \$47.54 per hour.

## **Overtime**

Time and one half the regular rate after a 7 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

## **Overtime Holidays**

Double time the regular rate for work on the following holiday(s).

New Year's Day

Washington's Birthday

Good Friday

Independence Day

Labor Day

Columbus Day

Veteran's Day

Thanksgiving Day

Day after Thanksgiving

Christmas Day

## **Paid Holidays**

None

(Local #7)

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## **PAINTER**

### **Painter - Brush & Roller**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$39.50**

Supplemental Benefit Rate per Hour: **\$26.12**

Supplemental Note: \$30.75 on overtime

### **Spray & Scaffold / Decorative / Sandblast**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$42.50**

Supplemental Benefit Rate per Hour: **\$26.12**

Supplemental Note: \$30.75 on overtime

### **Overtime**

Time and one half the regular rate after a 7 hour day.

Time and one half the regular rate for Saturday.

Time and one half the regular rate for Sunday.

### **Overtime Holidays**

Time and one half the regular rate for work on the following holiday(s).

New Year's Day

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Thanksgiving Day

Christmas Day

### **Paid Holidays**

None

(District Council of Painters #9)

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## **PAINTER - SIGN**

### **Designer**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$36.15**

Supplemental Benefit Rate per Hour: **\$9.66**

### **Journey person**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$33.62

Supplemental Benefit Rate per Hour: \$9.66

### Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Time and one half the regular rate for Sunday.

Double time the regular rate for work on the following holiday(s).

### Paid Holidays

New Year's Day

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Election Day

Thanksgiving Day

Day after Thanksgiving

Christmas Day

### Shift Rates

All work performed outside the regular 8 hour work day (either 7:00 A.M to 3:30 P.M or 8:00 A.M. to 4:30 P.M) shall be paid at time and one half the regular hourly rate.

(Local #8A-28A)

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## PAINTER - STRIPER

### Striper (paint)

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$34.00

Supplemental Benefit Rate per Hour: \$12.60

Supplemental Note: Overtime Supplemental Benefit rate - \$8.35 New Hire Rate (0-3 months) - \$0.00

### Lineperson (thermoplastic)

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$38.00

Supplemental Benefit Rate per Hour: \$12.60

Supplemental Note: Overtime Supplemental Benefit rate - \$8.35; New Hire Rate (0-3 months) - \$0.00

### Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

Double time the regular rate for Sunday.  
Time and one half the regular rate for work on the following holiday(s).

### **Paid Holidays**

New Year's Day  
Good Friday  
Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Presidential Election Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day

### **Shift Rates**

Employees hired before April 1, 2003: 15% night shift premium differential for work commenced at 9:00 PM or later.

### **Vacation**

Employees with one to two years service shall accrue vacation based on hours worked: 250 hours worked - 1 day vacation; 500 hours worked - 2 days vacation; 750 hours worked - 3 days vacation; 900 hours worked - 4 days vacation; 1,000 hours worked - 5 days vacation. Employees with two to five years service receive two weeks vacation. Employees with five to twenty years service receive three weeks vacation. Employees with twenty to twenty-five years service receive four weeks vacation. Employees with 25 or more years service receive five weeks vacation. Vacation must be taken during winter months. 2 Personal Days except employees hired after 4/1/12 who do not have 2 years of service.

(Local #917)

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## **PAINTER - STRUCTURAL STEEL**

### **Painters on Structural Steel**

Effective Period: 7/1/2014 - 9/30/2014  
Wage Rate per Hour: **\$47.00**  
Supplemental Benefit Rate per Hour: **\$33.58**

Effective Period: 10/1/2014 - 6/30/2015  
Wage Rate per Hour: **\$48.75**  
Supplemental Benefit Rate per Hour: **\$34.58**

### **Painter - Power Tool**

Effective Period: 7/1/2014 - 9/30/2014  
Wage Rate per Hour: **\$53.00**  
Supplemental Benefit Rate per Hour: **\$33.58**

Effective Period: 10/1/2014 - 6/30/2015

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

Wage Rate per Hour: \$54.75

Supplemental Benefit Rate per Hour: \$34.58

### Overtime Description

Supplemental Benefits shall be paid for each hour worked, up to forty (40) hours per week for the period of May 1st to November 15th or up to fifty (50) hours per week for the period of November 16th to April 30th.

### Overtime

Time and one half the regular rate after a 7 hour day.

Time and one half the regular rate for Saturday.

Time and one half the regular rate for Sunday.

### Overtime Holidays

Double time the regular rate for work on the following holiday(s).

New Year's Day

Memorial Day

Independence Day

Labor Day

Thanksgiving Day

Christmas Day

### Paid Holidays

None

### Shift Rates

Regular hourly rates plus a ten per cent (10%) differential

(Local #806)

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## PAPERHANGER

### Paperhanger

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$41.08

Supplemental Benefit Rate per Hour: \$29.23

Supplemental Note: Supplemental benefits are to be paid at the appropriate straight time and overtime rate.

### Overtime

Time and one half the regular rate after a 7 hour day.

Time and one half the regular rate for Saturday.

Time and one half the regular rate for Sunday.

### Overtime Holidays

Time and one half the regular rate for work on the following holiday(s).

New Year's Day

President's Day

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

Memorial Day  
Independence Day  
Labor Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day

### **Paid Holidays**

None

### **Shift Rates**

Evening shift - 4:30 P.M. to 12:00 Midnight (regular rate of pay); any work performed before 7:00 A.M. shall be at time and one half the regular base rate of pay.

(District Council of Painters #9)

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## **PAVER AND ROADBUILDER**

### **Paver & Roadbuilder - Formsetter**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$44.19

Supplemental Benefit Rate per Hour: \$35.15

### **Paver & Roadbuilder - Laborer**

Paving and road construction work, regardless of material used, including but not limited to preparation of job sites, removal of old surfaces, asphalt and/or concrete, by whatever method, including but not limited to milling; laying of concrete; laying of asphalt for temporary, patchwork, and utility paving (but not production paving); site preparation and incidental work before the installation of rubberized materials and similar surfaces; installation and repair of temporary construction fencing; slurry seal coating, maintenance of safety surfaces; play equipment installation, and other related work.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$40.32

Supplemental Benefit Rate per Hour: \$35.15

### **Production Paver & Roadbuilder - Screed Person**

(Production paving is asphalt paving when using a paving machine or on a project where a paving machine is traditionally used)

Adjustment of paving machinery on production paving jobs.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$45.24

Supplemental Benefit Rate per Hour: \$35.15

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

**Production Paver & Roadbuilder - Raker**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$44.73

Supplemental Benefit Rate per Hour: \$35.15

**Production Paver & Roadbuilder - Shoveler**

General laborer (except removal of surfaces - see Paver and Roadbuilder-Laborer) including but not limited to tamber, AC paint and liquid tar work.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$41.44

Supplemental Benefit Rate per Hour: \$35.15

**Overtime Description**

Veteran's Day is a Paid Holiday for employees working on production paving.

If an employee works New Year's Day or Christmas Day, they receive the single time rate plus 25%.

Employees who work on a holiday listed below receive the straight time rate plus one day's pay for the holiday.

**Overtime**

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

**Paid Holidays**

Memorial Day

Independence Day

Labor Day

Presidential Election Day

Thanksgiving Day

**Shift Rates**

When two shifts are employed, the work period for each shift shall be a continuous eight (8) hours. When three shifts are employed, each shift will work seven and one half (7 ½) hours but will be paid for eight (8) hours since only one half (1/2) hour is allowed for meal time.

When two or more shifts are employed, single time will be paid for each shift.

Night Work - On night work, the first eight (8) hours of work will be paid for at the single time rate, except that production paving work shall be paid at 15% over the single time rate for the screed person, rakers and shovelers directly involved only. All other workers will be exempt. Hours worked over eight (8) hours during said shift shall be paid for at the time and one-half rate.

(Local #1010)

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OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

**PLASTERER**

**Plasterer**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$42.43

Supplemental Benefit Rate per Hour: \$27.95

**Overtime**

Time and one half the regular rate after a 7 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

**Overtime Holidays**

Double time the regular rate for work on the following holiday(s).

New Year's Day

Martin Luther King Jr. Day

President's Day

Good Friday

Memorial Day

Independence Day

Labor Day

Columbus Day

Presidential Election Day

Thanksgiving Day

Christmas Day

**Paid Holidays**

None

**Shift Rates**

When it is not possible to conduct alteration work during regular work hours, in a building occupied by tenants, said work shall proceed on a shift basis: however work over seven (7) hours in any twenty four (24) hour period, the time after seven (7) hours shall be considered overtime.

The second shift shall start at a time between 3:30 p.m. and 7:00 p.m. and shall consist of seven (7) working hours and shall receive eight (8) hours of wages and benefits at the straight time rate. The workers on the second shift shall be allowed one-half (½) hour to eat with this time being included in the seven (7) hours of work.

(Local #530)

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**PLASTERER - TENDER**

**Plasterer - Tender**

Effective Period: 7/1/2014 - 6/30/2015

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
\$220 PREVAILING WAGE SCHEDULE

Wage Rate per Hour: \$35.53

Supplemental Benefit Rate per Hour: \$26.31

### Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

### Overtime Holidays

Double time the regular rate for work on the following holiday(s).

New Year's Day

Washington's Birthday

Memorial Day

Independence Day

Labor Day

Presidential Election Day

Thanksgiving Day

Christmas Day

### Paid Holidays

None

### Shift Rates

When work commences outside regular work hours, workers receive an hour additional (differential) wage and supplement payment. Eight hours pay for seven hours work or nine hours pay for eight hours work.

(Mason Tenders District Council)

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## PLUMBER

### Plumber

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$65.27

Supplemental Benefit Rate per Hour: \$25.78

Supplemental Note: Overtime supplemental benefit rate per hour: \$40.78

### Plumber - Temporary Services

Temporary Services - When there are no Plumbers on the job site, there may be three shifts designed to cover the entire twenty-four hour period, including weekends if necessary, at the following rate straight time.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$52.24

Supplemental Benefit Rate per Hour: \$20.20

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

### Overtime Description

Double time the regular rate after a 7 hour day - unless for new construction site work where the plumbing contract price is \$1.5 million or less, the hours of labor can be 8 hours per day at the employers option. On Alteration jobs when other mechanical trades at the site are working an eighth hour at straight time, then the plumber shall also work an eighth hour at straight time.

### Overtime

Double time the regular time rate for Saturday.  
Double time the regular rate for Sunday.

### Overtime Holidays

Double time the regular rate for work on the following holiday(s).

New Year's Day  
President's Day  
Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Veteran's Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day

### Shift Rates

Shift work, when directly specified in public agency or authority documents where plumbing contract is \$8 million or less, will be permitted. 30% shift premium shall be paid for wages and fringe benefits for 4:00 pm and midnight shifts Monday to Friday. 50% shift premium shall be paid for wages and fringe benefits for 4:00 pm and midnight shift work performed on weekends. For shift work on holidays, double time wages and fringe benefits shall be paid.

(Plumbers Local #1)

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## PLUMBER (MECHANICAL EQUIPMENT AND SERVICE)

(Mechanical Equipment and Service work shall include any repair and/or replacement of the present plumbing system.)

### Plumber

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$38.27

Supplemental Benefit Rate per Hour: \$12.84

### Overtime

Time and one half the regular rate after an 8 hour day.  
Time and one half the regular rate for Saturday.  
Time and one half the regular rate for Sunday.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

**Overtime Holidays**

Time and one half the regular rate for work on the following holiday(s).

New Year's Day  
President's Day  
Memorial Day  
Independence Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day

**Paid Holidays**

None

(Plumbers Local # 1)

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**PLUMBER (RESIDENTIAL RATES FOR 1, 2 AND 3 FAMILY HOME  
CONSTRUCTION)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$45.19

Supplemental Benefit Rate per Hour: \$18.79

**Overtime**

Double time the regular rate after an 8 hour day.

Double time the regular time rate for Saturday.

Double time the regular rate for Sunday.

**Overtime Holidays**

Double time the regular rate for work on the following holiday(s).

New Year's Day  
President's Day  
Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Veteran's Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day

**Paid Holidays**

None

**Shift Rates**

30% shift premium shall be paid for wages and fringe benefits for 4:00 pm and midnight shifts Monday to Friday.  
50% shift premium shall be paid for wages and fringe benefits for 4:00 pm and midnight shift work performed on weekends. For shift work on holidays, double time wages and fringe benefits shall be paid.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

(Plumbers Local #1)

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**PLUMBER: PUMP & TANK**  
**Oil Trades (Installation and Maintenance)**

**Plumber - Pump & Tank**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$62.83

Supplemental Benefit Rate per Hour: \$21.37

**Overtime**

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Time and one half the regular rate for Sunday.

**Overtime Holidays**

Time and one half the regular rate for work on the following holiday(s).

New Year's Day

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Veteran's Day

Thanksgiving Day

Day after Thanksgiving

Christmas Day

**Paid Holidays**

None

**Shift Rates**

All work outside the regular workday (8:00 A.M. to 3:30 P.M.) is to be paid at time and one half the regular hourly rate

(Plumbers Local #1)

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**POINTER - WATERPROOFER, CAULKER MECHANIC (EXTERIOR BUILDING  
RENOVATION)**

**Pointer - Waterproofer, Caulker Mechanic**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
\$220 PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$47.41

Supplemental Benefit Rate per Hour: \$24.40

### Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Time and one half the regular rate for Sunday.

Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

### Overtime Holidays

Time and one half the regular rate for work on the following holiday(s).

New Year's Day

Martin Luther King Jr. Day

President's Day

Memorial Day

Independence Day

Labor Day

Thanksgiving Day

Christmas Day

### Paid Holidays

None

### Shift Rates

All work outside the regular work day (an eight hour workday between the hours of 6:00 A.M. and 4:30 P.M.) is to be paid at time and one half the regular rate.

(Bricklayer District Council)

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## ROOFER

### Roofer

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$40.70

Supplemental Benefit Rate per Hour: \$28.67

### Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Time and one half the regular rate for Sunday.

### Overtime Holidays

Time and one half the regular rate for work on the following holiday(s).

New Year's Day

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

President's Day  
Memorial Day  
Independence Day  
Labor Day  
Presidential Election Day  
Thanksgiving Day  
Christmas Day

**Paid Holidays**

None

**Shift Rates**

Second shift - Regular hourly rate plus a 10% differential. Third shift - Regular hourly rate plus a 15% differential.

(Local #8)

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**SANDBLASTER - STEAMBLASTER  
(Exterior Building Renovation)**

**Sandblaster / Steamblaster**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$47.41

Supplemental Benefit Rate per Hour: \$24.40

**Overtime**

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Time and one half the regular rate for Sunday.

Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

**Overtime Holidays**

Time and one half the regular rate for work on the following holiday(s).

New Year's Day

Martin Luther King Jr. Day

President's Day

Memorial Day

Independence Day

Labor Day

Thanksgiving Day

Christmas Day

**Paid Holidays**

None

**Shift Rates**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

All work outside the regular work day (an eight hour workday between the hours of 6:00 A.M. and 4:30 P.M.) is to be paid at time and one half the regular rate.

(Bricklayer District Council)

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## **SHEET METAL WORKER**

### **Sheet Metal Worker**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$46.21**

Supplemental Benefit Rate per Hour: **\$43.89**

Supplemental Note: Supplemental benefit contributions are to be made at the applicable overtime rates.

### **Sheet Metal Worker - Fan Maintenance**

(The temporary operation of fans or blowers in new or existing buildings for heating and/or ventilation, and/or air conditioning prior to the completion of the project.)

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$36.97**

Supplemental Benefit Rate per Hour: **\$43.89**

### **Sheet Metal Worker - Duct Cleaner**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$12.90**

Supplemental Benefit Rate per Hour: **\$8.07**

### **Overtime**

Time and one half the regular rate after a 7 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

### **Overtime Holidays**

Double time the regular rate for work on the following holiday(s).

New Year's Day

Martin Luther King Jr. Day

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Veteran's Day

Thanksgiving Day

Day after Thanksgiving

Christmas Day



OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

**Paid Holidays**

None

**Shift Rates**

Work that can only be performed outside regular working hours (seven hours of work between 7:30 A.M. and 3:30 P.M.) - First shift (work between 3:30 P.M. and 11:30 P.M.) - 10% differential above the established hourly rate.  
Second shift (work between 11:30 P.M. and 7:30 A.M.) - 15% differential above the established hourly rate.

For Fan Maintenance: On all full shifts of fan maintenance work the straight time hourly rate of pay will be paid for each shift, including nights, Saturdays, Sundays, and holidays. No journey person engaged in fan maintenance shall work in excess of forty (40) hours in any work week.

(Local #28)

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**SHEET METAL WORKER - SPECIALTY  
(Decking & Siding)**

**Sheet Metal Specialty Worker**

The first worker to perform this work must be paid at the rate of the Sheet Metal Worker. The second and third workers shall be paid the Specialty Worker Rate. The ratio of One Sheet Metal Worker, then Two Specialty Workers shall be utilized thereafter.

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$40.78**

Supplemental Benefit Rate per Hour: **\$23.38**

Supplemental Note: Supplemental benefit contributions are to be made at the applicable overtime rates.

**Overtime**

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

**Overtime Holidays**

Double time the regular rate for work on the following holiday(s).

New Year's Day

Martin Luther King Jr. Day

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Veteran's Day

Thanksgiving Day

Christmas Day

**Paid Holidays**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

None

(Local #28)

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**SHIPYARD WORKER**

**Shipyard Mechanic - First Class**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$23.83

Supplemental Benefit Rate per Hour: \$2.87

**Shipyard Mechanic - Second Class**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$15.44

Supplemental Benefit Rate per Hour: \$2.54

**Shipyard Laborer - First Class**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$19.28

Supplemental Benefit Rate per Hour: \$2.69

**Shipyard Laborer - Second Class**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$12.36

Supplemental Benefit Rate per Hour: \$2.43

**Shipyard Dockhand - First Class**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$22.68

Supplemental Benefit Rate per Hour: \$2.82

**Shipyard Dockhand - Second Class**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$14.22

Supplemental Benefit Rate per Hour: \$2.50

**Overtime Description**

Work performed on holiday is paid double time the regular hourly wage rate plus holiday pay.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

**Overtime**

Time and one half the regular rate after an 8 hour day.  
Time and one half the regular rate for Saturday.  
Double time the regular rate for Sunday.  
Time and one half the regular hourly rate after 40 hours in any work week.

**Paid Holidays**

New Year's Day  
Martin Luther King Jr. Day  
President's Day  
Good Friday  
Memorial Day  
Independence Day  
Labor Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day

Based on Survey Data

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**SIGN ERECTOR  
(Sheet Metal, Plastic, Electric, and Neon)**

**Sign Erector**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$44.20  
Supplemental Benefit Rate per Hour: \$44.10

**Overtime**

Time and one half the regular rate after a 7 hour day.  
Time and one half the regular rate for Saturday.  
Time and one half the regular rate for Sunday.  
Time and one half the regular rate for work on the following holiday(s).

**Paid Holidays**

New Year's Day  
Washington's Birthday  
Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Election Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

### Shift Rates

Time and one half the regular hourly rate is to be paid for all hours worked outside the regular workday either (7:00 A.M. through 2:30 P.M.) or (8:00 A.M. through 3:30 P.M.)

(Local #137)

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## STEAMFITTER

### Steamfitter I

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$53.25**

Supplemental Benefit Rate per Hour: **\$51.04**

Supplemental Note: Overtime supplemental benefit rate: **\$101.34**

### Overtime

Double time the regular rate after a 7 hour day.

Double time the regular time rate for Saturday.

Double time the regular rate for Sunday.

### Overtime Holidays

Double time the regular rate for work on the following holiday(s).

New Year's Day

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Veteran's Day

Thanksgiving Day

Day after Thanksgiving

Christmas Day

### Paid Holidays

None

### Shift Rates

Work performed between 3:30 P.M. and 7:00 A.M. and on Saturdays, Sundays and Holidays shall be at double time the regular hourly rate and paid at the overtime supplemental benefit rate above.

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### Steamfitter II

For heating, ventilation, air conditioning and mechanical public works contracts with a dollar value not to exceed \$15,000,000 and for fire protection/sprinkler public works contracts not to exceed \$1,500,000.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$53.25

Supplemental Benefit Rate per Hour: \$51.04

Supplemental Note: Overtime supplemental benefit rate: \$101.34

### Overtime

Double time the regular rate after an 8 hour day.

Double time the regular time rate for Saturday.

Double time the regular rate for Sunday.

### Overtime Holidays

Double time the regular rate for work on the following holiday(s).

New Year's Day

President's Day

Memorial Day

Independence Day

Labor Day

Columbus Day

Veteran's Day

Thanksgiving Day

Day after Thanksgiving

Christmas Day

### Paid Holidays

None

### Shift Rates

May be performed outside of the regular workday except Saturday, Sunday and Holidays. A shift shall consist of eight working hours. All work performed in excess of eight hours shall be paid at double time. No shift shall commence after 7:00 P.M. on Friday or 7:00 P.M. the day before holidays. All work performed after 12:01 A.M. Saturday or 12:01 A.M. the day before a Holiday will be paid at double time. When shift work is performed the wage rate for regular time worked is a thirty percent premium together with fringe benefits.

On Transit Authority projects, where work is performed in the vicinity of tracks all shift work on weekends and holidays may be performed at the regular shift rates.

Local #638

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## STEAMFITTER - REFRIGERATION AND AIR CONDITIONER (Maintenance and Installation Service Person)

### Refrigeration and Air Conditioner Mechanic

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$38.30

Supplemental Benefit Rate per Hour: \$12.76

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

**Refrigeration and Air Conditioner Service Person V**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$31.47  
Supplemental Benefit Rate per Hour: \$11.55

**Refrigeration and Air Conditioner Service Person IV**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$26.07  
Supplemental Benefit Rate per Hour: \$10.52

**Refrigeration and Air Conditioner Service Person III**

Filter changing and maintenance thereof, oil and greasing, tower and coil cleaning, scraping and painting, general housekeeping, taking of water samples.

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$22.38  
Supplemental Benefit Rate per Hour: \$9.76

**Refrigeration and Air Conditioner Service Person II**

Filter changing and maintenance thereof, oil and greasing, tower and coil cleaning, scraping and painting, general housekeeping, taking of water samples.

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$18.56  
Supplemental Benefit Rate per Hour: \$9.06

**Refrigeration and Air Conditioner Service Person I**

Filter changing and maintenance thereof, oil and greasing, tower and coil cleaning, scraping and painting, general housekeeping, taking of water samples.

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$13.57  
Supplemental Benefit Rate per Hour: \$8.30

**Overtime**

Time and one half the regular rate after an 8 hour day.  
Time and one half the regular rate for Saturday.  
Double time the regular rate for Sunday.

**Overtime Holidays**

Double time the regular rate for work on the following holiday(s).  
New Year's Day  
Independence Day  
Labor Day  
Veteran's Day

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

Thanksgiving Day  
Christmas Day

Double time and one half the regular rate for work on the following holiday(s).

Martin Luther King Jr. Day  
President's Day  
Memorial Day  
Columbus Day

### **Paid Holidays**

New Year's Day  
Martin Luther King Jr. Day  
President's Day  
Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Veteran's Day  
Thanksgiving Day  
Christmas Day

(Local #638B)

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## **STONE MASON - SETTER**

### **Stone Mason - Setters**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$46.56

Supplemental Benefit Rate per Hour: \$36.40

### **Overtime**

Time and one half the regular rate after a 7 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

### **Overtime Holidays**

Double time the regular rate for work on the following holiday(s).

New Year's Day  
Washington's Birthday  
Good Friday  
Memorial Day  
Independence Day  
Labor Day  
Thanksgiving Day  
Christmas Day

### **Paid Holidays**

1/2 day on Christmas Eve if work is performed in the A.M.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

### Shift Rates

For all work outside the regular workday (8:00 A.M. to 3:30 P.M. Monday through Friday), the pay shall be straight time plus a ten percent (10%) differential.

(Bricklayers District Council)

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### TAPER

#### Drywall Taper

Effective Period: 7/1/2014 - 12/30/2014

Wage Rate per Hour: \$45.32

Supplemental Benefit Rate per Hour: \$22.66

Effective Period: 12/31/2014 - 6/30/2015

Wage Rate per Hour: \$45.82

Supplemental Benefit Rate per Hour: \$22.66

#### Overtime

Time and one half the regular rate after a 7 hour day.

Time and one half the regular rate for Saturday.

Time and one half the regular rate for Sunday.

#### Overtime Holidays

Time and one half the regular rate for work on the following holiday(s).

New Year's Day

Martin Luther King Jr. Day

President's Day

Good Friday

Memorial Day

Independence Day

Labor Day

Columbus Day

Thanksgiving Day

Christmas Day

#### Paid Holidays

Any worker who reports to work on Christmas Eve or New Year's Eve pursuant to his employer's instruction shall be entitled to three (3) hours afternoon pay without working.

### Shift Rates

Time and one half the regular rate outside the regular work hours (8:00 A.M. through 3:30 P.M.)

(Local #1974)

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**TELECOMMUNICATION WORKER  
(Voice Installation Only)**

**Telecommunication Worker**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$39.18**

Supplemental Benefit Rate per Hour: **\$13.19**

Supplemental Note: The above rate applies for Manhattan, Bronx, Brooklyn, Queens. \$12.64 for Staten Island only.

**Overtime**

Time and one half the regular rate after a 7 hour day.

Time and one half the regular rate for Saturday.

Time and one half the regular rate for Sunday.

**Overtime Holidays**

Time and one half the regular rate for work on the following holiday(s).

New Year's Day

Lincoln's Birthday

Washington's Birthday

Memorial Day

Independence Day

Labor Day

Columbus Day

Election Day

Veteran's Day

Thanksgiving Day

Christmas Day

**Paid Holidays**

New Year's Day

Lincoln's Birthday

Washington's Birthday

Memorial Day

Independence Day

Labor Day

Columbus Day

Election Day

Veteran's Day

Thanksgiving Day

Christmas Day

Employees have the option of observing either Martin Luther King's Birthday or the day after Thanksgiving instead of Lincoln's Birthday

**Shift Rates**

For any workday that starts before 8A.M. or ends after 6P.M. there is a 10% differential for the applicable worker's hourly rate.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
\$220 PREVAILING WAGE SCHEDULE

**Vacation**

After 6 months.....one week.  
After 12 months but less than 7 years.....two weeks.  
After 7 or more but less than 15 years.....three weeks.  
After 15 years or more but less than 25 years.....four weeks.

(C.W.A.)

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**TILE FINISHER**

**Tile Finisher**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: **\$38.80**  
Supplemental Benefit Rate per Hour: **\$28.03**

**Overtime**

Time and one half the regular rate after a 7 hour day.  
Time and one half the regular rate for Saturday.  
Double time the regular rate for Sunday.

**Overtime Holidays**

Double time the regular rate for work on the following holiday(s).  
New Year's Day  
President's Day  
Good Friday  
Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Veteran's Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day

**Paid Holidays**

None

**Shift Rates**

Off shift work day (work performed outside the regular 8:00 A.M. to 3:30 P.M. workday): shift differential of one and one quarter (1¼) times the regular straight time rate of pay for the seven hours of actual off-shift work.

(Local #7)

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**TILE LAYER - SETTER**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

**Tile Layer - Setter**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$49.88

Supplemental Benefit Rate per Hour: \$32.36

**Overtime**

Time and one half the regular rate after a 7 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

**Overtime Holidays**

Double time the regular rate for work on the following holiday(s).

New Year's Day

President's Day

Good Friday

Memorial Day

Independence Day

Labor Day

Columbus Day

Veteran's Day

Thanksgiving Day

Day after Thanksgiving

Christmas Day

**Shift Rates**

Off shift work day (work performed outside the regular 8:00 A.M. to 3:30 P.M. workday): shift differential of one and one quarter (1¼) times the regular straight time rate of pay for the seven hours of actual off-shift work.

(Local #7)

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**TIMBERPERSON**

**Timberperson**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$44.33

Supplemental Benefit Rate per Hour: \$45.39

**Overtime**

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Time and one half the regular hourly rate after 40 hours in any work week.

**Overtime Holidays**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

Double time the regular rate for work on the following holiday(s).

New Year's Day  
President's Day  
Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Presidential Election Day  
Thanksgiving Day  
Christmas Day

**Paid Holidays**

None

**Shift Rates**

Off shift work commencing between 5:00 P.M. and 11:00 P.M. shall work eight and one half hours allowing for one half hour for lunch. The wage rate shall be 113% of the straight time hourly wage rate.

(Local #1536)

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**TUNNEL WORKER**

**Blasters, Mucking Machine Operators (Compressed Air Rates)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$54.20

Supplemental Benefit Rate per Hour: \$48.20

**Tunnel Workers (Compressed Air Rates)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$52.31

Supplemental Benefit Rate per Hour: \$46.59

**Top Nipper (Compressed Air Rates)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$51.35

Supplemental Benefit Rate per Hour: \$45.78

**Outside Lock Tender, Outside Gauge Tender, Muck Lock Tender (Compressed Air Rates)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$50.42

Supplemental Benefit Rate per Hour: \$44.91

**Bottom Bell & Top Bell Signal Person: Shaft Person (Compressed Air Rates)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: **\$50.42**  
Supplemental Benefit Rate per Hour: **\$44.92**

**Changehouse Attendant: Powder Watchperson (Compressed Air Rates)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: **\$43.94**  
Supplemental Benefit Rate per Hour: **\$42.55**

**Blasters (Free Air Rates)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: **\$51.72**  
Supplemental Benefit Rate per Hour: **\$46.03**

**Tunnel Workers (Free Air Rates)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: **\$49.48**  
Supplemental Benefit Rate per Hour: **\$44.06**

**All Others (Free Air Rates)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: **\$45.73**  
Supplemental Benefit Rate per Hour: **\$40.75**

**Microtunneling (Free Air Rates)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: **\$39.58**  
Supplemental Benefit Rate per Hour: **\$35.25**

**Overtime Description**

For Repair-Maintenance Work on Existing Equipment and Facilities - Time and one half the regular rate after a 7 hour day, or for Saturday, or for Sunday. Double time the regular rate for work on a holiday.

For Small-Bore Micro Tunneling Machines - Time and one-half the regular rate shall be paid for all overtime.

**Overtime**

Double time the regular rate after an 8 hour day.  
Double time the regular time rate for Saturday.  
Double time the regular rate for Sunday.  
Double time the regular rate for work on the following holiday(s).

**Paid Holidays**

New Year's Day

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 PREVAILING WAGE SCHEDULE

Lincoln's Birthday  
President's Day  
Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Election Day  
Veteran's Day  
Thanksgiving Day  
Christmas Day

(Local #147)

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**WELDER**  
**TO BE PAID AT THE RATE OF THE JOURNEYPERSON IN THE TRADE**  
**PERFORMING THE WORK.**

**OFFICE OF THE COMPTROLLER**

**CITY OF NEW YORK**

**220 APPRENTICESHIP PREVAILING WAGE SCHEDULE**

**APPENDIX**

Pursuant to Labor Law §220 (3-e), only apprentices who are individually registered in a bona fide program to which the employer contractor is a participant and registered with the New York State Department of Labor, may be employed on a public work project.

Any employee listed on a payroll at an apprentice wage rate, who is not registered as above, shall be paid the journey person wage rate for the classification of work he actually performed.

Apprentice ratios are established to ensure the proper safety, training and supervision of apprentices. A ratio establishes the number of journey workers required for each apprentice in a program and on a job site. Ratios are interpreted as follows: in the case of a 1:1, 1:4 ratio, there must be one journey worker for the first apprentice, and four additional journey workers for each subsequent apprentice.

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**ASBESTOS HANDLER**

(Ratio of Apprentice Journeyperson: 1 to 1, 1 to 3)

**Asbestos Handler (First 1000 Hours)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 78% of Journeyperson's rate  
Supplemental Benefit Rate Per Hour: \$15.45

**Asbestos Handler (Second 1000 Hours)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 80% of Journeyperson's rate  
Supplemental Benefit Rate Per Hour: \$15.45

**Asbestos Handler (Third 1000 Hours)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 83% of Journeyperson's rate  
Supplemental Benefit Rate Per Hour: \$15.45

**Asbestos Handler (Fourth 1000 Hours)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 89% of Journeyperson's rate  
Supplemental Benefit Rate Per Hour: \$15.45

(Local #78)

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**BOILERMAKER**

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

**Boilermaker (First Year)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 65% of Journeyperson's rate  
Supplemental Benefit Rate Per Hour: \$29.74

**Boilermaker (Second Year: 1st Six Months)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 75% of Journeyperson's rate  
Supplemental Benefit Rate Per Hour: \$31.40

**Boilermaker (Second Year: 2nd Six Months)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 75% of Journeyman's rate  
Supplemental Benefit Rate Per Hour: \$33.05

**Boilermaker (Third Year: 1st Six Months)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 80% of Journeyman's rate  
Supplemental Benefit Rate Per Hour: \$34.69

**Boilermaker (Third Year: 2nd Six Months)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 85% of Journeyman's rate  
Supplemental Benefit Rate Per Hour: \$36.34

**Boilermaker (Fourth Year: 1st Six Months)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 90% of Journeyman's rate  
Supplemental Benefit Rate Per Hour: \$38.00

**Boilermaker (Fourth Year: 2nd Six Months)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 95% of Journeyman's rate  
Supplemental Benefit Rate Per Hour: \$39.65

(Local #5)

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**BRICKLAYER**

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

**Bricklayer (First 750 Hours)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 50% of Journeyman's rate  
Supplemental Benefit Rate Per Hour: \$17.10

**Bricklayer (Second 750 Hours)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 60% of Journeyman's rate

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Supplemental Benefit Rate Per Hour: \$17.10

**Bricklayer (Third 750 Hours)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 70% of Journeyman's rate  
Supplemental Benefit Rate Per Hour: \$17.10

**Bricklayer (Fourth 750 Hours)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 80% of Journeyman's rate  
Supplemental Benefit Rate Per Hour: \$17.10

**Bricklayer (Fifth 750 Hours)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 90% of Journeyman's rate  
Supplemental Benefit Rate Per Hour: \$17.10

**Bricklayer (Sixth 750 Hours)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 95% of Journeyman's rate  
Supplemental Benefit Rate Per Hour: \$17.10

(Bricklayer District Council)

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**CARPENTER**  
**(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)**

**Carpenter (First Year)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 40% of Journeyman's rate  
Supplemental Benefit Rate Per Hour: \$30.25

**Carpenter (Second Year)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 50% of Journeyman's rate  
Supplemental Benefit Rate Per Hour: \$30.25

**Carpenter (Third Year)**

Effective Period: 7/1/2014 - 6/30/2015

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Wage Rate Per Hour: 65% of Journeyperson's rate  
Supplemental Benefit Rate Per Hour: \$30.25

**Carpenter (Fourth Year)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 80% of Journeyperson's rate  
Supplemental Benefit Rate Per Hour: \$30.25

(Carpenters District Council)

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**CEMENT MASON**  
**(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)**

**Cement Mason (First Year)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's Rate

**Cement Mason (Second Year)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's Rate

**Cement Mason (Third Year)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage and Supplemental Rate Per Hour: 70% of Journeyperson's Rate

(Local #780)

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**CEMENT AND CONCRETE WORKER**  
**(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)**

**Cement & Concrete Worker (0 - 500 hours)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 50% of Journeyperson's rate  
Supplemental Benefit Rate Per Hour: \$18.04

**Cement & Concrete Worker (501 - 1000 hours)**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 65% of Journeyman's rate  
Supplemental Benefit Rate Per Hour: \$18.87

**Cement & Concrete Worker (1001 - 2000 hours)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 65% of Journeyman's rate  
Supplemental Benefit Rate Per Hour: \$24.25

**Cement & Concrete Worker (2001 - 4000 hours)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 80% of Journeyman's rate  
Supplemental Benefit Rate Per Hour: \$25.07

(Cement Concrete Workers District Council)

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**DERRICKPERSON & RIGGER (STONE)  
(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)**

**Derrickperson & Rigger (stone) - First Year**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 50% of Journeyman's rate  
Supplemental Benefit Rate Per Hour: 50% of Journeyman's rate

**Derrickperson & Rigger (stone) - Second Year: 1st Six Months**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 70% of Journeyman's rate  
Supplemental Benefit Rate Per Hour: 75% of Journeyman's rate

**Derrickperson & Rigger (stone) - Second Year: 2nd Six Months**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 80% of Journeyman's rate  
Supplemental Benefit Rate Per Hour: 75% of Journeyman's rate

**Derrickperson & Rigger (stone) - Third Year**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 90% of Journeyman's rate  
Supplemental Benefit Rate Per Hour: 75% of Journeyman's rate

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

(Local #197)

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**DOCKBUILDER/PILE DRIVER**

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 6)

**Dockbuilder/Pile Driver (First Year)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate Per Hour: 40% of Journeyman's rate

Supplemental Benefit Rate Per Hour: \$31.26

**Dockbuilder/Pile Driver (Second Year)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate Per Hour: 50% of Journeyman's rate

Supplemental Benefit Rate Per Hour: \$31.26

**Dockbuilder/Pile Driver (Third Year)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate Per Hour: 65% of Journeyman's rate

Supplemental Benefit Rate Per Hour: \$31.26

**Dockbuilder/Pile Driver (Fourth Year)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate Per Hour: 80% of Journeyman's rate

Supplemental Benefit Rate Per Hour: \$31.26

(Carpenters District Council)

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**ELECTRICIAN**

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

**Electrician (First Term: 0-6 Months)**

Effective Period: 7/1/2014 - 5/12/2015

Wage Rate per Hour: \$12.50

Supplemental Benefit Rate per Hour: \$11.10

Overtime Supplemental Rate Per Hour: \$11.93

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
\$220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Effective Period: 5/13/2015 - 6/30/2015

Wage Rate per Hour: \$13.00

Supplemental Benefit Rate per Hour: \$11.61

Overtime Supplemental Rate Per Hour: \$12.47

**Electrician (First Term: 7-12 Months)**

Effective Period: 7/1/2014 - 5/12/2015

Wage Rate per Hour: \$13.50

Supplemental Benefit Rate per Hour: \$11.62

Overtime Supplemental Rate Per Hour: \$12.51

Effective Period: 5/13/2015 - 6/30/2015

Wage Rate per Hour: \$14.00

Supplemental Benefit Rate per Hour: \$12.12

Overtime Supplemental Rate Per Hour: \$13.04

**Electrician (Second Term: 0-6 Months)**

Effective Period: 7/1/2014 - 5/12/2015

Wage Rate per Hour: \$14.50

Supplemental Benefit Rate per Hour: \$12.13

Overtime Supplemental Rate Per Hour: \$13.08

Effective Period: 5/13/2015 - 6/30/2015

Wage Rate per Hour: \$15.00

Supplemental Benefit Rate per Hour: \$12.63

Overtime Supplemental Rate Per Hour: \$13.62

**Electrician (Second Term: 7-12 Months)**

Effective Period: 7/1/2014 - 5/12/2015

Wage Rate per Hour: \$15.50

Supplemental Benefit Rate per Hour: \$12.64

Overtime Supplemental Rate Per Hour: \$13.66

Effective Period: 5/13/2015 - 6/30/2015

Wage Rate per Hour: \$16.00

Supplemental Benefit Rate per Hour: \$13.14

Overtime Supplemental Rate Per Hour: \$14.19

**Electrician (Third Term: 0-6 Months)**

Effective Period: 7/1/2014 - 5/12/2015

Wage Rate per Hour: \$16.50

Supplemental Benefit Rate per Hour: \$13.15

Overtime Supplemental Rate Per Hour: \$14.23

Effective Period: 5/13/2015 - 6/30/2015

Wage Rate per Hour: \$17.00

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
\$220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Supplemental Benefit Rate per Hour: \$13.65  
Overtime Supplemental Rate Per Hour: \$14.77

**Electrician (Third Term: 7-12 Months)**

Effective Period: 7/1/2014 - 5/12/2015  
Wage Rate per Hour: \$17.50  
Supplemental Benefit Rate per Hour: \$13.65  
Overtime Supplemental Rate Per Hour: \$14.81

Effective Period: 5/13/2015 - 6/30/2015  
Wage Rate per Hour: \$18.00  
Supplemental Benefit Rate per Hour: \$14.16  
Overtime Supplemental Rate Per Hour: \$15.34

**Electrician (Fourth Term: 0-6 Months)**

Effective Period: 7/1/2014 - 5/12/2015  
Wage Rate per Hour: \$18.50  
Supplemental Benefit Rate per Hour: \$14.16  
Overtime Supplemental Rate Per Hour: \$15.38

Effective Period: 5/13/2015 - 6/30/2015  
Wage Rate per Hour: \$19.00  
Supplemental Benefit Rate per Hour: \$14.67  
Overtime Supplemental Rate Per Hour: \$15.92

**Electrician (Fourth Term: 7-12 Months)**

Effective Period: 7/1/2014 - 5/12/2015  
Wage Rate per Hour: \$20.50  
Supplemental Benefit Rate per Hour: \$15.18  
Overtime Supplemental Rate Per Hour: \$16.53

Effective Period: 5/13/2015 - 6/30/2015  
Wage Rate per Hour: \$21.00  
Supplemental Benefit Rate per Hour: \$15.68  
Overtime Supplemental Rate Per Hour: \$17.07

**Electrician (Fifth Term: 0-12 Months - Hired on or after 5/10/07)**

Effective Period: 7/1/2014 - 5/12/2015  
Wage Rate per Hour: \$22.50  
Supplemental Benefit Rate per Hour: \$18.06  
Overtime Supplemental Rate Per Hour: \$19.47

Effective Period: 5/13/2015 - 6/30/2015  
Wage Rate per Hour: \$23.00  
Supplemental Benefit Rate per Hour: \$18.56  
Overtime Supplemental Rate Per Hour: \$20.00



**Electrician (Fifth Term: 13-18 Months - Hired on or after 5/10/07)**

Effective Period: 7/1/2014 - 5/12/2015  
Wage Rate per Hour: \$27.00  
Supplemental Benefit Rate per Hour: \$20.32  
Overtime Supplemental Rate Per Hour: \$22.01

Effective Period: 5/13/2015 - 6/30/2015  
Wage Rate per Hour: \$27.50  
Supplemental Benefit Rate per Hour: \$20.82  
Overtime Supplemental Rate Per Hour: \$22.54

**Electrician (Fifth Term: 0-18 Months - Hired before 5/10/07)**

Effective Period: 7/1/2014 - 5/12/2015  
Wage Rate per Hour: \$26.30  
Supplemental Benefit Rate per Hour: \$19.96  
Overtime Supplemental Rate Per Hour: \$21.61

Effective Period: 5/13/2015 - 6/30/2015  
Wage Rate per Hour: \$26.80  
Supplemental Benefit Rate per Hour: \$20.46  
Overtime Supplemental Rate Per Hour: \$22.14

**Overtime Description**

Overtime Wage paid at time and one half the regular rate  
For "A" rated Apprentices (work in excess of 7 hours per day)  
For "M" rated Apprentices (work in excess of 8 hours per day)

(Local #3)

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**ELEVATOR CONSTRUCTOR  
(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 2)**

**Elevator (Constructor) - First Year**

Effective Period: 7/1/2014 - 3/16/2015  
Wage Rate Per Hour: 50% of Journeyman's rate  
Supplemental Rate Per Hour: \$25.46

Effective Period: 3/17/2015 - 6/30/2015  
Wage Rate Per Hour: 50% of Journeyman's rate  
Supplemental Rate Per Hour: \$26.94

**Elevator (Constructor) - Second Year**

Effective Period: 7/1/2014 - 3/16/2015  
Wage Rate Per Hour: 55% of Journeyperson's rate  
Supplemental Rate Per Hour: \$25.86

Effective Period: 3/17/2015 - 6/30/2015  
Wage Rate Per Hour: 55% of Journeyperson's rate  
Supplemental Rate Per Hour: \$27.35

**Elevator (Constructor) - Third Year**

Effective Period: 7/1/2014 - 3/16/2015  
Wage Rate Per Hour: 65% of Journeyperson's rate  
Supplemental Rate Per Hour: \$26.66

Effective Period: 3/17/2015 - 6/30/2015  
Wage Rate Per Hour: 65% of Journeyperson's rate  
Supplemental Rate Per Hour: \$28.17

**Elevator (Constructor) - Fourth Year**

Effective Period: 7/1/2014 - 3/16/2015  
Wage Rate Per Hour: 75% of Journeyperson's rate  
Supplemental Rate Per Hour: \$27.46

Effective Period: 3/17/2015 - 6/30/2015  
Wage Rate Per Hour: 75% of Journeyperson's rate  
Supplemental Rate Per Hour: \$29.00

(Local #1)

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**ELEVATOR REPAIR & MAINTENANCE**

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 2)

**Elevator Service/Modernization Mechanic (First Year)**

Effective Period: 7/1/2014 - 3/16/2015  
Wage Rate Per Hour: 50% of Journeyperson's rate  
Supplemental Benefit Per Hour: \$24.85

Effective Period: 3/17/2015 - 6/30/2015  
Wage Rate Per Hour: 50% of Journeyperson's rate  
Supplemental Benefit Per Hour: \$26.87

**Elevator Service/Modernization Mechanic (Second Year)**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
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Effective Period: 7/1/2014 - 3/16/2015  
Wage Rate Per Hour: 55% of Journeyman's rate  
Supplemental Benefit Per Hour: \$25.24

Effective Period: 3/17/2015 - 6/30/2015  
Wage Rate Per Hour: 55% of Journeyman's rate  
Supplemental Benefit Per Hour: \$27.27

**Elevator Service/Modernization Mechanic (Third Year)**

Effective Period: 7/1/2014 - 3/16/2015  
Wage Rate Per Hour: 65% of Journeyman's rate  
Supplemental Benefit Per Hour: \$26.02

Effective Period: 3/17/2015 - 6/30/2015  
Wage Rate Per Hour: 65% of Journeyman's rate  
Supplemental Benefit Per Hour: \$28.08

**Elevator Service/Modernization Mechanic (Fourth Year)**

Effective Period: 7/1/2014 - 3/16/2015  
Wage Rate Per Hour: 75% of Journeyman's rate  
Supplemental Benefit Per Hour: \$26.81

Effective Period: 3/17/2015 - 6/30/2015  
Wage Rate Per Hour: 75% of Journeyman's rate  
Supplemental Benefit Per Hour: \$28.89

(Local #1)

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**ENGINEER**  
**(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 5)**

**Engineer - First Year**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$22.49  
Supplemental Benefit Rate per Hour: \$20.68

**Engineer - Second Year**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$28.11  
Supplemental Benefit Rate per Hour: \$20.68

**Engineer - Third Year**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$20.92  
Supplemental Benefit Rate per Hour: \$20.68

**Engineer - Fourth Year**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$33.73  
Supplemental Benefit Rate per Hour: \$20.68

(Local #15)

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**ENGINEER - OPERATING**

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 5)

**Operating Engineer - First Year**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour 40% of Journeyperson's Rate  
Supplemental Benefit Per Hour: \$18.60

**Operating Engineer - Second Year**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 50% of Journeyperson's Rate  
Supplemental Benefit Per Hour: \$18.60

**Operating Engineer - Third Year**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 60% of Journeyperson's Rate  
Supplemental Benefit Per Hour: \$18.60

(Local #14)

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**FLOOR COVERER**

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

**Floor Coverer (First Year)**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
\$220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 40% of Journeyman's rate  
Supplemental Rate Per Hour: \$30.25

**Floor Coverer (Second Year)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 50% of Journeyman's rate  
Supplemental Rate Per Hour: \$30.25

**Floor Coverer (Third Year)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 65% of Journeyman's rate  
Supplemental Rate Per Hour: \$30.25

**Floor Coverer (Fourth Year)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 80% of Journeyman's rate  
Supplemental Rate Per Hour: \$30.25

(Carpenters District Council)

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**GLAZIER**  
**(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)**

**Glazier (First Year)**

Effective Period: 7/1/2014 - 10/31/2014  
Wage Rate Per Hour: 40% of Journeyman's rate  
Supplemental Rate Per Hour: \$12.97

Effective Period: 11/1/2014 - 6/30/2015  
Wage Rate Per Hour: 40% of Journeyman's rate  
Supplemental Rate Per Hour: \$13.12

**Glazier (Second Year)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 50% of Journeyman's rate  
Supplemental Rate Per Hour: \$22.25

**Glazier (Third Year)**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2014 - 10/31/2014  
Wage Rate Per Hour: 60% of Journeyperson's rate  
Supplemental Rate Per Hour: \$24.75

Effective Period: 11/1/2014 - 6/30/2015  
Wage Rate Per Hour: 60% of Journeyperson's rate  
Supplemental Rate Per Hour: \$25.10

**Glazier (Fourth Year)**

Effective Period: 7/1/2014 - 10/31/2014  
Wage Rate Per Hour: 80% of Journeyperson's rate  
Supplemental Rate Per Hour: \$29.87

Effective Period: 11/1/2014 - 6/30/2015  
Wage Rate Per Hour: 80% of Journeyperson's rate  
Supplemental Rate Per Hour: \$30.02

(Local #1281)

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**HEAT & FROST INSULATOR  
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)**

**Heat & Frost Insulator (First Year)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

**Heat & Frost Insulator (Second Year)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

**Heat & Frost Insulator (Third Year)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage and Supplemental Rate Per Hour: 70% of Journeyperson's rate

**Heat & Frost Insulator (Fourth Year)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate

(Local #12)

**HOUSE WRECKER  
(TOTAL DEMOLITION)  
(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)**

**House Wrecker - First Year**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$20.52  
Supplemental Benefit Rate per Hour: \$16.60

**House Wrecker - Second Year**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$21.67  
Supplemental Benefit Rate per Hour: \$16.60

**House Wrecker - Third Year**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$23.27  
Supplemental Benefit Rate per Hour: \$16.60

**House Wrecker - Fourth Year**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$25.83  
Supplemental Benefit Rate per Hour: \$16.60

(Mason Tenders District Council)

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**IRON WORKER - ORNAMENTAL  
(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)**

**Iron Worker (Ornamental) - 1st Ten Months**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 50% of Journeyman's rate  
Supplemental Rate Per Hour: \$35.15

**Iron Worker (Ornamental) - 11 -16 Months**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
\$220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 55% of Journeyman's rate  
Supplemental Rate Per Hour: \$36.21

**Iron Worker (Ornamental) - 17 - 22 Months**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 60% of Journeyman's rate  
Supplemental Rate Per Hour: \$37.27

**Iron Worker (Ornamental) - 23 - 28 Months**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 70% of Journeyman's rate  
Supplemental Rate Per Hour: \$39.40

**Iron Worker (Ornamental) - 29 - 36 Months**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 80% of Journeyman's rate  
Supplemental Rate Per Hour: \$41.52

(Local #580)

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**IRON WORKER - STRUCTURAL**  
**(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 6)**

**Iron Worker (Structural) - 1st Six Months**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$24.98  
Supplemental Benefit Rate per Hour: \$45.53

**Iron Worker (Structural) - 7- 18 Months**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$25.58  
Supplemental Benefit Rate per Hour: \$45.53

**Iron Worker (Structural) - 19 - 36 months**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$26.18  
Supplemental Benefit Rate per Hour: \$45.53



OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
\$220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

(Local #40 and #361)

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**LABORER (FOUNDATION, CONCRETE, EXCAVATING, STREET PIPE LAYER & COMMON)**

(Ratio Apprentice to Journeyman: 1 to 1, 1 to 3)

**Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - First 1000 hours**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 50% of Journeyman's rate  
Supplemental Rate Per Hour: \$34.88

**Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - Second 1000 hours**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 60% of Journeyman's rate  
Supplemental Rate Per Hour: \$34.88

**Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - Third 1000 hours**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 75% of Journeyman's rate  
Supplemental Rate Per Hour: \$34.88

**Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - Fourth 1000 hours**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 90% of Journeyman's rate  
Supplemental Rate Per Hour: \$34.88

(Local #731)

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**MARBLE MECHANICS**

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

**Cutters & Setters - First 750 Hours**

Effective Period: 7/1/2014 - 6/30/2015  
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

NO BENEFITS PAID DURING THE FIRST TWO MONTHS (PROBATIONARY PERIOD)

**Cutters & Setters - Second 750 Hours**

Effective Period: 7/1/2014 - 6/30/2015  
Wage and Supplemental Rate Per Hour: 55% of Journeyperson's rate

**Cutters & Setters - Third 750 Hours**

Effective Period: 7/1/2014 - 6/30/2015  
Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate

**Cutters & Setters - Fourth 750 Hours**

Effective Period: 7/1/2014 - 6/30/2015  
Wage and Supplemental Rate Per Hour: 75% of Journeyperson's rate

**Cutters & Setters - Fifth 750 Hours**

Effective Period: 7/1/2014 - 6/30/2015  
Wage and Supplemental Rate Per Hour: 85% of Journeyperson's rate

**Cutters & Setters - Sixth 750 Hours**

Effective Period: 7/1/2014 - 6/30/2015  
Wage and Supplemental Rate Per Hour: 95% of Journeyperson's rate

**Polishers & Finishers - First 750 Hours**

Effective Period: 7/1/2014 - 6/30/2015  
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

NO BENEFITS PAID DURING THE FIRST TWO MONTHS (PROBATIONARY PERIOD)

**Polishers & Finishers - Second 750 Hours**

Effective Period: 7/1/2014 - 6/30/2015  
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

**Polishers & Finishers - Third 750 Hours**

Effective Period: 7/1/2014 - 6/30/2015  
Wage and Supplemental Rate Per Hour: 75% of Journeyperson's rate

**Polishers & Finishers - Fourth 750 Hours**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2014 - 6/30/2015

Wage and Supplemental Rate Per Hour: 90% of Journeyperson's rate

(Local #7)

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**MASON TENDER**

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

**Mason Tender - First Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$20.99

Supplemental Benefit Rate per Hour: \$17.86

**Mason Tender - Second Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$22.14

Supplemental Benefit Rate per Hour: \$17.86

**Mason Tender - Third Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$23.84

Supplemental Benefit Rate per Hour: \$17.86

**Mason Tender - Fourth Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$26.50

Supplemental Benefit Rate per Hour: \$17.86

(Local #79)

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**METALLIC LATHER**

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

**Metallic Lather (First Year -Called Prior to 6/29/11)**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$28.11  
Supplemental Benefit Rate per Hour: \$22.79

**Metallic Lather (Second Year - Called Prior to 6/29/11)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$32.71  
Supplemental Benefit Rate per Hour: \$24.44

**Metallic Lather (Third Year - Called Prior to 6/29/11)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$37.77  
Supplemental Benefit Rate per Hour: \$25.59

**Metallic Lather (First Year -Called On Or After 6/29/11)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$17.71  
Supplemental Benefit Rate per Hour: \$19.85

**Metallic Lather (Second Year - Called On Or After 6/29/11)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$22.81  
Supplemental Benefit Rate per Hour: \$19.85

**Metallic Lather (Third Year - Called On Or After 6/29/11)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$27.91  
Supplemental Benefit Rate per Hour: \$19.85

(Local #46)

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**MILLWRIGHT**

**(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)**

**Millwright (First Year)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$26.64

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Supplemental Benefit Rate per Hour: \$32.84

**Millwright (Second Year)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$31.49

Supplemental Benefit Rate per Hour: \$36.18

**Millwright (Third Year)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$36.33

Supplemental Benefit Rate per Hour: \$40.66

**Millwright (Fourth Year)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$46.02

Supplemental Benefit Rate per Hour: \$46.24

(Local #740)

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**PAVER AND ROADBUILDER**

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

**Paver and Roadbuilder - First Year (Minimum 1000 hours)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$26.61

Supplemental Benefit Rate per Hour: \$16.50

**Paver and Roadbuilder - Second Year (Minimum 1000 hours)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$28.22

Supplemental Benefit Rate per Hour: \$16.50

(Local #1010)

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**PAINTER**

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

**Painter - Brush & Roller - First Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$15.80

Supplemental Benefit Rate per Hour: \$11.88

**Painter - Brush & Roller - Second Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$19.75

Supplemental Benefit Rate per Hour: \$15.73

**Painter - Brush & Roller - Third Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$23.70

Supplemental Benefit Rate per Hour: \$18.64

**Painter - Brush & Roller - Fourth Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$31.60

Supplemental Benefit Rate per Hour: \$24.02

(District Council of Painters)

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**PAINTER - STRUCTURAL STEEL**

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

**Painters - Structural Steel (First Year)**

Effective Period: 7/1/2014 - 6/30/2015

Wage and Supplemental Rate Per Hour: 40% of Journeyman's rate

**Painters - Structural Steel (Second Year)**

Effective Period: 7/1/2014 - 6/30/2015

Wage and Supplemental Rate Per Hour: 60% of Journeyman's rate

**Painters - Structural Steel (Third Year)**

Effective Period: 7/1/2014 - 6/30/2015

Wage and Supplemental Rate Per Hour: 80% of Journeyman's rate

(Local #806)

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**PLASTERER**

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

**Plasterer - First Year: 1st Six Months**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate Per Hour: 40% of Journeyman's rate

Supplemental Rate Per Hour: \$15.76

**Plasterer - First Year: 2nd Six Months**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate Per Hour: 45% of Journeyman's rate

Supplemental Rate Per Hour: \$16.24

**Plasterer - Second Year: 1st Six Months**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate Per Hour: 55% of Journeyman's rate

Supplemental Rate Per Hour: \$18.21

**Plasterer - Second Year: 2nd Six Months**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate Per Hour: 60% of Journeyman's rate

Supplemental Rate Per Hour: \$19.29

**Plasterer - Third Year: 1st Six Months**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate Per Hour: 70% of Journeyman's rate

Supplemental Rate Per Hour: \$21.46

**Plasterer - Third Year: 2nd Six Months**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate Per Hour: 75% of Journeyman's rate

Supplemental Rate Per Hour: \$22.54

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

(Local #530)

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**PLUMBER**

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

**Plumber - First Year: 1st Six Months**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$14.00

Supplemental Benefit Rate per Hour: \$0.71

**Plumber - First Year: 2nd Six Months**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$14.00

Supplemental Benefit Rate per Hour: \$2.96

**Plumber - Second Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$23.87

Supplemental Benefit Rate per Hour: \$11.46

**Plumber - Third Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$25.97

Supplemental Benefit Rate per Hour: \$11.46

**Plumber - Fourth Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$28.82

Supplemental Benefit Rate per Hour: \$11.46

**Plumber - Fifth Year: 1st Six Months**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$30.22

Supplemental Benefit Rate per Hour: \$11.46

**Plumber - Fifth Year: 2nd Six Months**



OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
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Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$42.29

Supplemental Benefit Rate per Hour: \$11.46

(Plumbers Local #1)

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**POINTER - WATERPROOFER, CAULKER MECHANIC (EXTERIOR BUILDING  
RENOVATION)**

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

**Pointer - Waterproofer, Caulker Mechanic - First Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$25.01

Supplemental Benefit Rate per Hour: \$4.75

**Pointer - Waterproofer, Caulker Mechanic - Second Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$27.25

Supplemental Benefit Rate per Hour: \$9.70

**Pointer - Waterproofer, Caulker Mechanic - Third Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$32.24

Supplemental Benefit Rate per Hour: \$12.45

**Pointer - Waterproofer, Caulker Mechanic - Fourth Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$38.66

Supplemental Benefit Rate per Hour: \$12.45

(Bricklayer District Council)

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**ROOFER**

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 2)

**Roofer - First Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage and Supplemental Rate Per Hour: 35% of Journeyman's Rate

**Roofer - Second Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage and Supplemental Rate Per Hour: 50% of Journeyman's Rate

**Roofer - Third Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage and Supplemental Rate Per Hour: 60% of Journeyman's Rate

**Roofer - Fourth Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage and Supplemental Rate Per Hour: 75% of Journeyman's Rate

(Local #8)

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**SHEET METAL WORKER**  
**(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)**

**Sheet Metal Worker (0-6 Months)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate Per Hour: 25% of Journeyman's rate

Supplemental Rate Per Hour: \$6.15

**Sheet Metal Worker (7-18 Months)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate Per Hour: 35% of Journeyman's rate

Supplemental Rate Per Hour: \$16.21

**Sheet Metal Worker (19-30 Months)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate Per Hour: 45% of Journeyman's rate

Supplemental Rate Per Hour: \$22.23

**Sheet Metal Worker (31-36 Months)**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
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Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 55% of Journeyman's rate  
Supplemental Rate Per Hour: \$26.16

**Sheet Metal Worker (37-42 Months)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 60% of Journeyman's rate  
Supplemental Rate Per Hour: \$28.13

**Sheet Metal Worker (43-48 Months)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 70% of Journeyman's rate  
Supplemental Rate Per Hour: \$32.09

**Sheet Metal Worker (49-54 Months)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 75% of Journeyman's rate  
Supplemental Rate Per Hour: \$34.07

**Sheet Metal Worker (55-60 Months)**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 80% of Journeyman's rate  
Supplemental Rate Per Hour: \$36.03

(Local #28)

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**SIGN ERECTOR**

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

**Sign Erector - First Year: 1st Six Months**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 35% of Journeyman's rate  
Supplemental Rate Per Hour: \$5.96

**Sign Erector - First Year: 2nd Six Months**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 40% of Journeyman's rate  
Supplemental Rate Per Hour: \$6.75

**Sign Erector - Second Year: 1st Six Months**

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\$220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 45% of Journeyman's rate  
Supplemental Rate Per Hour: \$7.55

**Sign Erector - Second Year: 2nd Six Months**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 50% of Journeyman's rate  
Supplemental Rate Per Hour: \$8.34

**Sign Erector - Third Year: 1st Six Months**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 55% of Journeyman's rate  
Supplemental Rate Per Hour: \$9.13

**Sign Erector - Third Year: 2nd Six Months**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 60% of Journeyman's rate  
Supplemental Rate Per Hour: \$9.92

**Sign Erector - Fourth Year: 1st Six Months**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 65% of Journeyman's rate  
Supplemental Rate Per Hour: \$10.72

**Sign Erector - Fourth Year: 2nd Six Months**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 70% of Journeyman's rate  
Supplemental Rate Per Hour: \$11.51

**Sign Erector - Fifth Year**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 75% of Journeyman's rate  
Supplemental Rate Per Hour: \$12.30

**Sign Erector - Sixth Year**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 80% of Journeyman's rate  
Supplemental Rate Per Hour: \$12.30

(Local #137)

**STEAMFITTER**

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

**Steamfitter - First Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate and Supplemental Per Hour: 40% of Journeyman's rate

**Steamfitter - Second Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate and Supplemental Rate Per Hour: 50% of Journeyman's rate.

**Steamfitter - Third Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate and Supplemental Rate per Hour: 65% of Journeyman's rate.

**Steamfitter - Fourth Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate and Supplemental Rate Per Hour: 80% of Journeyman's rate.

**Steamfitter - Fifth Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate and Supplemental Rate Per Hour: 85% of Journeyman's rate.

(Local #638)

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**STONE MASON - SETTER**

(Ratio Apprentice of Journeyman: 1 to 1, 1 to 2)

**Stone Mason - Setters - First 750 Hours**

Effective Period: 7/1/2014 - 6/30/2015

Wage and Supplemental Rate Per Hour: 50% of Journeyman's rate

**Stone Mason - Setters - Second 750 Hours**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate Per Hour: 60% of Journeyman's rate

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
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Supplemental Rate Per Hour: 50% of Journeyperson's rate

**Stone Mason - Setters - Third 750 Hours**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate Per Hour: 70% of Journeyperson's rate

Supplemental Rate Per Hour: 50% of Journeyperson's rate

**Stone Mason - Setters - Fourth 750 Hours**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate Per Hour: 80% of Journeyperson's rate

Supplemental Rate Per Hour: 50% of Journeyperson's rate

**Stone Mason - Setters - Fifth 750 Hours**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate Per Hour: 90% of Journeyperson's rate

Supplemental Rate Per Hour: 50% of Journeyperson's rate

**Stone Mason - Setters - Sixth 750 Hours**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate Per Hour: 100% of Journeyperson's rate

Supplemental Rate Per Hour: 50% of Journeyperson's rate

(Bricklayers District Council)

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**TAPER**

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

**Drywall Taper - First Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

**Drywall Taper - Second Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

**Drywall Taper - Third Year**

Effective Period: 7/1/2014 - 6/30/2015

Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate

(Local #1974)

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**TILE LAYER - SETTER**

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

**Tile Layer - Setter - First 750 Hours**

Effective Period: 7/1/2014 - 6/30/2015

Wage and Supplemental Rate Per Hour: 50% of Journeyman's rate

**Tile Layer - Setter - Second 750 Hours**

Effective Period: 7/1/2014 - 6/30/2015

Wage and Supplemental Rate Per Hour: 55% of Journeyman's rate

**Tile Layer - Setter - Third 750 Hours**

Effective Period: 7/1/2014 - 6/30/2015

Wage and Supplemental Rate Per Hour: 65% of Journeyman's rate

**Tile Layer - Setter - Fourth 750 Hours**

Effective Period: 7/1/2014 - 6/30/2015

Wage and Supplemental Rate Per Hour: 75% of Journeyman's rate

**Tile Layer - Setter - Fifth 750 Hours**

Effective Period: 7/1/2014 - 6/30/2015

Wage and Supplemental Rate Per Hour: 85% of Journeyman's rate

**Tile Layer - Setter - Sixth 750 Hours**

Effective Period: 7/1/2014 - 6/30/2015

Wage and Supplemental Rate Per Hour: 95% of Journeyman's rate

(Local #7)

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**TIMBERPERSON**

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 6)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
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**Timberperson - First Year**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 40% of Journeyperson's rate  
Supplemental Rate Per Hour: \$30.89

**Timberperson - Second Year**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 50% of Journeyperson's rate  
Supplemental Rate Per Hour: \$30.89

**Timberperson - Third Year**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 65% of Journeyperson's rate  
Supplemental Rate Per Hour: \$30.89

**Timberperson - Fourth Year**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate Per Hour: 80% of Journeyperson's rate  
Supplemental Rate Per Hour: \$30.89

(Local #1536)



OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§230 PREVAILING WAGE SCHEDULE

LABOR LAW §230 AND  
NYC ADMINISTRATIVE CODE §6-130 BUILDING SERVICE EMPLOYEES

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PREVAILING WAGE FOR BUILDING SERVICE EMPLOYEES ON NYC CONTRACTS PURSUANT  
TO LABOR LAW §230 ET SEQ.

Building service employees on public contracts must receive not less than the prevailing rate of wage and supplements for the classification of work performed. In accordance with Labor Law §230 et seq. the Comptroller of the City of New York has promulgated this schedule of prevailing wages and supplemental benefits for building service employees engaged on New York City public building service contracts in excess of \$1,500.00. Prevailing rates are required to be annexed to and form part of the contract pursuant to §231 (4).

This schedule is a compilation of separate determinations of the prevailing rate of wage and supplements made by the Comptroller for each trade classification listed herein pursuant to New York State Labor Law section 234 (1). The source of the wage and supplement rates, whether a collective bargaining agreement, survey data or other, is listed at the end of each classification.

Agency Chief Contracting Officers should contact the Bureau of Labor Law's Classification Unit with any questions concerning trade classifications, prevailing rates or prevailing practices with respect to procurement on New York City building services contracts. Contractors are advised to review the Comptroller's Prevailing Wage Schedule before bidding on building services contracts. Contractors with questions concerning trade classifications, prevailing rates or prevailing practices with respect to building services contracts in the procurement stage must contact the contracting agency responsible for the procurement.

Any error as to compensation under the prevailing wage law or other information as to trade classification, made by the contracting agency in the contract documents or in any other communication, will not preclude a finding against the contractor of prevailing wage violation.

Any questions concerning trade classifications, prevailing rates or prevailing practices on New York City building services contracts that have already been awarded may be directed to the Bureau of Labor Law's Classification Unit by calling (212) 669-7974. All callers must have the agency name and contract registration number available when calling with questions on building services contracts. Please direct all other compliance issues to: Bureau of Labor Law, Attn: Wasył Kinach, P.E., Office of the Comptroller, 1 Centre Street, Room 1122, New York, N.Y. 10007; Fax (212) 669-4002.

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PREVAILING WAGE FOR BUILDING SERVICE EMPLOYEES IN NEW YORK CITY LEASED OR  
FINANCIALLY ASSISTED FACILITIES PURSUANT TO NYC ADMINISTRATIVE CODE § 6-130

Covered landlords & covered financial assistance recipients shall ensure that all building service employees performing building service work at the premises to which a lease or financial assistance pertains are paid no less than the prevailing wage listed in the Labor Law §230 Prevailing Wage Schedule.

Covered Landlords include:

Businesses (other than not-for-profit organizations) leasing to New York City agencies

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§230 PREVAILING WAGE SCHEDULE

commercial office space or commercial office facilities of 10,000 square feet or more where the City leases or rents no less than 51% of the total square footage of the building to which the lease applies (no less than 80% in Staten Island or in an area not defined as an exclusion area pursuant to section 421-a of the real property tax law on the date of enactment of the local law).

Covered Financial Assistance Recipients include:

Businesses (other than not-for-profit organizations) with annual gross revenues of five million dollars or more who have received financial assistance from the City of New York (as defined in New York City Administrative Code §6-130) with a total value of one million dollars or more.

Exemptions: Business Improvement Districts and employers with manufacturing operations at the premises to which the financial assistance pertains.

The information is intended to assist you in meeting your prevailing wage obligation. You should consult New York City Administrative Code §6-130 to determine whether you are covered by this prevailing wage law. New York City Administrative Code § 6-130 requires the City to maintain an updated list of covered landlords and financial assistance recipients who are subject to the prevailing wage requirement.

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Labor Law § 231 (6) and NYC Administrative Law §6-130 requires contractors to post on the site of the work a current copy of this schedule of wages and supplements.

This schedule is applicable to work performed during the effective period, unless otherwise noted. Changes to this schedule are published on our web site [www.comptroller.nyc.gov](http://www.comptroller.nyc.gov). Contractors must pay the wages and supplements in effect when the building service employee performs the work. Preliminary schedules for future one-year periods appear in the City Record on or about June 1 each succeeding year. Final schedules appear on or about July 1 in the City Record and on our web site [www.comptroller.nyc.gov](http://www.comptroller.nyc.gov).

Contractors are solely responsible for maintaining original payroll records delineating, among other things, the hours worked by each employee within a given classification.

Some of the rates in this schedule are based on collective bargaining agreements. The Comptroller's Office has attempted to include all overtime, shift and night differential, Holiday, Saturday, Sunday or other premium time work. However, this schedule does not set forth every prevailing practice with respect to such rates with which employers must comply. All such practices are nevertheless part of the employer's prevailing wage obligation and contained in the collective bargaining agreements of the prevailing wage unions. These collective bargaining agreements are available for inspection by appointment. Requests for appointments may be made by calling (212) 669-4443, Monday through Friday between the hours of 9 a.m. and 5 p.m.

In order to meet their obligation to provide prevailing supplemental benefits to each covered employee, employers must either:

- 1) Provide bona-fide benefits which cost the employer no less than the prevailing supplemental benefits rate; or
- 2) Supplement the employee's hourly wage by an amount no less than the prevailing supplemental benefits rate; or
- 3) Provide a combination of bona-fide benefits and wage supplements which cost the employer no less than the prevailing supplemental benefits rate in total.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§230 PREVAILING WAGE SCHEDULE

Particular attention should be given to the supplemental benefits requirement. Although in most instances the payment or provision for supplemental benefits is for each hour worked, some classifications require the payment or provision of supplemental benefits for each hour paid. Consequently, some prevailing practices require benefits to be purchased at the overtime, shift differential, Holiday, Saturday, Sunday or other premium time rate.

Benefits are paid for *EACH HOUR WORKED* unless otherwise noted.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§230 PREVAILING WAGE SCHEDULE



THE CITY OF NEW YORK  
OFFICE OF THE COMPTROLLER  
BUREAU OF LABOR LAW  
1 CENTRE STREET  
NEW YORK, NY 10007

SCOTT M. STRINGER  
COMPTROLLER

If you are a Covered Building Service Employee and you have been paid less than the Prevailing Wage and Benefits, please contact us at 212-669-4443 or download our complaint form from our website at [WWW.COMPTROLLER.NYC.GOV](http://WWW.COMPTROLLER.NYC.GOV) (click on the Bureau of Labor Law).

Si es un empleado de servicios a edificios elegible y recibió menos del sueldo prevalente y beneficios, por favor contáctenos en 212-669-4443 o descarga un formulario de reclamo del sitio del Internet [WWW.COMPTROLLER.NYC.GOV](http://WWW.COMPTROLLER.NYC.GOV) (oprime "Oficina de Derecho Laboral").

Wasył Kinach, P.E.  
Director of Classifications  
Bureau of Labor Law

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## BOILER SERVICEPERSON/TANK CLEANER MECHANIC (LOW PRESSURE)

### Boiler Service Person/Tank Cleaner Mechanic (Low Pressure)

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$11.00

Supplemental Benefit Rate per Hour: \$7.15

### Overtime Description

Work in excess of 8 hours performed on a Sunday or Holiday shall be paid two and one half times the regular rate.

### Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.

Double time the regular rate for Sunday.

Double time the regular rate for work on the following holiday(s).

### Paid Holidays

New Year's Day  
Martin Luther King Jr. Day  
President's Day  
Good Friday  
Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day  
Employee's Birthday

### Vacation

1 year service.....five (5) days  
3 years service or more.....ten (10) days  
8 years service or more.....fifteen (15) days  
13 years service or more.....twenty (20) days

### SICK LEAVE:

1-2 years employment.....4 days  
2-3 years employment.....5 days  
3-4 years employment.....6 days  
4-5 years employment.....8 days  
6 years or more employment.....10 days

(Local #32 B/J)

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## BUILDING CLEANER AND MAINTAINER (OFFICE)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§230 PREVAILING WAGE SCHEDULE

**Office Building Class "A" Handyperson (Over 280,000 square feet gross area)**

Effective Period: 7/1/2014 - 12/31/2014

Wage Rate per Hour: \$25.65

Supplemental Benefit Rate per Hour: \$9.91

Supplemental Note: for new employee 0-3 months of employment - \$0.00

Effective Period: 1/1/2015 - 6/30/2015

Wage Rate per Hour: \$26.20

Supplemental Benefit Rate per Hour: \$10.46

Supplemental Note: for new employee 0-3 months of employment - \$0.00

**Office Building Class "A" Foreperson, Starter (Over 280,000 square feet gross area)**

Effective Period: 7/1/2014 - 12/31/2014

Wage Rate per Hour: \$25.54

Supplemental Benefit Rate per Hour: \$9.91

Supplemental Note: for new employee 0-3 months of employment - \$0.00

Effective Period: 1/1/2015 - 6/30/2015

Wage Rate per Hour: \$26.09

Supplemental Benefit Rate per Hour: \$10.46

Supplemental Note: for new employee 0-3 months of employment - \$0.00

**Office Building Class "A" Cleaner/Porter, Elevator Operator, Exterminator, Fire Safety Director (Over 280,000 square feet gross area)**

Effective Period: 7/1/2014 - 12/31/2014

Wage Rate per Hour: \$23.42

Supplemental Benefit Rate per Hour: \$9.91

Supplemental Note: for new employee 0-3 months of employment - \$0.00; for new employee 4-12 months of employment - \$7.22; for new employee 13-24 months of employment - \$9.58

NEW HIRE: Cleaner/Porter, Elevator Operator, Exterminator, Fire Safety Director may be paid 75% of the wage rate above for the first 21 months of employment, 85% of the wage rate above for the 22nd through 42nd months of employment, and upon the completion of 42 months of employment employee shall be paid the full wage rate. Note: New Hires hired before January 1, 2012 will continue to receive 80% of the wage rate above for the first 30 months, and upon the completion of 30 months of employment employee shall be paid the full wage rate. Upon completion of two years of employment the new hire receives the full supplemental benefit rate.

Effective Period: 1/1/2015 - 6/30/2015

Wage Rate per Hour: \$23.92

Supplemental Benefit Rate per Hour: \$10.46

Supplemental Note: for new employee 0-3 months of employment - \$0.00; for new employee 4-12 months of employment - \$7.67; for new employee 13-24 months of employment - \$10.13

NEW HIRE: Cleaner/Porter, Elevator Operator, Exterminator, Fire Safety Director may be paid 75% of the wage rate above for the first 21 months of employment, 85% of the wage rate above for the 22nd through 42nd months of employment, and upon the completion of 42 months of employment employee shall be paid the full wage rate.

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§230 PREVAILING WAGE SCHEDULE

Note: New Hires hired before January 1, 2012 will continue to receive 80% of the wage rate above for the first 30 months, and upon the completion of 30 months of employment employee shall be paid the full wage rate. Upon completion of two years of employment the new hire receives the full supplemental benefit rate.

**Office Building Class "B" Handyperson (Over 120,000 and less than 280,000 square feet gross area)**

Effective Period: 7/1/2014 - 12/31/2014

Wage Rate per Hour: \$25.62

Supplemental Benefit Rate per Hour: \$9.91

Supplemental Note: for new employee 0-3 months of employment - \$0.00

Effective Period: 1/1/2015 - 6/30/2015

Wage Rate per Hour: \$26.17

Supplemental Benefit Rate per Hour: \$10.46

Supplemental Note: for new employee 0-3 months of employment - \$0.00

**Office Building Class "B" Foreperson, Starter (Over 120,000 and less than 280,000 square feet gross area)**

Effective Period: 7/1/2014 - 12/31/2014

Wage Rate per Hour: \$25.50

Supplemental Benefit Rate per Hour: \$9.91

Supplemental Note: for new employee 0-3 months of employment - \$0.00

Effective Period: 1/1/2015 - 6/30/2015

Wage Rate per Hour: \$26.05

Supplemental Benefit Rate per Hour: \$10.46

Supplemental Note: for new employee 0-3 months of employment - \$0.00

**Office Building Class "B" Cleaner/Porter, Elevator Operator, Exterminator, Fire Safety Director (Over 120,000 and less than 280,000 square feet gross area)**

Effective Period: 7/1/2014 - 12/31/2014

Wage Rate per Hour: \$23.39

Supplemental Benefit Rate per Hour: \$9.91

Supplemental Note: for new employee 0-3 months of employment - \$0.00; for new employee 4-12 months of employment - \$7.22; for new employee 13-24 months of employment - \$9.58

NEW HIRE: Cleaner/Porter, Elevator Operator, Exterminator, Fire Safety Director may be paid 75% of the wage rate above for the first 21 months of employment, 85% of the wage rate above for the 22nd through 42nd months of employment, and upon the completion of 42 months of employment employee shall be paid the full wage rate. Note: New Hires hired before January 1, 2012 will continue to receive 80% of the wage rate above for the first 30 months, and upon the completion of 30 months of employment employee shall be paid the full wage rate. Upon completion of two years of employment the new hire receives the full supplemental benefit rate.

Effective Period: 1/1/2015 - 6/30/2015

Wage Rate per Hour: \$23.89

Supplemental Benefit Rate per Hour: \$10.46

Supplemental Note: for new employee 0-3 months of employment - \$0.00; for new employee 4-12 months of employment - \$7.67; for new employee 13-24 months of employment - \$10.13



OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§230 PREVAILING WAGE SCHEDULE

**NEW HIRE:** Cleaner/Porter, Elevator Operator, Exterminator, Fire Safety Director may be paid 75% of the wage rate above for the first 21 months of employment, 85% of the wage rate above for the 22nd through 42nd months of employment, and upon the completion of 42 months of employment employee shall be paid the full wage rate. Note: New Hires hired before January 1, 2012 will continue to receive 80% of the wage rate above for the first 30 months, and upon the completion of 30 months of employment employee shall be paid the full wage rate. Upon completion of two years of employment the new hire receives the full supplemental benefit rate.

**Office Building Class "C" Handyperson (Less than 120,000 square feet gross area)**

Effective Period: 7/1/2014 - 12/31/2014

Wage Rate per Hour: **\$25.57**

Supplemental Benefit Rate per Hour: **\$9.91**

Supplemental Note: for new employee 0-3 months of employment - \$0.00

Effective Period: 1/1/2015 - 6/30/2015

Wage Rate per Hour: **\$26.12**

Supplemental Benefit Rate per Hour: **\$10.46**

Supplemental Note: for new employee 0-3 months of employment - \$0.00

**Office Building Class "C" Foreperson, Starter (Less than 120,000 square feet gross area)**

Effective Period: 7/1/2014 - 12/31/2014

Wage Rate per Hour: **\$25.46**

Supplemental Benefit Rate per Hour: **\$9.91**

Supplemental Note: for new employee 0-3 months of employment - \$0.00

Effective Period: 1/1/2015 - 6/30/2015

Wage Rate per Hour: **\$26.01**

Supplemental Benefit Rate per Hour: **\$10.46**

Supplemental Note: for new employee 0-3 months of employment - \$0.00

**Office Building Class "C" Cleaner/Porter, Elevator Operator, Exterminator, Fire Safety Director (Less than 120,000 square feet gross area)**

Effective Period: 7/1/2014 - 12/31/2014

Wage Rate per Hour: **\$23.35**

Supplemental Benefit Rate per Hour: **\$9.91**

Supplemental Note: for new employee 0-3 months of employment - \$0.00; for new employee 4-12 months of employment - \$7.22; for new employee 13-24 months of employment - \$9.58

**NEW HIRE:** Cleaner/Porter, Elevator Operator, Exterminator, Fire Safety Director may be paid 75% of the wage rate above for the first 21 months of employment, 85% of the wage rate above for the 22nd through 42nd months of employment, and upon the completion of 42 months of employment employee shall be paid the full wage rate. Note: New Hires hired before January 1, 2012 will continue to receive 80% of the wage rate above for the first 30 months, and upon the completion of 30 months of employment employee shall be paid the full wage rate. Upon completion of two years of employment the new hire receives the full supplemental benefit rate.

Effective Period: 1/1/2015 - 6/30/2015

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
\$230 PREVAILING WAGE SCHEDULE

Wage Rate per Hour: **\$23.85**

Supplemental Benefit Rate per Hour: **\$10.46**

Supplemental Note: for new employee 0-3 months of employment - \$0.00; for new employee 4-12 months of employment - \$7.67; for new employee 13-24 months of employment - \$10.13

**NEW HIRE:** Cleaner/Porter, Elevator Operator, Exterminator, Fire Safety Director may be paid 75% of the wage rate above for the first 21 months of employment, 85% of the wage rate above for the 22nd through 42nd months of employment, and upon the completion of 42 months of employment employee shall be paid the full wage rate. Note: New Hires hired before January 1, 2012 will continue to receive 80% of the wage rate above for the first 30 months, and upon the completion of 30 months of employment employee shall be paid the full wage rate. Upon completion of two years of employment the new hire receives the full supplemental benefit rate.

Months of employment shall be defined as an Employee's length of service with the Employer or at the Facility, whichever is greater.

### Overtime Description

Supplemental Benefits shall be paid for each hour paid, up to forty (40) paid hours per week.

### Overtime

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for work on a holiday plus the day's pay.

Time and one half the regular hourly rate after 40 hours in any work week.

### Paid Holidays

New Year's Day  
President's Day  
Good Friday  
Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day

### Vacation

Less than 6 months of work.....no vacation  
6 months of work.....three (3) days  
1 year of work.....ten (10) days  
5 years of work.....fifteen (15) days  
15 years of work.....twenty (20) days  
21 years of work.....twenty-one (21) days  
22 years of work.....twenty-two (22) days  
23 years of work.....twenty-three (23) days  
24 years of work.....twenty-four (24) days  
25 years or more of work.....twenty-five (25) days  
Plus two Personal Days per year.

### Sick Leave:

10 sick days per year.

Unused sick leave paid in the succeeding January, one full day pay for each unused sick day.

(Local #32 B/J)

## **BUILDING CLEANER AND MAINTAINER (RESIDENTIAL)**

### **Residential Building Handyperson**

Effective Period: 7/1/2014 - 4/20/2015

Wage Rate per Hour: **\$24.26**

Supplemental Benefit Rate per Hour: **\$9.83**

Supplemental Note: for new employee 0-3 months of employment - \$0.00. Effective 1/1/2015 - \$10.38

Effective Period: 4/21/2015 - 6/30/2015

Wage Rate per Hour: **\$24.83**

Supplemental Benefit Rate per Hour: **\$10.38**

Supplemental Note: for new employee 0-3 months of employment - \$0.00

### **Residential Building Cleaner/Porter, Doorperson, Elevator Operator**

Effective Period: 7/1/2014 - 4/20/2015

Wage Rate per Hour: **\$21.98**

Supplemental Benefit Rate per Hour: **\$9.83**

Supplemental Note: for new employee 0-3 months of employment - \$0.00; for new employee 4-12 months of employment - \$7.22; for new employee 13-24 months of employment - \$9.58

Effective 1/1/2015 - \$10.38, for new employee 0-3 months of employment - \$0.00; for new employee 4-12 months of employment - \$7.67; for new employee 13-24 months of employment - \$10.13

**NEW HIRE - Cleaner/Porter, Doorperson, Elevator Operator:** may be paid a starting rate of 80% of the hourly rate published above. Upon completion of 30 months of employment, the new hire shall be paid the full wage rate. Upon completion of two years of employment the new hire receives the full supplemental benefit rate.

Effective Period: 4/21/2015 - 6/30/2015

Wage Rate per Hour: **\$22.51**

Supplemental Benefit Rate per Hour: **\$10.38**

Supplemental Note: for new employee 0-3 months of employment - \$0.00; for new employee 4-12 months of employment - \$7.67; for new employee 13-24 months of employment - \$10.13

**NEW HIRE - Cleaner/Porter, Doorperson, Elevator Operator:** 0-21 months may be paid 75% of the hourly wage rate published above, 22-42 months may be paid 85% of the hourly wage rate published above. Upon completion of 42 months of employment, the new hire shall be paid the full wage rate. Upon completion of two years of employment the new hire receives the full supplemental benefit rate.

### **Overtime Description**

Supplemental Benefits shall be paid for each hour paid, up to forty (40) paid hours per week.

### **Overtime**

Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for work on a holiday plus the day's pay.

Time and one half the regular hourly rate after 40 hours in any work week.

### **Paid Holidays**

New Year's Day

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§230 PREVAILING WAGE SCHEDULE

Martin Luther King Jr. Day  
President's Day  
Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Election Day  
Thanksgiving Day  
Christmas Day

**Vacation**

6 months.....three (3) days  
1 year.....ten (10) days  
5 years.....fifteen (15) days  
15 years.....twenty (20) days  
21 years.....twenty-one (21) days  
22 years.....twenty-two (22) days  
23 years.....twenty-three (23) days  
24 years.....twenty-four (24) days  
25 years.....twenty-five (25) days  
Plus two Personal Days per year.

**SICK LEAVE**

After 1 year of service.....ten (10) days per year

(Local #32 B/J)

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**BUILDING HVAC SERVICES OPERATOR**

**Engineer (Refrigeration)**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$36.73**

Supplemental Benefit Rate per Hour: **\$16.35**

**Fireperson**

Fireperson (Helper): Assist the Engineer

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: **\$28.60**

Supplemental Benefit Rate per Hour: **\$15.97**

Please note that the NYC Comptroller's Office does not publish rates for the Stationary Engineer title.

**Overtime Description**

All hours worked on a holiday shall be paid at two and one half times the regular wage rate in lieu of the paid day off.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§230 PREVAILING WAGE SCHEDULE

**Overtime**

Time and one half the regular rate after an 8 hour day.  
Time and one half the regular rate for Saturday.  
Time and one half the regular rate for Sunday.

**Paid Holidays**

New Year's Day  
Memorial Day  
Independence Day  
Labor Day  
Thanksgiving Day  
Christmas Day  
Plus six (6) floating Holidays

**Vacation**

6 months ..... three (3) days  
1 year ..... ten (10) days  
5 years ..... fifteen (15) days  
15 years ..... twenty (20) days  
21 years ..... twenty-one (21) days  
22 years ..... twenty-two (22) days  
23 years ..... twenty-three (23) days  
24 years ..... twenty-four (24) days  
25 years ..... twenty-five (25) days

(Local #94)

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**CLEANER (PARKING GARAGE)**

**Garage Cleaner**

Effective Period: 7/1/2014 - 6/30/2015  
Wage Rate per Hour: \$10.76  
Supplemental Benefit Rate per Hour: \$1.63

**Overtime**

Time and one half the regular rate after an 8 hour day.  
Time and one half the regular hourly rate after 40 hours in any work week.

(Based on data from NYS Department of Labor Occupational Employment Statistics and US Department of Labor Bureau of Labor Statistics)

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**FUEL OIL**

**Fuel Oil, Coal, Fuel Gas, Petroleum Product Chauffeur (5th Year and above)**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
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Effective Period: 7/1/2014 - 12/15/2014  
Wage Rate per Hour: \$31.36  
Supplemental Benefit Rate per Hour: \$20.77

Effective Period: 12/16/2014 - 6/30/2015  
Wage Rate per Hour: \$31.86  
Supplemental Benefit Rate per Hour: \$21.27

**Fuel Oil, Coal, Fuel Gas, Petroleum Product Chauffeur (4th Year)**

Effective Period: 7/1/2014 - 12/15/2014  
Wage Rate per Hour: \$28.75  
Supplemental Benefit Rate per Hour: \$20.77

Effective Period: 12/16/2014 - 6/30/2015  
Wage Rate per Hour: \$29.25  
Supplemental Benefit Rate per Hour: \$21.27

**Fuel Oil, Coal, Fuel Gas, Petroleum Product Chauffeur (3rd Year)**

Effective Period: 7/1/2014 - 12/15/2014  
Wage Rate per Hour: \$26.75  
Supplemental Benefit Rate per Hour: \$20.77

Effective Period: 12/16/2014 - 6/30/2015  
Wage Rate per Hour: \$27.25  
Supplemental Benefit Rate per Hour: \$21.27

**Fuel Oil, Coal, Fuel Gas, Petroleum Product Chauffeur (2nd Year)**

Effective Period: 7/1/2014 - 12/15/2014  
Wage Rate per Hour: \$24.75  
Supplemental Benefit Rate per Hour: \$20.77

Effective Period: 12/16/2014 - 6/30/2015  
Wage Rate per Hour: \$25.25  
Supplemental Benefit Rate per Hour: \$21.27

**Fuel Oil, Coal, Fuel Gas, Petroleum Product Chauffeur (1st Year)**

Effective Period: 7/1/2014 - 12/15/2014  
Wage Rate per Hour: \$22.75  
Supplemental Benefit Rate per Hour: \$20.77

Effective Period: 12/16/2014 - 6/30/2015  
Wage Rate per Hour: \$23.25  
Supplemental Benefit Rate per Hour: \$21.27

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§230 PREVAILING WAGE SCHEDULE

**Overtime**

Time and one half the regular rate after an 8 hour day.  
Time and one half the regular rate for Saturday.  
Double time the regular rate for Sunday.

**Overtime Holidays**

Double time the regular rate for work on the following holiday(s).

- Martin Luther King Jr. Day
- Lincoln's Birthday
- Washington's Birthday
- Memorial Day
- Independence Day
- Labor Day
- Columbus Day
- Election Day
- Veteran's Day

Triple time the regular rate for work on the following holiday(s).

- New Year's Day
- Thanksgiving Day
- Christmas Day

**Paid Holidays**

- New Year's Day
- Martin Luther King Jr. Day
- Lincoln's Birthday
- Washington's Birthday
- Memorial Day
- Independence Day
- Labor Day
- Columbus Day
- Election Day
- Veteran's Day
- Thanksgiving Day
- Christmas Day

**Vacation**

Less than 75 days worked.....no vacation.  
75 days worked, but less than 110 days worked in a calendar year.....five (5) days the following year.  
110 days or more worked in a calendar year.....ten (10) days the following year.

**SICK LEAVE:**

1 day sick leave earned for each 40 days worked in the preceding calendar year for a maximum of five (5) days per calendar year.

(Local #553)

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**GARDENER**

Gardener

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§230 PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$17.57

Supplemental Benefit Rate per Hour: \$1.63

**Overtime**

Time and one half the regular rate after an 8 hour day.

Time and one half the regular hourly rate after 40 hours in any work week.

(Based on data from NYS Department of Labor Occupational Employment Statistics and US Department of Labor Bureau of Labor Statistics)

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**LOCKSMITH**

Locksmith

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$22.28

Supplemental Benefit Rate per Hour: \$6.13

**Overtime**

Time and one half the regular rate after an 8 hour day.

Time and one half the regular hourly rate after 40 hours in any work week.

(Based on data from NYS Department of Labor Occupational Employment Statistics and US Department of Labor Bureau of Labor Statistics)

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**MEDICAL WASTE REMOVAL**

Driver

Effective Period: 7/1/2014 - 3/31/2015

Wage Rate per Hour: \$18.76

Supplemental Benefit Rate per Hour: \$9.47

Effective Period: 4/1/2015 - 6/30/2015

Wage Rate per Hour: \$19.59

Supplemental Benefit Rate per Hour: \$10.34

Helper

Effective Period: 7/1/2014 - 3/31/2015

Wage Rate per Hour: \$15.01

Supplemental Benefit Rate per Hour: \$9.47



OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§230 PREVAILING WAGE SCHEDULE

Effective Period: 4/1/2015 - 6/30/2015

Wage Rate per Hour: \$15.84

Supplemental Benefit Rate per Hour: \$10.34

**Tractor Trailer Driver**

Effective Period: 7/1/2014 - 3/31/2015

Wage Rate per Hour: \$21.26

Supplemental Benefit Rate per Hour: \$9.47

Effective Period: 4/1/2015 - 6/30/2015

Wage Rate per Hour: \$22.09

Supplemental Benefit Rate per Hour: \$10.34

**Overtime Description**

Time and one half the regular hourly rate after an 8 hour day or after 40 hours in any work week. The seventh day of work in a workweek is paid at double time the regular hourly rate. Time and one half the regular hourly rate for work on a holiday plus days pay for below paid holidays.

**Paid Holidays**

- President's Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- Christmas Day

**Vacation**

1 year of service but less than five years.....	ten (10) days
5 years of service but less than ten years.....	fifteen (15) days
10 years of service.....	sixteen (16) days
11 years.....	seventeen (17) days
12 years.....	eighteen (18) days
13 years.....	nineteen (19) days
14 years.....	twenty (20) days
20 years.....	twenty-one (21) days
21 years.....	twenty-two (22) days
22 years.....	twenty-three (23) days
23 years.....	twenty-four (24) days
24 years.....	twenty-five (25) days
Plus 5 Personal Days	

(Local #813)

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**MOVER - OFFICE FURNITURE AND EQUIPMENT**

**Heavy and Tractor Trailer Truck Driver**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§230 PREVAILING WAGE SCHEDULE

Tractor-trailer combination or a truck with a capacity of at least 26,000 pounds Gross Vehicle Weight (GVW)

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$22.48

Supplemental Benefit Rate per Hour: \$5.13

**Light Truck Driver**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$18.89

Supplemental Benefit Rate per Hour: \$5.13

**Laborer and Freight, Stock, and Material Movers, Hand**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$17.59

Supplemental Benefit Rate per Hour: \$5.13

**Overtime**

Time and one half the regular rate after an 8 hour day.

Time and one half the regular hourly rate after 40 hours in any work week.

(Based on data from NYS Department of Labor Occupational Employment Statistics and US Department of Labor Bureau of Labor Statistics)

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**REFUSE REMOVER**

**Refuse Remover**

Effective Period: 7/1/2014 - 6/30/2015

Wage Rate per Hour: \$29.54

Supplemental Benefit Rate per Hour: \$5.13

**Overtime**

Time and one half the regular rate after an 8 hour day.

Time and one half the regular hourly rate after 40 hours in any work week.

(Based on data from NYS Department of Labor Occupational Employment Statistics and US Department of Labor Bureau of Labor Statistics)

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**SECURITY GUARD (ARMED)**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§230 PREVAILING WAGE SCHEDULE

**Security Guard (Armed)**

Effective Period: 7/1/2014 - 12/31/2014

Wage Rate per Hour: \$28.25

Supplemental Benefit Rate per Hour: \$5.02

Supplemental Note: for new employee 0-30 days of employment - \$4.44; for new employee 31-120 days of employment - \$4.61; for new employee 121 days - 2 years of employment - \$4.63

Effective Period: 1/1/2015 - 6/30/2015

Wage Rate per Hour: \$28.50

Supplemental Benefit Rate per Hour: \$5.34

Supplemental Note: for new employee 0-30 days of employment - \$4.62; for new employee 31-120 days of employment - \$4.79; for new employee 121 days - 2 years of employment - \$4.90

Months of employment shall be defined as an Employee's length of service with the Employer or at the Facility, whichever is greater.

**Overtime Description**

A guard who works a holiday is paid the regular rate plus receives the paid holiday.

Supplemental Benefits shall be paid for each hour paid, up to forty (40) paid hours per week.

**Overtime**

Time and one half the regular rate after an 8 hour day.

Time and one half the regular hourly rate after 40 hours in any work week.

**Paid Holidays**

New Year's Day

President's Day

Memorial Day

Independence Day

Labor Day

Thanksgiving Day

Christmas Day

Personal Day

**Vacation**

Months on payroll	Vacation with Pay
6	3 days
12	5 days
24	10 days
60	15 days
180	20 days
300	25 days

**Sick Leave**

Employees accrue paid sick leave at the rate of one (1) sick day for every six (6) months worked, up to a maximum of six (6) days a year.

(Local #32B/J)

## SECURITY GUARD (UNARMED)

### Security Guard (Unarmed) 0 - 6 months

Effective Period: 7/1/2014 - 12/31/2014

Wage Rate per Hour: **\$13.10**

Supplemental Benefit Rate per Hour: **\$4.63**

Supplemental Note: for new employee 0-30 days of employment - \$4.44; for new employee 31-120 days of employment - \$4.61

Effective Period: 1/1/2015 - 6/30/2015

Wage Rate per Hour: **\$13.35**

Supplemental Benefit Rate per Hour: **\$4.90**

Supplemental Note: for new employee 0-30 days of employment - \$4.62; for new employee 31-120 days of employment - \$4.79

### Security Guard (Unarmed) 7 - 12 months

Effective Period: 7/1/2014 - 12/31/2014

Wage Rate per Hour: **\$13.60**

Supplemental Benefit Rate per Hour: **\$4.63**

Effective Period: 1/1/2015 - 6/30/2015

Wage Rate per Hour: **\$13.85**

Supplemental Benefit Rate per Hour: **\$4.90**

### Security Guard (Unarmed) 13 - 18 months

Effective Period: 7/1/2014 - 12/31/2014

Wage Rate per Hour: **\$14.10**

Supplemental Benefit Rate per Hour: **\$4.63**

Effective Period: 1/1/2015 - 6/30/2015

Wage Rate per Hour: **\$14.35**

Supplemental Benefit Rate per Hour: **\$4.90**

### Security Guard (Unarmed) 19 - 24 months

Effective Period: 7/1/2014 - 12/31/2014

Wage Rate per Hour: **\$14.60**

Supplemental Benefit Rate per Hour: **\$4.63**

Effective Period: 1/1/2015 - 6/30/2015

Wage Rate per Hour: **\$14.85**

Supplemental Benefit Rate per Hour: **\$4.90**

### Security Guard (Unarmed) 25 - 30 months

Effective Period: 7/1/2014 - 12/31/2014

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§230 PREVAILING WAGE SCHEDULE

Wage Rate per Hour: **\$15.10**  
Supplemental Benefit Rate per Hour: **\$5.02**

Effective Period: 1/1/2015 - 6/30/2015  
Wage Rate per Hour: **\$15.35**  
Supplemental Benefit Rate per Hour: **\$5.34**

**Security Guard (Unarmed) 31 months or more**

Effective Period: 7/1/2014 - 12/31/2014  
Wage Rate per Hour: **\$15.60**  
Supplemental Benefit Rate per Hour: **\$5.02**

Effective Period: 1/1/2015 - 6/30/2015  
Wage Rate per Hour: **\$16.00**  
Supplemental Benefit Rate per Hour: **\$5.34**

Months of employment shall be defined as an Employee's length of service with the Employer or at the Facility, whichever is greater.

**Overtime Description**

A guard who works a holiday is paid the regular rate plus receives the paid holiday.  
Supplemental Benefits shall be paid for each hour paid, up to forty (40) paid hours per week.

**Overtime**

Time and one half the regular rate after an 8 hour day.  
Time and one half the regular hourly rate after 40 hours in any work week.

**Paid Holidays**

New Year's Day  
President's Day  
Memorial Day  
Independence Day  
Labor Day  
Thanksgiving Day  
Christmas Day  
Personal Day

**Vacation**

Months on payroll	Vacation with Pay
6	3 days
12	5 days
24	10 days
60	15 days
180	20 days
300	25 days

**Sick Leave**

Employees accrue paid sick leave at the rate of one (1) sick day for every six (6) months worked, up to a maximum of six (6) days a year.

(Local #32B/J)

## **WINDOW CLEANER**

### **Window Cleaner**

Effective Period: 7/1/2014 - 12/31/2014

Wage Rate per Hour: **\$26.90**

Supplemental Benefit Rate per Hour: **\$9.91**

Effective Period: 1/1/2015 - 6/30/2015

Wage Rate per Hour: **\$27.40**

Supplemental Benefit Rate per Hour: **\$10.46**

### **Power Operated Scaffolds, Manual Scaffolds, and Boatswain Chairs**

Effective Period: 7/1/2014 - 12/31/2014

Wage Rate per Hour: **\$29.27**

Supplemental Benefit Rate per Hour: **\$9.91**

Effective Period: 1/1/2015 - 6/30/2015

Wage Rate per Hour: **\$29.90**

Supplemental Benefit Rate per Hour: **\$10.46**

### **Window Cleaner Apprentice (0 - 3 months)**

Effective Period: 7/1/2014 - 12/31/2014

Wage Rate per Hour: **\$19.92**

Supplemental Benefit Rate per Hour: None

Effective Period: 1/1/2015 - 6/30/2015

Wage Rate per Hour: **\$20.29**

Supplemental Benefit Rate per Hour: None

### **Window Cleaner Apprentice (4 - 7 months)**

Effective Period: 7/1/2014 - 12/31/2014

Wage Rate per Hour: **\$21.54**

Supplemental Benefit Rate per Hour: **\$9.91**

Effective Period: 1/1/2015 - 6/30/2015

Wage Rate per Hour: **\$21.94**

Supplemental Benefit Rate per Hour: **\$10.46**

### **Window Cleaner Apprentice (8 - 11 months)**

Effective Period: 7/1/2014 - 12/31/2014

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§230 PREVAILING WAGE SCHEDULE

Wage Rate per Hour: \$22.82  
Supplemental Benefit Rate per Hour: \$9.91

Effective Period: 1/1/2015 - 6/30/2015  
Wage Rate per Hour: \$23.24  
Supplemental Benefit Rate per Hour: \$10.46

**Window Cleaner Apprentice (12 - 15 months)**

Effective Period: 7/1/2014 - 12/31/2014  
Wage Rate per Hour: \$24.12  
Supplemental Benefit Rate per Hour: \$9.91

Effective Period: 1/1/2015 - 6/30/2015  
Wage Rate per Hour: \$24.57  
Supplemental Benefit Rate per Hour: \$10.46

**Window Cleaner Apprentice (16 - 17 months)**

Effective Period: 7/1/2014 - 12/31/2014  
Wage Rate per Hour: \$25.44  
Supplemental Benefit Rate per Hour: \$9.91

Effective Period: 1/1/2015 - 6/30/2015  
Wage Rate per Hour: \$25.91  
Supplemental Benefit Rate per Hour: \$10.46

Months of employment shall be defined as an Employee's length of service with the Employer or at the Facility, whichever is greater.

**Overtime**

Time and one half the regular rate after an 8 hour day.  
Time and one half the regular rate for Saturday.  
Double time the regular rate for Sunday.  
Time and one half the regular rate for work on a holiday plus the day's pay.

**Paid Holidays**

New Year's Day  
Martin Luther King Jr. Day  
President's Day  
Good Friday  
Memorial Day  
Independence Day  
Labor Day  
Columbus Day  
Thanksgiving Day  
Day after Thanksgiving  
Christmas Day  
Personal Day

**Vacation**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK  
§230 PREVAILING WAGE SCHEDULE

After 7 months but less than 1 year of service.....	five (5) days
1 year but less than 5 years of service.....	ten (10) days
5 years of service but less than 15 years of service.....	fifteen (15) days
15 years of service but less than 21 years of service.....	twenty (20) days
21 years.....	twenty-one (21) days
22 years.....	twenty-two (22) days
23 years.....	twenty-three (23) days
24 years.....	twenty-four (24) days
25 years or more of service.....	twenty-five (25) days
Plus 1 day per year for medical visit	

**SICK LEAVE:**

10 days after one year worked. Unused sick days to be paid in cash.

(Local #32 B/J)





NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

**DDC STANDARD GENERAL CONDITIONS  
FOR SINGLE CONTRACT PROJECTS**



NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

June 01, 2013

No Text



NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

**DIVISION 01 – DDC STANDARD GENERAL CONDITIONS  
SINGLE CONTRACT PROJECTS  
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NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

June 01, 2013

NO TEXT



**SECTION 01 10 00  
SUMMARY**

**PART I - GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].
- B. Addendum to the General Conditions: These General Conditions include and are supplemented by the Addendum to the General Conditions (the "Addendum"). The Addendum includes the following: (1) schedules referred to in these General Conditions (Schedule A through F), (2) information regarding the applicability of various articles, and (3) amended articles, if any.

**1.2 SUMMARY:**

- A. This section includes the following:
  - 1. Scope and Intent
  - 2. Provisions Referenced in the Contract
  - 3. Performance of Work During Non-Regular Work Hours (Pursuant to a Change Order)
  - 4. Interruption of Services at Existing Facilities

**1.3 DEFINITIONS:**

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

**1.4 SCOPE AND INTENT:**

- A. Description of Project: Refer to the Addendum for a description of the project.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 1.4 B**

- B. LEED: The City of New York will seek U.S. Green Building Council (USGBC) LEED (Leadership in Energy and Environmental Design) certification for this Project as specified in Section 01 81 13, "SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS" and the Addendum to the General Conditions.



NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 1.4 C**

- C. **COMMISSIONING:** The project will be commissioned by an independent third party under separate contract with the City of New York. Commissioning shall be in accordance with ASHRAE and USGBC LEED procedures, as described in Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS, and the Addendum to the General Conditions. The Contractor shall cooperate with the commissioning agent and provide whatever assistance is required.
- D. **PROGRESS SCHEDULE:** Refer to Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION for requirements of the project.
- E. **COMPLETION OF WORK:** Work to be done under the Contract is comprised of the furnishing of all labor, materials, equipment and other appurtenances, and obtaining all regulatory agency approvals necessary and required to complete the construction work in accordance with the Contract.
- F. **OMISSION OF DETAILS:** All work called for in the Specifications applicable to the Contract but not shown on the Contract Drawings in their present form, or vice versa, is required, and shall be performed by the Contractor as though it were originally delineated or described. The cost of such work shall be deemed included in the total Contract Price.
- G. **WORK NOT IN SPECIFICATIONS OR CONTRACT DRAWINGS:** Work not particularly specified in the Specifications nor detailed on the Contract Drawings but involved in carrying out their intent or in the complete and proper execution of the work, is required, and shall be performed by the Contractor. The cost of such work shall be deemed included in the total Contract Price.
- H. **SILENCE OF THE SPECIFICATIONS:** The apparent silence of the Specifications as to any detail, or the apparent omission from them of a detailed description concerning any work to be done and materials to be furnished, shall be regarded as meaning that only the best practice is to prevail and that only the best material and workmanship is to be used and interpretation of the Specifications shall be made upon that basis.
- I. **CONFLICT BETWEEN CONTRACT DRAWINGS AND SPECIFICATIONS:** Should any conflict occur in or between the Drawings and Specifications, the Contractor shall be deemed to have estimated the most expensive way of doing the work unless the Contractor shall have asked for and obtained a decision in writing from the Commissioner before the submission of the bid as to what shall govern.

**1.5 CONTRACT DRAWINGS AND SPECIFICATIONS:**

- A. **SCHEDULE C -** The Contract Drawings are listed in Schedule C, which is set forth in the Addendum. Such drawings referred to in the Contract, and in the applicable Specifications for the Contract, bear the general title:

City of New York  
Department of Design and Construction  
Division of Public Buildings
- B. **DOCUMENTS FURNISHED TO THE CONTRACTOR -** After the award of the Contract, the Contractor will be furnished with five (5) complete sets of paper prints of all Contract Drawings mentioned in Paragraph A above, as well as a copy of the Specifications.
- C. **ADDITIONAL COPIES** of Drawings and Specifications, when requested, will be furnished to the Contractor if available.



- D. **SUPPLEMENTARY DRAWINGS** - When, in the opinion of the Commissioner, it becomes necessary to more fully explain the work to be done, or to illustrate the work further, or to show any changes which may be required, drawings known as Supplementary Drawings will be prepared by the Commissioner.
- E. **COMPENSATION** - Where Supplementary Drawings entail extra work, compensation therefore to the Contractor shall be subject to the terms of the Contract. The Supplementary Drawings shall be binding upon the Contractor with the same force as the Contract Drawings.
- F. **SUPPLEMENTARY DRAWING PRINTS** - Three (3) copies of prints of these Supplementary Drawings will be furnished to the Contractor.
- G. **COPIES TO SUBCONTRACTORS** - The Contractor shall furnish each of its subcontractors and material suppliers such copies of Contract Drawings, Supplementary Drawings, or copies of the Specifications as may be required for its work.

**1.6 COORDINATION:**

- A. **COORDINATION AND COOPERATION** - The Contractor shall consult and study the requirements of the Contract Drawings and Specifications for all required work, including all work to be performed by trade subcontractors, so that the Contractor may become acquainted with the work of the project as a whole in order to achieve the proper coordination and cooperation necessary for the efficient and timely performance of the work.
- B. **CONTRACTOR TO CHECK DRAWINGS:** - The Contractor shall verify all dimensions, quantities and details shown on the Contract Drawings, Schedules, or other data received from the Commissioner, and shall notify the Commissioner of all errors, omissions, conflicts and discrepancies found therein. Notice of such errors shall be given before the Contractor proceeds with any work. Figures shall be used in preference to scale dimensions and large-scale drawings in preference to small-scale drawings.

**1.7 SHOP DRAWINGS AND RECORD DRAWINGS:**

Refer to Division I Section 01 33 00 – SUBMITAL PROCEDURES and Section 01 78 39 – PROJECT RECORD DRAWINGS for requirements applicable to shop drawings and record drawings.

**1.8 TEMPORARY FACILITIES, SERVICES AND CONTROLS:**

Refer to Division I Section 01 50 00 – TEMPORARY FACILITIES SERVICES AND CONTROLS for the responsibilities of the Contractor.

**1.9 DUST CONTROL:**

The Contractor shall prepare, execute and manage a "Dust Control Plan" for the prevention of the emission of dust from construction related activities in compliance with 15 RCNY 13-01 et. seq.

**1.10 PROVISIONS REFERENCED IN THE CONTRACT:**

- A. **SCHEDULE A** - Various Articles of the Contract refer to requirements set forth in Schedule A of the General Conditions. Schedule A, which is included in the Addendum, sets forth (1) the referenced Articles of the Contract, and (2) the specific requirements applicable to the Contract.



- B. EXTENSION OF TIME - Applications for Extensions of Time, as indicated in Article 13 of the Contract, shall be made in accordance with the Rules of the Procurement Policy Board.
- C. PARTIAL PAYMENTS FOR MATERIALS IN ADVANCE OF THEIR INCORPORATION IN THE WORK PURSUANT TO ARTICLE 42 OF THE CONTRACT – In order to better insure the availability of materials, fixtures and equipment when needed for the work, the Commissioner may authorize partial payment for certain materials, fixtures and equipment, prior to their incorporation in the work, but only in strict accordance with, and subject to, all the terms and conditions set forth in the Specifications, unless an alternate method of payment is elsewhere provided in the Specifications for specified materials, fixtures or equipment.
1. The Contractor shall submit to the Commissioner a written request, in quadruplicate, for payment for materials purchased or to be purchased for which the Contractor needs to be paid prior to their actual incorporation in the work. The request shall be accompanied by a schedule of the types and quantities of materials, and shall state whether such materials are to be stored on or off the site.
  2. Where the materials are to be stored off the site, they shall be stored at a place other than the Contractor's premises (except with the written consent of the Commissioner) and under the conditions prescribed or approved by the Commissioner. The Contractor shall set apart and separately store at the place or places of storage all materials and shall clearly mark same "PROPERTY OF THE CITY OF NEW YORK", and further, shall not at any time move any of said materials to another off-site place of storage without the prior written consent of the Commissioner. Materials may be removed from their place of storage off the site for incorporation in the work upon approval of the Resident Engineer.
  3. Where the materials are to be stored at the site, they shall be stored at such locations as shall be designated by the Resident Engineer and only in such quantities as, in the opinion of the Resident Engineer, will not interfere with the proper performance of the work by the Contractor or by other Contractors then engaged in performing work on the site. Such materials shall not be removed from their place of storage on the site except for incorporation in the work, without the approval of the Resident Engineer.
  4. INSURANCE
    - a. STORAGE OFF-SITE – Where the materials are stored off the site and until such time as they are incorporated in the work, the Contractor shall fully insure such materials against any and all risks of destruction, damage or loss including but not limited to fire, theft, and any other casualty or happening. The policy of insurance shall be payable to the City of New York. It shall be in such terms and amounts as shall be approved by the Commissioner and shall be placed with a company duly licensed to do business in the State of New York. The Contractor shall deliver the original and one (1) copy of such policy or policies marked "Fully Paid" to the Commissioner.
    - b. STORAGE ON THE SITE – Where the materials are stored at the site, the Contractor shall furnish satisfactory evidence to the Commissioner that they are properly insured against loss, by endorsements or otherwise, under the policy or policies of insurance obtained by the Contractor to cover losses to materials owned or installed by the Contractor. The policy of insurance shall cover fire and extended coverage against windstorm, hail, explosion and riot attending a strike, civil commotion, aircraft, vehicles and smoke.
  5. All costs, charges and expenses arising out of the storage of such materials, shall be paid by the Contractor and the City hereby reserves the right to retain out of any partial or final payment made under the Contract an amount sufficient to cover such costs, charges and expenses with the understanding that the City shall have and may exercise any and all other remedies at law for the recovery of such cost, charges and expenses. There shall be no





- increase in the Contract price for such costs, charges and expenses and the Contractor shall not make any claim or demand for compensation therefore.
6. The Contractor shall pay any and all costs of handling and delivery of materials, to the place of storage and from the place of storage to the site of the work; and the City shall have the right to retain from any partial or final payment an amount sufficient to cover the cost of such handling and delivery.
  7. In the event that the whole or any part of these materials are lost, damaged or destroyed in advance of their satisfactory incorporation in the work, the Contractor, at the Contractor's own cost, shall replace such lost, damaged or destroyed materials of the same character and quality. The City will reimburse the Contractor for the cost of the replaced materials to the extent, and only to the extent, of the funds actually received by the City under the policies of insurance hereinbefore referred to. Until such time as the materials are replaced, the City will deduct from the value of the stored materials or from any other money due under the Contract, the amount paid to the Contractor for such lost, damaged or destroyed materials.
  8. Should any of the materials paid for the City hereunder be subsequently rejected or incorporated in the work in a manner or by a method not in accordance with the Contract Documents, the Contractor shall remove and replace, at Contractor's own cost, such defective or improperly incorporated material with materials complying with the Contract Documents. Until such materials are replaced, the City will deduct from the value of the stored materials or from any other money due the Contractor, the amount paid by the City for such rejected or improperly incorporated materials.
  9. Payments for the cost of materials made hereunder shall not be deemed to be an acceptance of such materials as being in accordance with the Contract Documents, and the Contractor always retains and must comply with the Contractor's duty to deliver to the site and properly incorporate in the work only materials which comply with the Contract Documents.
  10. The Contractor shall retain any and all risks in connection with the damage, destruction or loss of the materials paid for hereunder to the time of delivery of the same to the site of the work and their proper incorporation in the work in accordance with the Contract Documents.
  11. The Contractor shall comply with all laws and the regulations of any governmental body or agency pertaining to the priority purchase, allocation and use of the materials.
  12. When requesting payment for such materials, the Contractor shall submit with the partial estimate duly authenticated documents of title, such as bills of sale, invoices or warehouse receipts, all in quadruplicate. The executed bills of sale shall transfer title to the materials from the Contractor to the City. (In the event that the invoices state that the material has been purchased by a subcontractor, bills of sale in quadruplicate will also be required transferring title to the materials from subcontractor to the Contractor).
  13. Where the Contractor, with the approval of the Commissioner, has purchased unusually large quantities of materials in order to assure their availability for the work, the Commissioner, at the Commissioner's option, may waive the requirements of Paragraph 12 provided the Contractor furnishes evidence in the form of an affidavit from the Contractor in quadruplicate, and such other proof as the Commissioner may require, that the Contractor is the sole owner of such materials and has purchased them free and clear of all liens and other encumbrances. In such event, the Contractor shall pay for such materials and submit proof thereof, in the same manner as provided in Paragraph 12 hereof, within seven (7) days after receipt of payment therefore from the Comptroller. Failure on the part of the Contractor to submit satisfactory evidence that all such materials have been paid for in full, shall preclude the Contractor from payments under the Contract.



- 14. The Contractor shall include in each succeeding partial estimate requisition a summary of materials stored which shall set forth the quantity and value of materials in storage, on or off the site, at the end of each preceding estimate period; the amount removed for incorporation in the work; the quantity and value of materials delivered during the current period and the total value of materials on hand for which payment thereof will be included in the current payment estimate.
- 15. Upon proof to the satisfaction of the Commissioner of the actual cost of such materials and upon submission of proper proof of title as required under Paragraph 12 or Paragraph 13 hereof, payment will be made therefore to the extent of 85%, provided however, that the cost so verified, established and approved shall not exceed the estimated cost of such materials included in the approved detailed breakdown estimate submitted in accordance with Article 41 of the Contract; if it does, the City will pay only 85% approved estimated cost.
- 16. Upon the incorporation in the work of any such materials, which have been paid for in advance of such incorporation in accordance with the foregoing provisions, payment will be made for such materials incorporated in the work pursuant to Article 42 of the Contract, less any sums paid pursuant to Paragraph 15 herein.

D. **MOBILIZATION PAYMENT** – A line item for mobilization shall be allowed on the Contractor's Detailed Bid Breakdown submitted in accordance with Article 41 of the Contract. The Mobilization Payment is intended to include the cost of required bonds, insurance coverage and/or any other expenses required for the initiation of the Contract Work. All costs for mobilization shall be deemed included in the total Contract Price. The Detailed Bid Breakdown shall reflect, and the Mobilization Payment shall be made, in accordance with the following schedule:

Contract Amount	Percent	Mobilization
Less than - \$ 50,000	x 0	= 0
\$ 50,000 - \$ 100,000	x	= \$ 6,000
\$ 100,001 - \$ 500,000	x 6	= \$ 6,000 (min) - \$ 30,000 (max)
\$ 500,000 - \$ 2,500,000	x 5	= \$ 30,000 (min) - \$ 125,000 (max)
Over - \$ 2,500,000	x 4	= \$ 125,000 (min) - \$ 300,000 (max)

The Contractor may requisition for one-half (1/2) of the Mobilization Payment upon satisfactory completion of the following:

- 1. Installation of any required field office(s).
- 2. Submission of all required insurance certificates and bonds.
- 3. Approval by the Department of Design and Construction of the coordinated progress schedule for the project and the Contractor's Shop Drawing schedule.

The remaining balance of the Mobilization Payment may be requisitioned only after 10 percent (10%) of the Contract price, exclusive of the total amount of Mobilization Payments made or to be made hereunder, shall have been approved for payment.

E. **ULTRA LOW SULFUR DIESEL FUEL AND BEST AVAILABLE TECHNOLOGY REPORTING:** The Contractor shall submit reports to the Commissioner regarding the use of Ultra Low Sulfur Diesel Fuel in Non-Road Vehicles, and the implementation of Best Available Technology (BAT), as set forth in Article 5.4 of the Contract. Such reports shall be submitted in accordance with the schedule, format, directions and procedures established by the Commissioner.



#### 1.11 PERFORMANCE OF WORK DURING NON-REGULAR WORK HOURS:

- A. **NON-REGULAR WORK HOURS:** The Commissioner may issue a change order in accordance with Article 25 of the Contract which (1) directs the Contractor to perform the Work, or specific components thereof, during other than regular work hours (i.e., evenings, weekends and holidays), and (2) provides compensation to the Contractor for costs in connection with the performance of Work during other than regular work hours. The Commissioner may issue a change order if a delay has occurred and such delay is not the fault of the Contractor, or if the work is of such an important nature that delay in completing such work would result in serious disadvantage to the public.
- B. **PROCEDURE:** The Contractor shall (1) obtain whatever permits may be required for performance of the work during other than regular business hours, and (2) pay all necessary fees in connection with such permits. In addition, if directed by the Commissioner, the Contractor shall make immediate application to the Commissioner of the Department of Labor, State of New York, for dispensation in accordance with Subdivision 2 of Section 220 of the Labor Law.

#### 1.12 INTERRUPTION OF SERVICES AT EXISTING FACILITIES:

- A. **EVENING AND WEEKEND WORK** - Where performance of the Work requires the temporary shutdown(s) of services, such shutdown(s) shall be made at night or on weekends or at such times that will cause no interference with the established routines and operations of the facility in question.
- 1 Where weekend or evening work is required due to unavoidable service shutdowns, such work shall be performed at no extra cost to the City. Components of the Work that must be performed during other than regular work hours are indicated in the Drawings and/or the Specifications.
- B. **INTERRUPTION OF EXISTING FACILITIES:**
- 1 The Contractor shall not interrupt any of the services of the facility nor interfere with such services in any way without the permission of the Commissioner. Such interruption or interferences shall be made as brief as possible, and only at such time stated.
  - 2 Under no circumstances shall the Contractor, its subcontractors, or its workers, be permitted to use any part of the project as a shop, without the permission of the Commissioner.
  - 3 Unnecessary noise shall be avoided at all times and necessary noise shall be reduced to a minimum.
  - 4 Toilet facilities, water and electricity must be operational at all times (i.e. 24/7). No services of the facility can be interrupted in any way without the permission of the Commissioner. Careful coordination of all work with the Resident Engineer must be done to maintain the operational level of the project personnel at the facility.
  - 5 The Contractor shall schedule the work to avoid noise interference that will affect the normal functions of the facility. In particular, construction operations producing noises that are objectionable to the functions of the facility must be scheduled at times of day or night, day of the week, or weekend, which will not interfere with personnel at the facility. Any additional cost resulting from this scheduling shall be borne by the Contractor.



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- 6 The Contractor shall arrange to work continuously, including evening and weekend hours, if required, to assure that services will be shut down only during the time actually required to make the necessary connections to the existing facility.
- 7 The Contractor shall give ample written notice in advance to the Commissioner and personnel at the facility of any required shutdown.

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 10 00**



**SECTION 01 31 00**  
**PROJECT MANAGEMENT AND COORDINATION**

**PART I – GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].
- B. LEED: Refer to the Addendum to identify whether this project is designed to comply with a Certification Level according to the U.S. Green Building Council's Leadership in Energy & Environmental Design (LEED) Rating System, as specified in Section 01 81 13, "SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS."
- C. COMMISSIONING: Refer to the Addendum to identify whether this project will be commissioned by an independent third party under separate contract with the City of New York. Commissioning shall be in accordance with ASHRAE and USGBC LEED-NC procedures, as described in Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS. The Contractor shall cooperate with the commissioning agent and provide whatever assistance is required.

**1.2 SUMMARY:**

- A. This Section includes administrative provisions for coordinating construction operations on the Project including without limitation the following.
  - 1. Coordination Drawings.
  - 2. Administrative and supervisory personnel.
  - 3. Project meetings.
  - 4. Requests for Interpretation (RFIs).
- B. This section includes the following:
  - 1. Definitions
  - 2. Coordination
  - 3. Submittals
  - 4. Administrative and Supervisory Personnel
  - 5. Project Meetings
  - 6. Requests for Interpretation (RFI's)
  - 7. Correspondence
  - 8. Contractor's Daily Reports
  - 9. Alternate and Substitute Equipment
- C. RELATED SECTIONS: include without limitation the following:
  - 1. Section 01 10 00 SUMMARY
  - 2. Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
  - 3. Section 01 33 00 SUBMITTALS
  - 4. Section 01 35 26 SAFETY REQUIREMENTS
  - 5. Section 01 73 00 EXECUTION REQUIREMENTS
  - 6. Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL



7. Section 01 77 00 PROJECT CLOSEOUT PROCEDURES

**1.3 DEFINITIONS:**

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

**1.4 COORDINATION:**

- A. Coordination: The Contractor shall coordinate its construction operations, including those of its subcontractors, with other entities to ensure the efficient and orderly installation of each part of the Work. The Contractor shall coordinate the various operations required by different Sections of the Specifications that depend on each other for proper installation, connection, and operation.
  - 1. Schedule construction operations in sequence in order to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  - 2. Coordinate installation of different components to ensure maximum accessibility for required maintenance, service, and repair.
  - 3. Make adequate provisions to accommodate items scheduled for later installation.
  - 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
- B. The Contractor shall prepare memoranda for distribution to its subcontractors and other involved entities, outlining special procedures required for coordination. Such memoranda shall include required notices, reports, and meeting minutes as applicable.
- C. Administrative Procedures: The Contractor shall coordinate scheduling and timing of required administrative procedures with other construction activities and activities of its subcontractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include without limitation the following:
  - 1. Preparation of Contractor's Construction Schedule.
  - 2. Installation and removal of temporary facilities and controls.
  - 3. Delivery and processing of submittals.
  - 4. Progress meetings.
  - 5. Pre-installation conferences.
  - 6. Startup and adjustment of systems.
  - 7. Project closeout activities.
- D. Conservation: The Contractor shall coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.



- E. Salvaged Items, Material and/or Equipment: The Specifications may identify certain items, materials or equipment which must be salvaged by the Contractor and handled or disposed of as directed. The Contractor shall comply with all directions in the Specifications regarding the salvaging and handling of identified items, material or equipment.

#### 1.5 SUBMITTALS:

- A. Submit shop drawings, product data, samples etc. in compliance with Section 01 33 00, SUBMITTAL PROCEDURES.
- B. Coordination Drawings: The Contractor shall prepare applicable Coordination Drawings in compliance with the requirements for Coordination Drawings in Section 01 33 00, SUBMITTAL PROCEDURES.
- C. Safety Plan in compliance with Section 01 35 26, SAFETY REQUIREMENTS PROCEDURES.
- D. Waste Management Plan in compliance with Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
- E. Key Personnel Names: Within 15 days after the Notice to Proceed, the Contractor shall submit a list of key personnel assignments of the Contractor and its subcontractors, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in case of the absence of individuals assigned to Project.
  - 1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.
  - 2. In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work. Include special personnel required for coordinating all operations by its subcontractors.

#### 1.6 PROJECT MEETINGS:

- A. General: The Resident Engineer will hold regularly scheduled construction progress meetings at the site, at which time the Contractor and appropriate subcontractors shall have their representatives present to discuss all details relative to the execution of the work. The Resident Engineer shall preside over these meetings.
  - 1. Agenda: Prior to each meeting, the Resident Engineer will consult with the Contractor and will prepare an agenda of items to be discussed. In general, after informal discussion of any item on the agenda, the Resident Engineer will summarize the discussion in a brief written statement, and the Contractor will then dictate a brief statement for the record.
  - 2. Coordination: In addition to construction progress meetings called by the Resident Engineer, the Contractor shall hold regularly scheduled meetings for the purpose of coordinating; expediting and scheduling the work in accordance with the master coordinated Job Progress Chart. The Contractor and its subcontractors, material suppliers or vendors whose presence is necessary, are required to attend. These meetings may, at the discretion of the Contractor, be held at the same place and immediately following the project meetings held by the Resident Engineer. Minutes of these meetings shall be recorded, typed and printed by the Contractor and distributed to all parties concerned.
- B. PRECONSTRUCTION KICK-OFF MEETING:
  - 1. The Resident Engineer will schedule a preconstruction kick-off meeting either at DDC's main office or at the Project site to review responsibilities and personnel assignments and clarify the



role of each participant. Unless otherwise directed the Design Consultant will record and distribute meeting minutes.

2. Attendees: Authorized representative of the Client Agency; Design Consultant; the Contractor and its superintendents, subcontractor(s) and their superintendent(s); LEED sub-consultant and Commissioning Authority /Agent (CxA) as applicable and other concerned parties. All participants at the meeting shall be familiar with the Project and authorized to conclude matters relating to the Contract Work.
3. Agenda: Includes without limitation the following as applicable:
  - a. Establishing construction schedule
  - b. Schedule for regular construction meetings
  - c. Phasing
  - d. Critical work sequencing and long-lead items
  - e. Designation of key personnel and their duties
  - f. Reviewing Application for Payment and Change Order Procedures
  - g. Procedures for Requests for Information (RFIs.)
  - h. Review Permits and Approval requirements
  - i. Review all recent Administrative Code reporting requirements relating to the project, (i.e. LL 77, LL86 etc.)
  - j. Procedures for testing and inspecting
  - k. Reviewing special conditions at the Project site
  - l. Distribution of the Contract Documents
  - m. Submittal procedures
  - n. Safety Procedures
  - o. LEED requirements
  - p. Commissioning Requirements
  - q. Preparation of Record Documents
  - r. Historic Treatment requirements
  - s. Use of the premises
  - t. Work restrictions
  - u. Client Agency occupancy requirements
  - v. Responsibility for temporary facilities, services and controls
  - w. Construction Waste Management and Disposal
  - x. Indoor Air Quality Management Plan
  - y. Dust Mitigation Plan
  - z. Office, work, and storage areas
  - aa. Equipment deliveries and priorities
  - bb. Security
  - cc. Progress cleaning
  - dd. Working hours





**C. CONSTRUCTION PROGRESS MEETINGS:**

1. The Resident Engineer will schedule and conduct construction progress meetings at bi-weekly intervals or as otherwise determined. All participants at the meeting shall be familiar with the Project and authorized to conclude matters relating to the Work. Unless otherwise directed the Design Consultant will record and distribute meeting minutes.
2. Attendees:
  - a. Design Consultant and applicable sub-consultants
  - b. Client Agency Representative
  - c. Representatives from the Contractor, sub-contractor(s), suppliers or other entities involved in the current progress, planning, coordination or future activities of the Work
  - d. Other appropriate DDC personnel, DDC consultants and concerned parties
3. Agenda: Includes without limitation the following:
  - a. Review the Construction Schedule and progress of the Work. Determine if the Work is on time, ahead of schedule or behind schedule. Determine actions to be taken to maintain or accelerate the schedule
  - b. Review and approve prior meeting minutes and follow up open issues
  - c. Coordinate work between each subcontractor
  - d. Sequence of Operations
  - e. Status of submittals, deliveries and off-site fabrication
  - f. Status of inspections and approvals by governing agencies
  - g. Temporary facilities and controls
  - h. Review Site Safety
  - i. Quality and work standards
  - j. Field observations
  - k. Status of correction of deficient items
  - l. RFI's
  - m. Pending changes
  - n. Status of outstanding Payments and Change Orders
  - o. LEED requirements including Construction Waste Management, Indoor Air Quality Plan, Dust Mitigation and Commissioning
  - p. Status of Administrative Code reporting requirements related to the project.

**1.7 REQUESTS FOR INFORMATION (RFI):**

- A. Procedure: Immediately on discovery of the need for information or interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, the Contractor shall prepare and submit an RFI in the form specified by the Resident Engineer.
  1. RFI shall originate with the Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
  2. Coordinate and submit RFI in a prompt manner to the Resident Engineer so as to avoid delays in Contractor's work or work of its subcontractors.
  3. RFI Log: The Contractor shall prepare, maintain, and submit a tabular log of RFIs organized by the RFI number monthly to the Resident Engineer.



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4. On receipt of responses and action to the RFI, the Contractor shall update the RFI log and immediately distribute the RFI response to affected parties. Review response(s) and notify the Resident Engineer immediately if the Contractor disagrees with response(s).

**1.8 CORRESPONDENCE:**

Copies of all correspondence to DDC shall be sent directly to the Resident Engineer at the job site.

**1.9 CONTRACTOR'S DAILY REPORTS:**

The Contractor shall prepare and submit Daily Construction Progress Reports as outlined in Section 01 32 00, CONSTRUCTION PROGRESS DOCUMENTATION.

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 31 00**



**SECTION 01 32 00**  
**CONSTRUCTION PROGRESS DOCUMENTATION**

**PART I – GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

**1.2 SUMMARY**

- A. This Section includes administrative and procedural requirements for establishing an effective base line schedule for the project and documenting the progress of construction during performance of the Work by developing, revising as necessary, various documents including but not limited to the following:
1. Baseline Construction Schedule.
  2. Composite Schedule for entire project
  3. Recovery Composite Schedule
  4. Revised and/or updated Composite Schedule
  5. Submittals Schedule.
  6. Daily construction reports.
  7. Material location reports.
  8. Field condition reports.
  9. Special reports.
- B. RELATED SECTIONS: include without limitation the following:
1. Section 01 10 00 SUMMARY
  2. Section 01 32 22 PHOTOGRAPHIC DOCUMENTATION
  3. Section 01 33 00 SUBMITTAL PROCEDURES
  4. Section 01 40 00 QUALITY REQUIREMENTS

**1.3 DEFINITIONS:**

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.



- C. **Baseline Construction Schedule:**  
A horizontal bar chart type schedule (Microsoft Project OR similar program) listing all the activities and their duration for entire contract duration OR construction period, including logical ties and interrelations between the activities necessary for the timely and successful completion of the project. Critical path activities shall be clearly marked. The Baseline construction schedule is a preliminary schedule that must be reviewed and approved by the Resident Engineer.
- D. **Composite Schedule:**  
A composite horizontal bar chart type schedule (Microsoft Project OR similar program) listing all activities to be performed by the Contractor and its subcontractors, the duration of each activity including logical ties and interrelations between activities, and the sequence of each of necessary activities for the timely and successful completion of the project within the stipulated contract duration. Critical path activities shall be clearly marked. The Composite schedule must be signed and submitted by the Contractor within thirty (30) calendar days after the date established for commencement of the Contract, unless otherwise directed. The Composite Schedule must be reviewed and approved by the Resident Engineer.
- E. **Recovery Composite Schedule:** A Recovery Composite Schedule is not required unless the City issues an Acceleration Change Order.  
  
A Composite Schedule outlining and incorporating extraordinary efforts required to recover lost time with the aim of achieving completion of the project within the stipulated contract duration, plus authorized time extensions. In such case special attention must be given to keep the delays as minimum as possible and must establish the nature of efforts such as extended hours of work, weekend work, accelerated fabrication, required action(s) or effort(s) by the Contractor, its subcontractors, consultants, clients, end users and/or other concerned parties.  
  
Such schedule must be prepared and submitted within Five (5) calendar days of request by the Resident Engineer. The Recovery Composite Schedule must be reviewed and approved by the Resident Engineer.
- F. **Revised and/or Updated Composite Schedule:**  
  
A Baseline construction schedule OR Composite Schedule OR Recovery Composite Schedule for the project that shows the actual duration of all the completed activities, including duration of and the reasons for delays, if any has occurred, AND revisions to all remaining activities of the Contractor and its subcontractors, including changes, if any, to logical ties, interrelations and the sequence of each of the outlined activities. Any such revisions should be shown on the row just below the approved schedule of the respective activity so that revisions can be compared.  
  
The Revised and/or updated Composite Schedule must be reviewed and approved by the Resident Engineer.
- G. **Activity:** A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
- H. **Event:** The starting or ending point of an activity.
- I. **Fragment:** A part of the activity that breaks down activities into smaller activities for greater detail.
- J. **Milestone:** A key or critical point in time for reference or measurement.
- K. **Network Diagram:** A graphic diagram of a network schedule, showing activities and activity relationships.



## PART II – PRODUCTS

### 2.1 BASELINE CONSTRUCTION SCHEDULE:

- A. The Contractor shall prepare a Baseline horizontal bar-chart-type construction schedule for the project. Submit the Baseline Construction Schedule to the Resident Engineer within (15) fifteen calendar days after the date established for commencement of the Contract, unless directed otherwise. The Baseline Schedule must be reviewed and approved by the Resident Engineer.
1. Provide a separate time bar for each significant construction activity. Coordinate each activity on the schedule with other construction activities for proper interrelationship & sequence.
  2. Duration: The duration of each activity on the schedule besides installation must clearly show required duration of filing for permits, inspections, testing, approvals, shop drawings and materials submittals and approvals, fabrication, delivery, phasing for each construction activity.
  3. Schedule shall be time-scaled in not more than weekly increments, with the dates of the first day (Monday) of each week indicated.
  4. Completion of all the project activities shall be indicated in advance of the date established for completion of the Contract, allowing time for required inspection and punch list work.
  5. Clearly show time bar for all the tasks, to be completed before start of physical work of scheduled activities, including but not limited to obtaining required permit, subcontractor approval, submission and approval of shop drawings, field verification, time for fabrication and delivery, testing of materials and/or samples, preparation and approval of mock-up sample, curing, pre-testing of soil, pre-testing of equipment - including start up, testing & adjusting, filing for inspection by regulatory agencies, training, final use, etc. required to maintain orderly progress of the activity. A special consideration must be given to those activities requiring early approvals because of long lead-time for manufacture or fabrication.
  6. Phasing: Arrange all activities in proper sequence to reflect requirements for phased completion, work by other entities, work by the City, City furnished items, coordination with existing work, limitations arising due to continued occupancies, non-interruptible services, partial completion for occupancy, site restrictions, provisions for future work, seasonal variations, environmental control, and similar conditions of the project.
  7. Arrange all activities and/or show interrelationship and logical sequence of all activities, determine and mark all critical path activities including any phasing reflecting actual project condition.
  8. Keep at least two blank horizontal bars between all activities for recording actual progress and submitting Revised Schedule as defined in Sub-Section 1.3 G
  9. If necessary a new revised schedule shall be prepared in the same manner as outlined above.

### 2.2 COMPOSITE SCHEDULE FOR THE PROJECT:

- A. The Contractor shall prepare a Composite Schedule based on the approved Baseline Schedule. Such schedule shall indicate graphically and chronologically the start and completion of each and every activity, including all the pre-activity and post activity tasks. Keep at least two blank horizontal bars between all activities for recording actual progress and/or revisions.
1. If necessary the Contractor shall meet with each subcontractor and with the Resident Engineer to review and make warranted adjustments and finalize the Composite Schedule. Once the schedule is finalized, the Contractor shall sign and date a reproducible form of the Composite Schedule. The Composite Schedule must be finalized and signed by the Contractor within (30) thirty calendar days after the date established for commencement of the Contract, unless directed otherwise. The Composite Schedule must be reviewed and approved by the Resident Engineer.



### 2.3 RECOVERY COMPOSITE SCHEDULE:

- A. A Recovery Composite Schedule is not required unless the City issues an Acceleration Change Order. A Recovery Composite Schedule outlining and incorporating extraordinary efforts required to recover lost time with the aim of achieving completion of the project within the stipulated contract duration, plus authorized time extensions, must be developed and submitted within (5) five calendar days of the request by the Resident Engineer. Such Recovery Composite Schedule shall include all information as defined in Article 1.3 F and shall be prepared in the same manner as outlined in Sub-Sections 2.1 and 2.2. The Recovery Composite Schedule must be reviewed and approved by the Resident Engineer.

### 2.4 REVISED AND/OR UPDATED COMPOSITE SCHEDULE:

- A. The Contractor shall revise and/or update the approved Composite Schedule as directed. The Revised schedule shall be prepared in the same manner as outlined above in Sub-Sections 2.1 and 2.2.
- B. The Contractor shall mark actual progress, delays, work stoppage etc. in the row just below the approved schedule for the respective activity so that revisions can be compared.
- C. Such schedule also shall indicate graphically and chronologically any revisions to the start and completion of the remaining activities including revisions to all the pre-activity and post activity tasks for all subcontractors.
- D. If necessary, the Contractor shall meet with each subcontractor and with the Resident Engineer to review and make warranted adjustments and finalize the Revised Composite Schedule. Once the schedule is finalized, the Contractor shall sign and date a reproducible form of the Schedule. Such schedule must be prepared and submitted by the Contractor within Five (5) calendar days of request by the Resident Engineer. The Revised Composite Schedule must be reviewed and approved by the Resident Engineer.

### 2.5 SUBMITTALS SCHEDULE:

- A. Preparation: The Contractor shall submit a schedule of submittals, arranged in chronological order by dates required by the construction schedule. Include time required for review, re-submittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
- B. SCHEDULE F: Schedule F sets forth all submittal requirements for shop drawings and material samples. Schedule F is included in the Addendum. At the kick-off meeting, the Contractor must review this Schedule with the Resident Engineer and the Design Consultant. Within 10 days after the kick-off meeting, the Contractor must complete information on Schedule F concerning the submission date, the required delivery date and the fabrication time. For all required submittals of shop drawings and material samples, the Schedule F provided by the Contractor must indicate a submission date which is at least 20 business days prior to the date of the manufacture of the item or materials to be installed. In addition, if so directed by the Commissioner, the Schedule F provided by the Contractor must indicate a submission date for shop drawings and/or material samples of specified items or materials which is within 60 business days after the kick-off meeting. In the event of any conflict between the Specifications and Schedule F, Schedule F shall take precedence; provided, however, in the event of an omission from Schedule F (i.e., Schedule F omits either a reference to or information concerning a submittal requirement which is set forth in the Specifications), such omission from Schedule F shall have no effect and the Contractor's submittal obligation, as set forth in the Specifications, shall remain in full force and effect.
- C. Review: The Resident Engineer will review the Schedule F submitted by Contractor. Upon acceptance, the Resident Engineer will date and sign the schedule as approved and transmit it to the Design Consultant, Contractor and others within DDC as he/she deems appropriate.



## 2.6 REPORTS:

- A. Daily Construction Reports: The Contractor shall submit to the Resident Engineer written Daily Construction Reports at the end of each work day, recording basic information such as the date, day, weather conditions, and contract days passed, remaining contract duration/days and the following information concerning the Project.

Information: The reports shall be prepared by the Contractor's Superintendent and shall bear the Contractor's Superintendents signature. Each report shall contain the following information:

1. List of name of Contractor, subcontractors, their work force in each category, and details of activities performed.
2. The type of materials and/or major equipment being installed by the Contractor and/or by each subcontractor.
3. The major construction equipment being used by the Contractor and/or subcontractors.
4. Material and Equipment deliveries.
5. High and low temperatures and general weather conditions.
6. Accidents.
7. Meetings and significant decisions.
8. Unusual events.
9. Stoppages, delays, shortages, and losses.
10. Meter readings and similar recordings
11. Emergency procedures.
12. Orders and/or requests of authorities having jurisdiction.
13. Approved Change Orders received and implemented.
14. Field Orders and Directives received and implemented.
15. Services connected and disconnected.
16. Equipment or system tests and startups.
17. Partial Completions and occupancies.
18. Substantial Completions authorized.

NOTE: If there is NO ACTIVITY at site, a daily report indicating so and the reason for no activity at the site must be submitted.

- B. Material Location Reports: The contractor shall submit a Material Location Report at weekly OR monthly intervals as determined and established by the Resident Engineer. Such report shall include a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.
- C. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit a Request For Information (RFI) form with a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

## 2.7 SPECIAL REPORTS:

- A. Accident report, incident report, special condition report for the conditions out of control of any party involved with the project effecting project progress, explaining impact on the project schedule and cost if any.

**PART III – EXECUTION (Not Used)**  
**END OF SECTION 01 32 00**



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**SECTION 01 32 33**  
**PHOTOGRAPHIC DOCUMENTATION**

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SECTION 01 32 33**

**PART I – GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract]

**1.2 SUMMARY:**

- A. This Section includes the following:
1. Photographic Media
  2. Construction Photographs
  3. Pre-construction Photographs
  4. Periodic Construction Progress Photographs
  5. Special Photographs
  6. DVD Recordings
  7. Final Completion Construction Photographs
- B. RELATED SECTIONS: include without limitation the following:
1. Section 01 10 00 SUMMARY
  2. Section 01 33 00 SUBMITTAL PROCEDURES
  3. Section 01 35 91 HISTORIC TREATMENT PROCEDURES
  4. Section 01 78 39 CONTRACT RECORD DOCUMENTS
  5. Section 01 81 19 INDOOR AIR QUALITY REQUIREMENTS FOR LEED BUILDINGS
- C. PHOTOGRAPHER - The Contractor shall employ and pay for the services of a professional photographer who shall take photographs showing the progress of the work for all Contracts.

**1.3 DEFINITIONS:**

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

**1.4 SUBMITTALS:**

- A. Qualification Data: For photographer.



- B. Key Plan: With each Progress Photograph Submittal include a key plan of Project site and building with notation of vantage points marked for location and direction of each image. Indicate location, elevation or story of construction. Include same label information as corresponding set of photographs.
- C. Construction Progress Photograph Prints: Take Progress Photographs bi-weekly and submit four color prints of each photographic view for each trade to the Resident Engineer. Such photographs shall be included in each monthly progress report or as otherwise directed by the Resident Engineer.
- D. Construction Photograph Negatives: Submit a complete set of photographic negatives in individually protected negative sleeves with each submittal of prints. Identify negatives with label matching photographic prints.
- E. Digital Images: If Digital Media is used, submit a complete set of digital color image electronic files on CD-ROM with each submittal of prints. Identify electronic media with date photographs were taken. Submit images that have same aspect ratio as the sensor, un-cropped.

#### 1.5 QUALITY ASSURANCE:

- A. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three years.

#### 1.6 COORDINATION:

- A. The Contractor and its subcontractor(s) shall cooperate with the photographer and provide auxiliary services requested, including access to Project site and use of temporary facilities, including temporary lighting required to produce clear, well-lit photographs without obscuring shadows.

#### 1.7 COPYRIGHT:

- A. The Contractor shall include the provisions set forth below in the agreement between the Contractor and the Photographer who will provide the construction photographs described in this section. The Contractor shall submit to the Resident Engineer a copy of its agreement with the Photographer.
- B. Any photographs, images and/or other materials produced pursuant to this Agreement, and any and all drafts and/or other preliminary materials in any format related to such items produced pursuant to this Agreement, shall upon their creation become the exclusive property of the City.
- C. Any photographs, images and/or other materials provided pursuant to this Agreement ("Copyrightable Materials") shall be considered "work-made-for-hire" within the meaning and purview of Section 101 of the United States Copyright Act, 17 U.S.C. § 101, and the City shall be the copyright owner thereof and of all aspects, elements and components thereof in which copyright protection might exist. To the extent that the Copyrightable Materials do not qualify as "work-made-for-hire," the Photographer hereby irrevocably transfers, assigns and conveys exclusive copyright ownership in and to the Copyrightable Materials to the City, free and clear of any liens, claims, or other encumbrances. The Photographer shall retain no copyright or intellectual property interest in the Copyrightable Materials. The Copyrightable Materials shall be used by the Photographer for no purpose other than in the performance of this Agreement without the prior written permission of the City. The Department may grant the Photographer a license to use the Copyrightable Materials on such terms as determined by the Department and set forth in the license.
- D. The Photographer acknowledges that the City may, in its sole discretion, register copyright in the Copyrightable Materials with the United States Copyright Office or any other government agency authorized to grant copyright registrations. The Photographer shall fully cooperate in this effort, and agrees to provide any and all documentation necessary to accomplish this.



- E. The Photographer represents and warrants that the Copyrightable Materials: (i) are wholly original material not published elsewhere (except for material that is in the public domain); (ii) do not violate any copyright Law; (iii) do not constitute defamation or invasion of the right of privacy or publicity; and (iv) are not an infringement, of any kind, of the rights of any third party. To the extent that the Copyrightable Materials incorporate any non-original material, the Photographer has obtained all necessary permissions and clearances, in writing, for the use of such non-original material under this Agreement, copies of which shall be provided to the City.

## PART II – PRODUCTS

### 2.1 PHOTOGRAPHIC MEDIA:

- A. Photographic Film: Medium format, 2-1/4 by 2-1/4 inches (60 by 60 mm).
- B. Digital Images:
1. Construction Progress Images: Color images in JPEG format with minimum sensor size of 1.3 megapixels.
  2. Presentation Quality Images: Provide Color images in uncompressed TIFF format, produced by a digital camera with minimum sensor size of 4.0 megapixels, and at an image resolution of not less than 1024 by 768 with 8"x10" original capture at 300 dpi or greater.
- C. Prints:
1. Format: 8-by-10-inch (203-by-254-mm) smooth-surface matte color prints on single-weight commercial-grade stock paper, with 1inch wide margins and punched for standard 3-ring binder.
  2. Identification: On the front of each photograph affix a label in the margin with Project name and date photograph was taken. On the back of each print, provide an applied label or rubber-stamped impression with the following information:
    - a. Project Contract I.D. Number.
    - b. Project Contract Name.
    - c. Name of Contractor. (and Subcontractor Trade Represented)
    - d. Subject of Image Taken.
    - e. Date and time photograph was taken if not date stamped by camera.
    - f. Description of vantage point, indicating location, direction and other pertinent information.
    - g. Unique sequential identifier.
    - h. Name and address of photographer.

## PART III – EXECUTION

### 3.1 CONSTRUCTION PHOTOGRAPHS:

- A. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.
1. Maintain key plan with each set of construction photographs that identifies each photographic location and direction of view.
- B. Film Images:
1. Date Stamp: Unless otherwise indicated, date and time stamp each photograph as it is being taken so stamp is integral to photograph.



2. Field Office Prints: Retain one set of prints of progress photographs in the field office at Project site, available at all times for reference. Identify photographs same as for those submitted to Commissioner.
- C. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
1. Date and Time: Include date and time in filename for each image.
  2. Field Office Images: Maintain one set of images on CD-ROM in the field office at Project site, available at all times for reference. Identify images same as for those submitted to Commissioner.

### 3.2 PRE-CONSTRUCTION & PRE-DEMOLITION PHOTOGRAPHS:

- A. Before commencement of Contract work at the site, take color photographs of Project site and surrounding properties, including existing structures or items to remain during construction, from different vantage points, as directed by the Resident Engineer.
1. Flag applicable excavation areas and construction limits before taking construction photographs.
  2. Take photographs of minimum eight (8) views to show existing conditions adjacent to property before starting the Work.
  3. Take applicable photographs of minimum eight (8) views of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
  4. Take additional photographs as required or directed by the Resident Engineer to record settlement or cracking of adjacent structures, pavements, and improvements.
- B. Demolition Operations: Take photographs as directed by the Resident Engineer of minimum of eight (8) views each before commencement of demolition operations, at mid-point of operations and at completion of operations.
- C. Pre-Demolition Photographs: Take archival quality color photographs, to include all exterior building facades, of all structures at the Project site designated to be fully demolished or removed in compliance with NYC Building Code requirements. Submit four (4) complete sets of pre-demolition photographs, in the format specified herein, to the Resident Engineer for submission to the Department of Buildings.

### 3.3 PERIODIC CONSTRUCTION PROGRESS PHOTOGRAPHS:

- A. Take photographs of minimum eight (8) views bi-weekly as directed by the Resident Engineer of construction progress for each contract trade. Select vantage points to show status of construction and progress since last photographs were taken.

### 3.4 SPECIAL PHOTOGRAPHS:

- A. The photographer shall take special photographs of subject matter or events as specified in other sections of the Project Specifications from vantage points specified or as otherwise directed by the Resident Engineer.
- B. Historical Elements: As required in Section 01 35 91, HISTORIC TREATMENT PROCEDURES, for Contract work at designated landmark structures or sites the photographer, as specified and required by individual sections of the Contract documents or at the direction of the Commissioner, shall take images of existing elements scheduled to be removed for replacement, repair or replication in quantities as directed, including post-construction photographs of completed work as directed by the Commissioner.



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1. Take Presentation Quality Photographs of designated landmark structures as directed by the Commissioner for submission to the New York City Landmarks Preservation Commission. Provide a minimum of four color photographic prints of each view as directed.

**3.5 DVD RECORDING:**

- A. When DVD Recording of Demonstration and Training sessions is required for Non-Commissioned projects the Contractor shall provide the services of a Videographer as indicated in Section 01 79 00, DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION.

**3.6 FINAL COMPLETION CONSTRUCTION PHOTOGRAPHS:**

- A. Take color photographs of minimum eight (8) unobstructed views of the completed project or project and site, as directed by the Commissioner and after all scaffolding, hoists, shanties, field offices or other temporary work has been removed and final cleaning is done after date of Substantial Completion for submission as Project Record Documents. Submit four (4) sets of each view of Presentation Quality photographic prints including negatives and/or digital images electronic file

**END OF SECTION 01 32 33**



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**SECTION 01 33 00**  
**SUBMITTAL PROCEDURES**

**PART 1 – GENERAL:**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

**1.2 SUMMARY:**

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Coordination Drawings, Catalogue Cuts, Material Samples and other submittals required by the Contract Documents.
- B. Review of submittals does not relieve the Contractor of responsibility for any Contractor's errors or omissions in such submittals, nor from responsibility for complying with the requirements of the Contract.
- C. Responsibility of the Contractor: The approval of Shop Drawings will be general and shall not relieve the Contractor of responsibility for the accuracy of such Shop Drawings, nor for the proper fitting and construction of the work, nor of the furnishing of materials or work required by the Contract and not indicated on the Shop Drawings. Approval of Shop Drawings shall not be construed as approving departures from the Contract Drawings, Supplementary Drawings or Specifications.
- D. This Section includes the following:
1. Definitions
  2. Submission Procedures
  3. Coordination Drawings
  4. LEED Submittals
  5. Ultra Low Sulfur Diesel Fuel Reporting
  6. Construction Photographs and DVD Recordings
  7. As-Built Documents

**1.3 RELATED SECTIONS:** Include without limitation the following:

- |    |                  |  |
|----|------------------|--|
| A. | Section 01 10 00 | SUMMARY  |
| B. | Section 01 31 00 | PROJECT MANAGEMENT AND COORDINATION                |
| C. | Section 01 32 00 | CONSTRUCTION PROGRESS DOCUMENTATION                |
| D. | Section 01 32 33 | PHOTOGRAPHIC DOCUMENTATION                         |
| E. | Section 01 77 00 | CLOSEOUT PROCEDURES                                |
| F. | Section 01 78 39 | CONTRACT RECORD DOCUMENTS                          |
| G. | Section 01 81 13 | SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS |

**1.4 DEFINITIONS:**

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or



combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

- C. Submittals: Written and graphic information that requires responsive actions and includes without limitation all shop drawings, product data, letters of certification, tests and other information required for quality control and as required by the Contract Documents.
- D. Informational Submittals: Written information that does not require responsive action. Submittals may be rejected for non-compliance with the Contract.
- E. Shop Drawings: Include drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data, except for coordination drawings, specifically prepared for the project by the Contractor or any subcontractor, manufacturer, supplier or distributor, which illustrates how specific portions of the work shall be fabricated and/or installed.
- F. Coordination Drawings: As required in Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION.
- G. Product Data and Quality Assurance Submittals: Includes manufacturer's standard catalogs, pamphlets and other printed materials including without limitation the following:
  - 1. Catalogue and Product specifications
  - 2. Installation instructions
  - 3. Color charts
  - 4. Catalog cuts
  - 5. Rough-in diagrams and templates
  - 6. Wiring diagrams
  - 7. Performance curves
  - 8. Operational range diagrams
  - 9. Mill reports
  - 10. Design data and calculations
  - 11. Certification of compliance or conformance
  - 12. Manufacturer's instructions and field reports

#### 1.5 COORDINATION DRAWINGS:

- A. The Contractor shall provide reproducible Coordination Drawing(s) of the reflective ceiling showing the integration of all applicable contract work, including general construction work as well as trade work (Plumbing, HVAC, and Electrical) to be performed by subcontractors. The Coordination Drawing(s) shall include, without limitation, the following information:
  - 1. General Construction work showing the reflective ceiling plan including starting points, ceiling and beam soffits elevations, ceiling heights, roof openings, etc.
  - 2. HVAC Contract work showing ductwork, heating and sprinkler piping, location of grilles, registers etc. and access doors in hung ceilings. Locations shall be fixed by elevations and dimensions from column centerlines and/or walls.
  - 3. Plumbing Contract work including piping, valves, cleanouts etc., indicating locations and elevations and shall indicate the necessary access doors.
  - 4. Electrical Contract work indicating fixtures, large conduit runs, clearances, pull boxes, junction boxes, sound system speakers, etc.
- B. The Contractor shall issue the completed Coordination Drawing(s) to the Resident Engineer for his/her review. The Resident Engineer may call as many meetings as necessary with the Contractor, including





- attendance by applicable subcontractors, and may call on the services of the Design Consulting where necessary, to resolve any conflicts that become apparent.
- C. Upon resolution of any conflicts, the Contractor shall provide a final Coordination Drawing(s) which will become the Master Coordination Drawing(s). The Master Coordination Drawing(s) shall be signed and dated by the Contractor to indicate acceptance of the arrangement of the work.
  - D. A reproducible copy of the Master Coordination Drawing(s) shall be provided by the Contractor to each of the appropriate subcontractor(s), the Resident Engineer and the Design Consultant for information.
  - E. Shop Drawings shall not be submitted prior to acceptance of the final coordinated drawings and shall be prepared in accordance with the Master Coordination Drawing(s). No work will be permitted without accepted Shop Drawings. It is therefore essential that this procedure be instituted as quickly as possible.

#### 1.6 SUBMITTAL PROCEDURES:

- A. Refer to Section 01 35 03 GENERAL MECHANICAL REQUIREMENTS and Section 01 35 06 GENERAL ELECTRICAL REQUIREMENTS for additional submittal requirements involving electrical and mechanical work or equipment of any nature called for the project.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
  - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activities, with the Submittal Schedule specified in Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION.
  - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
  - 3. The Commissioner reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Submittals Schedule: The Submittals Schedule is set forth in Schedule F, which is included in the Addendum.
- D. Identification: Place a permanent label or title block on each submittal for identification.
  - 1. Indicate name of firm or entity that prepared each submittal on label or title block.
  - 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Design Consultant.
  - 3. Include the following minimum information on label for processing and recording action taken:
    - a. Project name, DDC Project Number and Contract Number
    - b. Date.
    - c. Name and address of Design Consultant.
    - d. Name and address of Contractor.
    - e. Name and address of subcontractor.
    - f. Name and address of supplier.
    - g. Name of manufacturer.
    - h. Submittal number or other unique identifier, including revision identifier.
    - i. Number and title of appropriate Specification Section.
    - j. Drawing number and detail references, as appropriate.
    - k. Location(s) where product is to be installed, as appropriate.
    - l. Other necessary identification.
- E. Transmittal:
  - 1. Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form in triplicate. Transmittals received from sources other than the



Contractor will be returned without review. Re-submission of the same drawings or product data shall bear the original number of the prior submission and the original titles.

2. Transmittal Form: Provide locations on form for the following information:

- a. Project name, DDC Project number and Contract Number
- b. Date.
- c. Destination (To:).
- d. Source (From:)
- e. Names of Contractor, subcontractor, manufacturer, and supplier.
- f. Category and type of submittal.
- g. Submittal purpose and description.
- h. Specification Section number and title.
- i. Drawing number and detail references, as appropriate.
- j. Transmittal number, numbered consecutively.
- k. Submittal and transmittal distribution record.
- l. Remarks.
- m. Signature of transmitter.

F. Shop Drawings:

1. Procedures for Preparing, Forwarding, Checking and Returning all Shop Drawings shall be, generally, as follows:

- a. The Contractor shall make available to its subcontractors the necessary Contract Documents and shall instruct such subcontractor to determine dimensions and conditions in the field, particularly with reference to coordination between the trade subcontractors. The Contractor shall direct its subcontractors to prepare Shop Drawings for submission to the Design Consultant in accordance with the requirements of these General Conditions. The Contractor shall also direct its subcontractors to "Ring Up" corrections made on all re-submissions for approval, so as to be readily seen, and that the symbol "sub" be used to identify the source of the correction or information that has been added.

The Contractor shall:

1. Review and be responsible to the Commissioner, for information shown on its subcontractor's Shop and Installation drawings and manufacturers' data, and also for conformity to Contract Documents.
  2. "Ring Up" corrections made on all submissions for approval, so as to be readily seen, and that the symbol "GC", "PL", "HVAC" or "EL" be used to indicate that the correction and/or information added was made by the Contractor and/or its subcontractor(s).
  3. Clearly designate which entity is to perform the work when the term, "work by others" or other similar phrases are indicated on the Contract Drawings before submission to the Design Consultant.
  4. Stamp submissions "Recommended for Acceptance", date and forward to the Design Consultant.
2. The Contractor shall promptly prepare and submit project specific layout detail and Shop Drawings of such parts of the work as are indicated in the Specifications, Schedule F of the Addendum or as required. These Shop Drawings shall be made in accordance with the Contract Drawings, Specifications and Supplementary Drawings, if any. The Shop Drawings shall be accurate and distinct and give all the dimensions required for the fabrication, erection and installation of the work.
3. Size of Drawings: The Shop Drawings, unless otherwise directed, shall be on sheets of the same size as the Contract Drawings, drawn accurately and of sufficient scale to be legible, with a one half (1/2) inch marginal space on each side and a two (2) inch marginal space for binding on the left side.



4. **Scope of Drawings:** Shop Drawings shall be numbered consecutively and shall accurately and distinctly represent all aspects of the work, including without limitation the following:
  - a. All working and erection dimensions.
  - b. Arrangements and sectional views.
  - c. Necessary details, including performance characteristics, and complete information for making necessary connections with other work.
  - d. Kinds of materials including thickness and finishes.
  - e. Identification of products.
  - f. Fabrication and installation drawings.
  - g. Roughing-in and setting diagrams.
  - h. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
  - i. Shop work manufacturing instructions.
  - j. Templates and patterns.
  - k. Schedules.
  - l. Design calculations.
  - m. Compliance with specified standards.
  - n. Notation of coordination requirements.
  - o. Notation of dimensions established by field measurement.
  - p. Relationship to adjoining construction clearly indicated.
  - q. Seal and signature of professional engineer if specified.
  - r. **Wiring Diagrams:** Differentiate between manufacturer-installed and field-installed wiring.
  - s. All other information necessary for the work and/or required by the Commissioner.
  
5. **Titles and Reference:** Shop Drawings shall be dated and contain:
  - a. Name of the Project, DDC Project Number and Contract Number.
  - b. The descriptive names of equipment, or materials covered by the Contract Drawings and the classified item number or numbers, if any, under which it is, or they are required.
  - c. The locations or points and sequence at which materials, or equipment, are to be installed in the work.
  - d. Cross references to the section number, detail number and paragraph number of the Contract Specifications.
  - e. Cross references to the sheet number, detail number, etc., of the Contract Drawings.
  
6. **Field Measurements:** In addition to the above requirements, the Shop Drawings shall be signed by the Contractor and, if applicable, the subcontractor responsible for preparation of the Shop Drawings. Each Shop Drawing shall be stamped with the following wording:

**FIELD MEASUREMENTS:** The Contractor certifies that it has verified and supplemented the Contract Drawings by taking all required field measurements, which said measurements correctly reflect all field conditions and that this Shop Drawing incorporates said measurements.
  
7. **Contractor's Statement with Submittal:** Any Submittal by the Contractor for acceptance, including without limitation, all dimensional drawings of equipment, blueprints, catalogues, models, samples and other data relative to the equipment, the materials, the work or any part thereof, must be accompanied by a statement that the Submittal has been examined by the Contractor and that everything shown in the Submittal is in accordance with the requirements of the Contract Drawings and Specifications. If there is any discrepancy between what is shown in the Submittal and the requirements of the Contract Drawings and Specifications, the Contractor shall, in its statement, list and clearly describe each such discrepancy.

Acceptance will be given based upon the Contractor's representation that what is shown in the Submittal is in accordance with the requirements of the Contract Drawings and Specifications. If



the Contractor's statement indicates any discrepancy between what is shown in the Submittal and the requirements of the Contract Drawings and Specifications, such change is subject to review and prior written acceptance by the Design Consultant. In addition, such change may require a change order in accordance with Article 25 of the Contract. In the event any such change is approved, any additional expense or increased cost in connection with the change is the sole responsibility of the Contractor.

8. Submission of Shop Drawings:

- a. Initial Submission: The Contractor shall submit seven (7) copies of each Shop Drawing to the Design Consultant for his/her review and acceptance. The Design Consultant will transmit Shop Drawings to appropriate sub-consultants for review and acceptance, including Commissioning Authority/Agent as applicable. A satisfactory Shop Drawing will be stamped "No Exceptions Taken", be dated and distributed by the Design Consultant as follows:
- 1) Two (2) copies thereof will be returned to the Contractor by letter.
  - 2) Three (3) copies of the approved Shop Drawing and copy of the transmittal letter to the Contractor will be forwarded to DDC.
  - 3) One copy will be retained by the Design Consultant.
  - 4) One copy will be forwarded / retained by sub-consultant(s) as appropriate.

Should the Shop Drawing(s) be "Rejected" or noted "Revise and Resubmit" by the Design Consultant, the Design Consultant will return the Shop Drawings to the Contractor with the necessary corrections and changes to be made as indicated thereon.

- b. Revisions: The Contractor must make such corrections and changes and again submit seven (7) copies of each shop drawing to the Design Consultant. The Contractor shall revise and resubmit the Shop Drawing as required by the Design Consultant until the Shop Drawings are stamped "No Exceptions Taken". However, Shop Drawings which have been stamped "Make Corrections Noted" shall be considered an "Acceptable" Shop Drawing and NEED NOT be resubmitted.
- c. Commencement of Work: No work or fabrication called for by the Shop Drawings shall be done until the acceptance of the said drawings by the Design Consultant is given. In addition to the foregoing Shop Drawing transmissions, a copy of any Shop Drawing prepared by any of the Contractor's subcontractors which Shop Drawing indicated work related to, adjacent to, impinging upon, or affecting work to be done by other subcontractors shall be transmitted to the subcontractors so affected. [These accepted Shop Drawings shall be distributed to the affected subcontractors when required with a copy of the transmittal to the Resident Engineer.]
- d. Variations: If the Shop Drawings show variations from the Contract requirements because of standard shop practice or other reasons, the Contractor shall make specific mention of such variations in its letter of submittal. Acceptance of the Shop Drawings shall constitute acceptance of the subject matter thereof only and not of any structural apparatus shown or indicated.

G. Product Data:

1. General: Except as otherwise prescribed herein, the submission, review and acceptance of Product Data and Catalogue cuts shall conform to the procedures specified in Sub-Section 1.6 F, Shop Drawings.
2. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
3. Mark each copy of each submittal to show which products and options are applicable.
4. Include the following information, as applicable:



- a. Manufacturer's written recommendations.
  - b. Manufacturer's product specifications.
  - c. Manufacturer's installation instructions.
  - d. Standard color charts.
  - e. Manufacturer's catalog cuts.
  - f. Wiring diagrams showing factory-installed wiring.
  - g. Printed performance curves.
  - h. Operational range diagrams.
  - i. Mill reports.
  - j. Standard product operation and maintenance manuals.
  - k. Compliance with specified referenced standards.
  - l. Testing by recognized testing agency.
  - m. Application of testing agency labels and seals.
  - n. Notation of coordination requirements.
5. Submit Product Data before or concurrent with Samples.
6. Submission of Product Data:
- a. Initial Submission: The Contractor shall submit seven (7) sets of Product Data to the Design Consultant for his/her review and acceptance. The Design Consultant will transmit Product Data to appropriate sub-consultants for review and acceptance, including Commissioning Authority/Agent as applicable. A satisfactory catalogue cut will be stamped "No Exception Taken", be dated and distributed as follows:
    - 1) Two (2) copies thereof will be returned to the Contractor by letter.
    - 2) Three (3) copies of the Product Data and copy of the transmittal letter to the Contractor will be forwarded to DDC
    - 3) One copy will be retained by the Design Consultant.
    - 4) One copy will be forwarded / retained by sub-consultant(s) as appropriate.Should the Product Data be "Rejected" or noted "Revise and Resubmit" by the Design Consultant, the Design Consultant will return one (1) set of such Product Data to the Contractor with the necessary corrections and changes to be made indicated and one (1) set to DDC.
7. Revisions: The Contractor must make such corrections and changes and again submit seven (7) copies of each Product Data for the review of the Design Consultant. The Contractor shall revise and resubmit the Product Data as required by the Design Consultant until the submission is stamped "No Exceptions Taken" by the Design Consultant. However, Product Data which has been stamped "Make Corrections Noted" shall be considered an "Accepted" Product Data and NEED NOT be resubmitted.
- H. Samples of Materials:
1. For samples of materials involving electrical work of any nature, refer to Section 00 35 06 - General Electrical Requirements.
  2. Samples shall be in triplicate, of sufficient size to show the quality, type, range of color, finish and texture of the material.
  3. Each of the samples shall be labeled as follows:
    - a. Name of the Project, DDC Project Number and Contract Number.
    - b. Name and quality of the material.
    - c. Date.



- d. Name of Contractor, subcontractor, manufacturer and supplier.
- e. Related Specification or Contract Drawing reference to the samples submitted.
4. A letter of transmittal, in triplicate, from the Contractor requesting acceptance must accompany all such samples.
5. Transportation charges to the Design Consultant's office must be prepaid on all samples forwarded.
6. Samples for testing purposes shall be as required in the Specifications.
7. Samples on Display: When samples are specified to be equal to approved product, they shall be carefully examined by the Contractor and by those whom the Contractor expects to employ for the furnishing of such materials.
8. Timely Submissions Log/Schedule: Samples shall be submitted in accordance with approved Shop Drawing log so as to permit proper consideration without delaying any operation under the project. Materials should not be ordered until acceptance is received, in writing, from the Design Consultant. All materials shall be furnished equal in every respect to the accepted samples.
9. The Acceptance of any samples will be given as promptly as possible, and shall be only for the characteristic color, texture, strength, or other feature of the material named in such approval, and no other. When this approval is issued by the Design Consultant, it is done with the distinct understanding that the materials to be furnished will fully and completely comply with the Specifications, the determination of which may be made at some later date by a laboratory test or by other procedure. Use of materials will be permitted only so long as the quality remains equal to the approved samples and complies in every respect with the Specifications, and the colors and textures of the samples on file in the office of the Design Consultant, for the project.
10. Acceptability of test Data: The Commissioner will be the final judge as to acceptability of laboratory test data and performance in service of materials submitted.
11. Valuable Samples: Valuable samples, such as hardware, plumbing and electrical fixtures, etc., not destroyed by inspection or test, will be returned to the Contractor and may be incorporated into the work after all questions of acceptability have been settled, providing suitable permanent records are made as to the location of the samples, their properties, etc.
12. Equivalent Quality: Any material, article and/or equipment which is designated in the Drawings and/or Specifications by a number in the catalogue of any manufacturer or by a manufacturer's grade or trade name is designated for the purpose of describing the material, article and/or equipment and fixing the standard of performance and/or function, as well as the quality and/or finish. Any material, article and/or equipment which is other than what is specified in the Drawings and/or Specifications will only be accepted if the Commissioner makes a written determination that such material, article and/or equipment is equivalent to that which is specified in the Drawings and/or Specifications.
13. The submission of any material, article and/or equipment as the equal of any material, article and/or equipment set forth in the Drawings and/or Specifications as a standard shall be accompanied by any and all information essential for determining whether such proposed material, article and/or equipment is equivalent to that which is specified. Such information shall include, without limitation, illustrations, drawings, descriptions, catalogues, records of tests, samples, as well as information regarding the finish, durability and satisfactory use of such proposed material, article and/or equipment under similar operating conditions.



**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 1.7**

**1.7 LEED SUBMITTALS:**

- A. Comply with submittal requirements specified in Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL; Section 01 81 13, SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS; Section 01 81 13.13, VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES, SEALANTS, PAINTS AND COATINGS FOR LEED BUILDINGS; Section 01 81 19, INDOOR AIR QUALITY REQUIREMENTS FOR LEED BUILDINGS and Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS.
- B. LEED Building submittal information shall be assembled into one package per each applicable specification section, separate from all other non-LEED submittals. Each submittal package shall have a separate transmittal and identification as described in Sub-Section 1.6 herein.
- C. Number of Copies: Submit FOUR (4) copies of LEED submittals, in accordance with procedure described in Sub-Section 1.6 herein, unless otherwise indicated.
  - 1. LEED Submittals shall be clearly marked "LEED".
- D. Material Safety Data Sheets (MSDSs) for LEED Certification: Submit information necessary to show compliance with LEED certification requirements, which will be the limit of the Design Consultant's review for LEED compliance.
  - 1. Designated LEED submittals that include non-LEED MSDS data will not be reviewed. The entire submittal will be returned for re-submission.
- E. Product Cut Sheets and/or Shop Drawings for LEED Certification: Provide product cut sheets and/or shop drawings with the Contractor's or sub-contractor's stamp, confirming that the submitted products are the products installed in the Project. For detailed requirements refer to Sub-Section 1.6 of Section 01 81.13 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED PROJECTS.
  - 1. Provide the quantity, length, area, volume, weight, and/or cost of each product submitted as required to satisfy LEED documentation requirements. Refer to Sub-Section 1.6 of Section 01 81 13 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED PROJECTS.

**1.8 ULTRA LOW SULFUR DIESEL FUEL AND BEST AVAILABLE TECHNOLOGY REPORTING:**

- A. In accordance with Section 01 10 00 Summary, Sub-Section 1.5 E, the Contractor shall submit reports to the Commissioner regarding the use of Ultra Low Sulfur Diesel Fuel and Best Available Technology (BAT) in Non road Vehicles. Submission of such reports shall be in accordance with the schedule, format, directions and procedures established by the Commissioner.

**1.9 CONSTRUCTION PHOTOGRAPHS AND DVD RECORDINGS:**

- A. Submit construction progress photographs and DVD recordings in accordance with requirements of Section 01 32 33, PHOTOGRAPHIC DOCUMENTATION

**1.10 AS-BUILT DOCUMENTS:**

- A. Submit all as-built documents in accordance with Section 01 78 39 CONTRACT RECORD DOCUMENTS.



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**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 33 00**





**SECTION 01 35 03  
GENERAL MECHANICAL REQUIREMENTS**

**REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 35 03**

**PART I – GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

**1.2 SUMMARY:**

- A. The General Mechanical Requirements contained herein shall be followed by the Contractor, as well as its subcontractor for HVAC work. This Section sets forth the General Requirements applicable to mechanical work for the Project. Such requirements are intended to be read in conjunction with the Specifications and Contract Drawings for the Project. In the event of any conflict between the requirements set forth in this Section and the requirements of the Specifications and/or the Contract Drawings, whichever requirement is the most stringent, as determined by the Commissioner, shall take precedence.

**1.3 RELATED SECTIONS:** Include without limitation the following:

- A. Section 01 10 00 SUMMARY
- B. Section 01 33 00 SUBMITTAL PROCEDURES
- C. Section 01 35 06 GENERAL ELECTRICAL REQUIREMENTS
- D. Section 01 42 00 REFERENCES
- E. Section 01 77 00 CLOSEOUT PROCEDURES
- F. Section 01 78 39 CONTRACT RECORD DOCUMENTS

**1.4 DEFINITIONS:**

- A. **CONCEALED PIPING AND DUCTS** -: shall mean piping and ducts hidden from sight in masonry or other construction, in floor fill, trenches, partitions, hung ceilings, furred spaces, pipe shafts and in service tunnels not used for passage. Where piping and ducts run in areas that have hung ceilings, such piping and ducts shall be installed in the hung ceilings. For work on existing piping any insulation on such existing piping is to be tested for asbestos and abated, if found to be positive by a certified asbestos contractor. Such testing and abatement shall occur prior to the performance of any work on these pipes.

**1.5 SUBMITTALS:**

- A. **INTENT OF MECHANICAL CONTRACT DRAWINGS** – Mechanical Contract Drawings are in part diagrammatic and show the general arrangement of the equipment, ducts and piping included in the Contract and the approximate size and location of the equipment.
- B. The Contractor shall follow these Contract Drawings in laying out the work and verify the spaces in which it will be installed. The Contractor shall submit, as directed, Mechanical Shop Drawings, roughing drawings, manufacturer's Shop Drawings, field drawings, cuts, bulletins, etc., of all materials, equipment and methods of installation shown or specified in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.



1. Submit sheet metal shop standards. Submit manufacturer's product data including gauges, materials, types of joints, scaling materials and installations for metal ductwork materials and products.
2. Submit scaled layout drawing (3/8"=1") of metal ductwork and fittings including, but not limited to, duct sizes, locations, elevations, slopes of horizontal runs, wall and floor penetrations and connections. Show modifications of indicated requirements made to conform to local shop practice and how those modifications ensure that free area, materials and rigidity are not reduced. Layouts should include all the room plans, mechanical equipment rooms and penthouses. Method of attachment of duct hangers to building construction all with the support details. Coordinate shop drawings with related trades prior to submission.
3. Indicate duct fittings, particulars such as gauges, sizes, welds and configuration prior to start of work for low-pressure systems.
4. Submit maintenance data and parts lists for metal ductwork materials and products. Include this data, product data and shop drawings in maintenance manual.

**1.6 ACCESSIBILITY:**

All work shall be installed by the Contractor so as to be readily accessible for inspection, operation, maintenance and repair. Minor deviations from the arrangement indicated on the Contract Drawings may be made to accomplish this, but they shall not be made without approval by the Commissioner.

**1.7 CHANGES IN PIPING, DUCTS, AND EQUIPMENT:**

Wherever field conditions are such that for proper execution of the work, reasonable changes in location of piping, ducts and equipment are necessary and required, the Contractor shall make such changes as directed and approved, without extra cost to the City.

**1.8 CLEANING OF PIPING, DUCTS, AND EQUIPMENT:**

Piping, ducts and equipment shall be thoroughly cleaned by the Contractor of all dirt, cuttings and other foreign substances. Should any pipe, duct or other part of the several systems be obstructed by any foreign matter, the Contractor will be required to pay for disconnecting, cleaning and reconnecting wherever necessary for the purpose of locating and removing obstructions. The Contractor shall pay for repairs to other work damaged in the course of removing obstructions. For work on existing piping, ducts and equipment the Contractor shall pay special attention during this task so as not to disturb the insulation on such piping, ducts or equipment.

**1.9 STANDARDIZATION OF SIMILAR EQUIPMENT:**

Unless otherwise particularly specified, all equipment of the same kind, type or classification, and used for identical purposes, shall be the product of one (1) manufacturer.

**1.10 SUPPORTING STRUCTURES DESIGNED BY THE CONTRACTOR:**

Unless otherwise specified, supporting structures for equipment to be furnished by the Contractor shall be designed by an Engineer licensed in New York State retained by the Contractor. Supporting structures shall be built by the Contractor of sufficient strength to safely withstand all stresses to which they may be subjected, within permissible deflections, and shall meet the following standards:

- A. Structural Steel - ASTM Standard Specifications, AISC and New York City Construction Codes.



- B. Concrete for supports for equipment shall conform to the Specifications for concrete herein, but in no case shall be less than the requirements of the New York City Construction Codes for average concrete.
- C. Steel reinforcement for concrete shall be of intermediate grade and shall meet the requirements of the Standard Specifications for Billet Steel-Concrete Reinforcement Bars, ASTM.
- D. Drawings and calculations shall be submitted for review and acceptance in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

**1.11 ELIMINATION OF NOISE:**

- A. All systems and/or equipment provided under the Contract shall operate without objectionable noise or vibration.
- B. Should operation of any one or more of the several systems produce noise or vibration which is, in the opinion of the Commissioner, objectionable, the Contractor shall at its own expense make changes in piping, equipment, etc. and do all work necessary to eliminate objectionable noise or vibration.
- C. Should noise or vibration found objectionable by the Commissioner be transmitted by any pipe or portions of the structure from systems and/or equipment installed under the Contract, the Contractor shall at its own expense install such insulators and make such changes in or additions to the installations as may be necessary to prevent transmission of this noise or vibration.

**1.12 PRELIMINARY FIELD TEST:**

As soon as conditions permit, the Contractor shall furnish all necessary labor and materials for, and shall make, preliminary field tests of the equipment to ascertain compliance with the requirements of the Contract. If the preliminary field tests disclose equipment that does not comply with the Contract, the Contractor shall, prior to the acceptance test, make all changes, adjustments and replacements required.

**1.13 INSTRUCTIONS ON OPERATION:**

At the time the equipment is placed in permanent operation by the City, the Contractor shall make all adjustments and tests required by the Commissioner to prove that such equipment is in proper and satisfactory operating condition. The Contractor shall instruct the City's operating personnel on the proper maintenance and operation of the equipment for the period of time called for in the Specifications.

**1.14 CERTIFICATES:**

On completion of the work, the Contractor shall obtain certificates of inspection, approval, acceptance and of compliance with all laws from all agencies and/or entities having jurisdiction over the work and shall deliver these certificates to the Commissioner in accordance with Section 01 77 00 CLOSEOUT PROCEDURES. The work shall not be deemed substantially complete until the certificates have been delivered.

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 35 03**



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No Text



**SECTION 01 35 06**  
**GENERAL ELECTRICAL REQUIREMENTS**

**PART I - GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

**1.2 SUMMARY:**

- A. This Section sets forth the General Requirements applicable to electrical work for the Project. Such requirements are intended to be read in conjunction with the Specifications and Contract Drawings for the Project. In the event of any conflict between the requirements set forth in this Section and the requirements of the Project Specifications and/or the Contract Drawings, whichever requirement is the most stringent, as determined by the Commissioner, shall take precedence.
- B. This Section includes the following:
1. Procedure for Electrical Approval
  2. Submittals
  3. Electrical Installation Procedures
  4. Electrical Conduit System Including Boxes (Pull, Junction and Outlet)
  5. Electrical Wiring Devices
  6. Electrical Conductors and Terminations
  7. Circuit Protective Devices
  8. Distribution Centers
  9. Motors
  10. Motor Control Equipment
  11. Schedule of Electrical Equipment

**1.3 RELATED SECTIONS:** Include without limitation the following:

- |    |                  |                                 |
|----|------------------|---------------------------------|
| A. | Section 01 10 00 | SUMMARY                         |
| B. | Section 01 33 00 | SUBMITTAL PROCEDURES            |
| C. | Section 01 35 03 | GENERAL MECHANICAL REQUIREMENTS |
| D. | Section 01 42 00 | REFERENCES                      |
| E. | Section 01 77 00 | CLOSEOUT PROCEDURES             |
| F. | Section 01 78 39 | CONTRACT RECORD DOCUMENTS       |

**1.4 DEFINITIONS:**

- A. **WIRING:** means both wire and raceway (rigid steel, heavy wall conduit unless specifically indicated otherwise).
- B. **POWER WIRING:** means wiring from a panel board or other specified source to a starter (if required) then to a disconnect (if required), then to the final point of usage such as a motor, unit or device.
- C. **CONTROL and/or INTERLOCK WIRING:** means that wiring that signals the device to operate or shut down in response to a signal from a remote control device such as a temperature, smoke, pressure, float,



etc. device (starters and disconnect switches are not included in this definition) regardless of the voltage required for the controlling device.

- D. **RIGID STEEL CONDUIT:** shall mean rigid steel, heavy wall conduit that is hot dipped galvanized inside and outside. The conduit shall meet the requirements of the latest edition, as amended, of the "Standard for Rigid Steel Conduit" of the Underwriters' Laboratories, Inc. Unless otherwise specified in the Specifications or indicated on the Contract Drawings, rigid steel conduit shall be used for all exposed work, for all underground conduits in contact with earth and for fire alarms systems, as required by the New York City Construction Codes.
- E. **ELECTRICAL METALLIC TUBING (EMT):** shall mean industry standard thin wall conduit of galvanized steel only. All elbows, bends, couplings and similar fittings which are installed as a part of the conduit system shall be compatible for use with electric metallic tubing. Couplings and terminating fittings shall be of the pressure type as approved by the Commissioner. Set screw fittings will not be acceptable. EMT shall meet the requirements of the latest edition, as amended, of the "Standard for Electrical Metallic Tubing of the Underwriters Laboratories Inc." EMT may only be used where specifically indicated. In no case will EMT be permitted in spaces other than hung ceilings and dry wall partitions.
- F. **FLEXIBLE METALLIC CONDUIT (FMC):** Shall mean a conduit made through the coiling of a self-interlocking ribbed strip of aluminum or steel, forming a hollow tube through which wires can be pulled. For final connections to motors and motorized equipment, not more than a 4' - 0" length of flexible conduit may be used. For watertight installations, this conduit shall be of a watertight type, attached with watertight glands or fittings for final connections from outlet box to recessed lighting fixtures and in locations only where specifically permitted by the Specifications or Contract Drawings.

#### 1.5 PROCEDURE FOR ELECTRICAL APPROVAL:

This Sub-Section sets forth General Electrical information, as well as required approvals for all electrical work required for the Project, including ancillary electrical work which may be included in the work of other trade subcontractors.

- A. **ELECTRIC SERVICE:** The electric service supply is subject to commercial and operating variation of the utility company. Proper provision shall be made to have all apparatus operate normally under these conditions.
- B. **ACCEPTANCE:** Acceptance and approval of the work will be contingent upon the inspection and test of the installation by the City regulatory agency.
- C. **TESTS:** The Contractor shall notify the Commissioner when the Contractor has completed the work and is ready to have it inspected and tested. Upon completion of the work tests shall be made as required by the Commissioner of all electrical materials, electrical and associated mechanical equipment, and of appliances installed hereunder. The Contractor shall furnish all labor and material for such tests. Should the tests show that any of the material, appliances or workmanship is not first class or not in compliance with the Contract, the Contractor on written notice shall remove and promptly replace them with other materials in conformity with the Contract.
- D. **CERTIFICATE OF THE BUREAU OF ELECTRICAL CONTROL, OF THE DEPARTMENT OF BUILDINGS (B.E.C.):** The Contractor must file prior to requesting a substantial completion inspection a Certificate of Inspection issued by B.E.C. On completion of the work the Contractor shall obtain certificates of inspection, approval, acceptance and compliance from all agencies and/or entities having jurisdiction over the work and shall deliver these certificates to the Commissioner in accordance with Section 01 77 00 CLOSEOUT PROCEDURES.
- E. **RESPONSIBILITY FOR CARE AND PROTECTION OF EQUIPMENT:**
  - 1. The Contractor furnishing any equipment shall be responsible for the equipment until it has been finally inspected, tested and accepted, in accordance with the requirements of the Contract.



2. After delivery and before and after installation, the Contractor shall protect all equipment against theft, injury or damage from all causes. The Contractor shall carefully store all equipment received for work, which is not immediately installed. If any equipment has been subject to possible injury by water, it shall be thoroughly dried out and put through a special dielectric test as directed by the Commissioner, at the expense of the Contractor or replaced by the Contractor without additional cost to the City.
- F. **UNIFORMITY OF EQUIPMENT:** Any two (2) or more pieces of equipment, apparatus or materials of the same kind, type or classification which are intended to be used for identical types of service, shall be made by the same manufacturer.

#### 1.6 SUBMITTALS:

A. **CONTRACTOR'S ELECTRICAL DRAWINGS AND SAMPLES FOR APPROVAL:**

1. The Contractor shall submit to the Commissioner for approval, in accordance with Section 01 33 00 SUBMITTAL PROCEDURES, complete dimensional drawings of all equipment, wiring diagrams, motor test data, details of control, installation layouts showing all details and locations and including all schedules, and descriptions and supplementary data to comprise complete working drawings and instructions for the performance of the work. A description of the operation of the equipment and controls shall be included. A letter, in triplicate, shall accompany each submittal.
2. The Contractor shall submit in accordance with Section 01 33 00 SUBMITTAL PROCEDURES, duplicate samples of such materials and appliances as may be requested by the Commissioner for approval. These samples shall be properly tagged for identification and submitted for examination and test. After the samples are approved, one (1) sample will be returned to the Contractor and the other sample will be filed in the office of the Commissioner's representative for inspection use. After the Contract is completed, the second set of samples will be returned to the Contractor.

B. **TIMELINESS:** All material shall be submitted in accordance with the submittal schedule in sufficient time for the progress of construction. Failure to promptly submit acceptable samples and dimensional drawings of equipment will not be accepted as grounds for an extension of time. The Commissioner may decline to consider submittals unless all related items are submitted at the same time.

C. **CONTRACTOR'S STATEMENT WITH SUBMITTALS:** Contractor shall submit statement in accordance with Section 01 33 00, SUBMITTAL PROCEDURES.

D. **BULLETINS AND INSTRUCTIONS:** The Contractor shall furnish and deliver to the Commissioner in accordance with Section 01 78 39, CONTRACT RECORD DOCUMENTS and Section 01 77 00, CLOSEOUT PROCEDURES, after acceptance of the work, four (4) complete sets of instructions, technical bulletins and any other printed matter (diagrams, prints, or drawings) required to provide complete information for the proper operation, maintenance and repair of the equipment and the ordering of spare parts.

#### PART II – PRODUCTS (Not Used)



## PART III – EXECUTION

### 3.1 ELECTRICAL INSTALLATION PROCEDURES:

This Sub-Section sets forth the General Installation Procedure that shall apply to all electrical work and electrical equipment appearing in the Contract.

(Refer to Sub-Section 1.4 DEFINITIONS for terms used in this section)

- A. **INTENT OF CONTRACT DOCUMENTS:** The Drawings and Specifications are to be interpreted as a means of conveying the scope and intent of the work without giving every minor electrical detail. It is intended, nevertheless, that the Contractor shall provide whatever labor and materials are found necessary, within the scope of the Contract, for the successful operation of the installation. Specific details of individual installations are to be finally decided upon when the Contractor submits Working or Shop Drawings for approval to DDC. Whenever there are two (2) or more methods to complete project work within the Contract scope, the Commissioner reserves the right to choose that method which, in the Commissioner's opinion, will afford the most satisfactory performance, lasting qualities, and accessibility for repairs, even though this selection is the most costly.
- B. **SCHEMATIC PLANS – APPROXIMATE LOCATIONS:** Conduits and wiring are shown on the plans for diagrammatic purposes only. Therefore, conduit layouts may not necessarily give the actual physical route of the conduits. The Contractor who installs a conduit system will also be required, as part of the work, to furnish and install all hangers and pull-boxes, including any special pull-boxes found necessary to overcome interferences, and to facilitate the pulling of electrical cables. Similarly, the locations of equipment, appliances, outlets and other items shown on Contract Drawings are only approximate and are to be definitively established when equipment Shop Drawings are submitted and approved by DDC during construction.
- C. **SLEEVES:** required for conduits passing through walls or floors, shall be furnished and set by the Contractor installing the conduits. Sleeves in waterproofed floors shall be provided with flashing extending 12 inches in all directions from sleeve and secured to waterproofing. Flashing shall be turned down into space between pipe and sleeve and caulked watertight. Flashing shall be 20 oz. cold rolled copper. Sleeves shall be supplied with welded flanges similar to those supplied by the subcontractor for Plumbing Work and shall extend one (1) inch above finished floor.
- D. **COORDINATION:** The Contractor shall keep in close touch with the construction progress and obtain the necessary information for the accurate placement of its work in ample time before project construction operations obstruct its work. The Contractor is to consult all other Contract Drawings, as well as approved equipment Shop Drawings on file in the Resident Engineer's Field Office. This will aid in avoiding interferences, omissions and errors in the electrical installation.
- E. **RESTORATION:** If drilling or cutting is done on finished surfaces of equipment or the structure, any marring of the surface shall be repaired or replaced by the Contractor. The Contractor shall be held responsible for corrective restoration due to its cutting or drilling, and for any damage to the project or its contents caused by the Contractor or the Contractor's workers. If any piercing of waterproofing occurs because of the installation of the work, the Contractor shall restore the waterproofing, at its own expense, to the satisfaction of the Commissioner.
- F. **ELECTRICAL WORK AT SITE:** The Contractor furnishing equipment consisting of a number of related electrical devices or appliances, mounted in a single enclosure, or on a common base, shall furnish this unit complete with internal wiring, connections, terminal boxes with copper connectors and/or lugs and ample electrical leads, ready for connection and operation. The cost of any wiring, re-wiring or other work required to be done on this unit in the field, shall be borne by the Contractor, without additional cost to the City.
- G. **COOPERATION AMONG SUBCONTRACTORS:** Whenever an electrically operated unit or system involves the combined work of several subcontractors for its installation and successful operation, the





Contractor shall require each subcontractor to exercise the utmost diligence in cooperating with others to produce a complete, harmonious installation.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.2**

**3.2 ELECTRICAL CONDUIT SYSTEM INCLUDING BOXES (PULL, JUNCTION AND OUTLET):**

This Sub-Section sets forth the requirements applying to the installation of electrical conduits, boxes or fittings. Rigid steel conduit shall be used throughout, unless otherwise directed by the Commissioner. Where the word 'conduit', without a modifier such as, rigid steel, EMT, etc., is specified to be used, it shall be interpreted to mean, rigid steel, heavy wall, threaded conduit.

(Refer to Sub-Section 1.4 DEFINITIONS for terms used in this section)

**A. INSTALLATIONS AND APPLICATIONS:**

1. Unless otherwise specified or indicated on the Contract Drawings, conduit runs shall be installed concealed in finished spaces.
2. **CONDUIT SIZES:** The sizes of conduit shall be as indicated on the Contract Drawings. Wherever conduit sizes are not indicated, the conduit shall meet the requirements of the New York City Electrical Code to accommodate the conductors to be installed therein.
3. Conduits shall be reamed smooth after cutting. No running threads will be permitted. Universal type couplings shall be used where required. Conduit joints shall be screwed up to butt. Empty conduits after installation shall have all open ends temporarily plugged to prevent the entrance of water or other foreign matter.
4. Conduits being installed in concrete or masonry shall be securely held in place during pouring and construction operations. A group of conduits terminating together shall be held in place by a template.
5. **UNDERGROUND STEEL CONDUITS:** Unless otherwise specified, all underground steel conduits in contact with earth shall be encased by the Contractor who installs them, in a covering of not less than two (2) inches of an approved concrete mixture. Concrete mix shall be one (1) part cement to four and one-half (4 ½) parts of fine and coarse aggregate.
6. **EXCAVATION RESTORATION PERMITS:** When installing underground conduits, duct banks or manholes the Contractor shall perform the work of cutting pavement, excavation shoring, keeping trenches or holes pumped dry, backfilling, restoration of surfaces to original condition and removal of excess earth and rubbish from premises. During the work, the Contractor shall provide adequate crossovers, protective barriers, lamps, flags, etc., to safeguard traffic and the public. When the work is in a public highway or street, the Contractor shall secure and pay for all necessary permits and inspection fees and pay the cost of repaving.
7. **EXPOSED CONDUIT SUPPORTS:** Exposed conduit shall be supported by Galvanized hangers with necessary inserts, beam clamps of approved design or attached to walls or ceilings by expansion bolts. Exposed conduits shall be supported or fastened at intervals not more than five (5) feet.
8. Exposed conduit shall be installed parallel or at right angles to ceiling, walls and partitions. Where direction changes of exposed conduit cannot be made with neat bends, such as required around beams or columns, conduit type fitting shall be used.



9. The conduit shall be installed with an approved expansion joint:
  - a. Wherever the conduit crosses a building expansion joint the Contractor will be held responsible for determining where the building expansion joints are located.
  - b. Every 200 feet, when in straight runs of 200 feet or longer.
10. Conduit may only enter and leave a floating slab in the vertical direction, and then only in an approved manner. Horizontal entries into floating slabs are not permitted.
11. Conduit installed in pipe shafts shall be properly supported to carry the total weight of the raceway system complete with cable. In addition at least one (1) horizontal brace per 10 ft. section shall be provided to assure stability of the raceway system.
12. **BUSHINGS AND LOCKNUTS:** Approved bushings and locknuts shall be used wherever conduits enter outlet boxes, switch boxes, pull boxes, panel board cabinets, etc.
13. **CONDUIT BENDS:** shall be made without kinking conduit or appreciably reducing the internal diameter. All bends in conduit of two (2) inch in diameter or larger shall be made with an hydraulic or power pipe bender. The radius of the inner edge of any bend shall not be less than six (6) times the internal diameter of the conduit where rubber covered conductors are to be installed, and not less than 10 times the internal diameter of the conduit where lead covered conductors are to be used. Long gradual sweeps will be required, rather than sharp bends, when changes of direction are necessary.
14. **EMPTY CONDUITS**
  - a. **TESTS:** All conduits and ducts required to be installed and left empty shall be tested for clear bore and correct installation by the Contractor using a ball mandrel and a brush and snake before the installation will be accepted. The ball shall be turned to approximately 85% of the internal diameter of the raceway to be tested. Two (2) short wire brushes shall be included in the mandrel assembly. Snaking of conduits, ducts, etc., shall be performed by the Contractor in the presence of the Resident Engineer. Any conduits or ducts which reject the mandrel shall be cleared at once with the Contractor bearing all costs, such as chopping concrete, to replace the defective conduit and restore the surface to its original condition.
  - b. **TAGS:** Numbers or letters shall be assigned to the various conduit runs, and as they test clear they shall be identified by a fiber tag not less than 1-¼ inch width, attached by means of a nylon cord. All conduit terminations in panel, splice or pull boxes as well as those out of the floor or ceiling shall be tagged.
  - c. **TEST RECORDS:** As the conduit runs clear, a record shall be kept under the heading of "Empty Conduit Tested, Left Clear, Tagged and Capped" showing conduit designation, diameter, location, date tested and by whom. When complete, this record shall be signed by the Resident Engineer and submitted in triplicate for approval. This record shall be entered on the Contract Record Drawings under Section 01 78 39, **CONTRACT RECORD DOCUMENTS.**
  - d. **CAPPING:** All empty conduit and duct openings, after test, shall be capped or plugged by the Contractor as directed.
  - e. **DRAG LINES:** A drag line shall be left in all empty conduit.

**B. BOXES:**

1. The Contractor shall furnish and erect all pull boxes indicated on the plans or where required. Sides, top and bottom of pull boxes shall be Galvanized coated and shall be built of No. 12 USSG steel reinforced at corners by substantial angle irons and riveted or welded to plates. Bottom or side



- of pull boxes shall be removable and held in place by corrosion resistant machine screws. Pull boxes in damp locations shall have threaded hubs and gaskets and be NEMA 4X. All pull boxes shall be suspended from ceiling or walls in the most substantial manner.
2. In centering outlets, the Contractor is cautioned to allow for overhead pipes, ducts and other obstructions, and for variations in arrangement and thickness of fireproofing, soundproofing and plastering. Precaution should be exercised regarding the location of window and door trims, paneling, etc. Mistakes resulting from failure to exercise precaution must be corrected by the Contractor at no additional cost to the City. Outlets in hung ceilings shall be supported from the black iron or structure.
  3. The exact location of all outlets in finished rooms shall be as directed. When the interior finish has been applied, the Contractor shall make any necessary adjustment of its work to properly center the outlets. All outlet boxes for local switches near doors shall be located at the strike side of doors as finally hung, whether so indicated on the drawings or not.
  4. Exposed wall outlet boxes shall be erected neatly and tight against the walls and securely anchored to same.
  5. All wall outlets of each type shall be set accurately at the same level on each floor, except where otherwise specified or directed. Where special conditions occur, outlets shall be located as directed.
  6. MOUNTING HEIGHTS: The following heights are standard heights and are subject to correction due to coordination with Contract Drawings. All such changes must be approved by the Resident Engineer. Heights given are from finished floor to center line of outlet or device on wall or partition, unless otherwise indicated.
    - a. General Convenience Outlets  
(mount vertical) 1'-6"
    - b. Clock Outlets 8'-6" or 1'-6" below ceiling
    - c. Wall Lighting Switches 4'-0"
    - d. Motor Controllers 5'-0"
    - e. Motor Push-button 4'-2"
    - f. Telephone Outlets As Directed
    - g. Fire Alarm Bells 8'-6" or 1'-6" below ceiling
    - h. Fire Alarm Stations 4'-0"
    - i. Intercom Outlet 1'-6"
    - j. Cooking and Refrigerator Unit As Directed
  7. Outlet boxes shall be of approved design and construction; of form and dimensions suited and adapted to its specific location; the kind of fixture to be used and the number and arrangements of conduits, etc., connecting therewith. All ferrous outlet boxes shall meet the requirements for zinc coating as specified under Electrical Conduit Systems.
  8. There shall be knockouts opened only for the insertion of conduit. Any outlet boxes with more openings than are necessary for conduit insertion shall be sealed by the Contractor without additional charge.
  9. All outlet boxes and junction boxes for exposed work shall be galvanized cast iron or cast aluminum with threaded openings. Outlet boxes for exposed inside work in damp locations shall be galvanized cast iron or cast aluminum with threaded hubs and neoprene gaskets.
  10. Junction boxes shall not be less than 4 11/16" square and shall be equipped with zinc coated plates. Where plates are exposed they shall be finished to match the room decor.



11. **FIXTURE SUPPORTS:** Outlet boxes supporting lighting fixtures shall be equipped with fixture studs held by approved galvanized stove bolts or integral with the box. Cast iron or malleable boxes shall have four (4) tapped holes for mounting required cover or fixtures.
12. Outlet boxes exposed to the weather or indicated W.P. shall be cast iron or cast aluminum and the covers made watertight with neoprene gaskets. The boxes shall have external lugs for mounting. Drilling of the body of the fitting for mounting will not be permitted. The cover screws shall be appropriate in size, non-corrodible and not less than four (4) in number for each box opening.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.3**

**3.3 ELECTRICAL WIRING DEVICES:**

- A. **WALL SWITCHES** shall be of the best specification grade, quiet type, and shall have a rating of 20 Amperes at 277 volts, as manufactured by Bryant, Hubbell or approved equal. The mechanism shall be equipped with arc snuffers. They shall be of the tumbler type, single pole. Switches of the 3-way type shall have a similar rating.
- B. **RECEPTACLES:**
  1. **CONVENIENCE OUTLETS:** shall be of the best specification grade, duplex, two-pole, 3-wire, 20 Amperes at 125 volts. It shall have a grounding pole that shall be grounded to the conduit system. Receptacles shall be capable of both back and side wiring and shall have only one (1) grounding screw. Receptacles shall be Hubbell Cat. #5262 or approved equal.
  2. **HEAVY DUTY RECEPTACLE OUTLETS:** shall have the Ampere rating and the number of poles specified on the Contract Drawings and shall be Hubbell, Russell-Stoll, Bryant, AH & H or approved equal. Each outlet shall have a grounding pole, which shall be grounded to the conduit system.
  3. **FLOOR RECEPTACLES:** shall be Russell & Stoll #3040 or approved equal, to fit into floor box previously specified.
  4. **NAMEPLATES:** are required for all receptacles other than 120V.
- C. **CLOCK HANGERS:** Clock outlets for surface type clocks shall be equipped with a supporting hook and recessed faceplate to conceal the electrical cord.
- D. **WATERTIGHT DEVICES:** For installations exposed to weather or in damp locations, the devices shall be in a gasketed, cast iron enclosure.
- E. **PLATES:**
  1. Every convenience outlet and switch outlet shall be covered by means of a stainless steel No. 302 - 0.4" antimagnetic plate with an approved finish, unless provided otherwise in the detailed Specifications.
  2. Where two (2) or three (3) switches are grouped together, a single faceplate shall be used. Where more than three (3) switches are located at one (1) point, the faceplates may be made up in multiple units.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4**

**3.4 ELECTRICAL CONDUCTORS AND TERMINATIONS:**

- A. **CONDUCTORS FOR LIGHT AND POWER** - All wire and cable shall be of annealed copper of 98% conductivity. Aluminum wire or cable will not be permitted. The insulation shall be flame retardant, moisture and heat resistant, thermoplastic, type THW or THWN rated for 600 volts at 75 degrees C. for



- both wet and dry locations. Wires No. 8 or larger shall be stranded. Wires and cables shall also be subject to the requirements of the NYCEC. Cables for incoming service or wire in conduits contiguous with the earth or in concrete or other damp or wet locations shall be synthetic rubber insulated with neoprene jacket, heat and moisture resistant and shall be equal to UL Type USE and rated for 600 volts at 75 degrees C. for both wet and dry locations.
- B. **FIXTURE WIRE:** Lighting fixtures shall be wired with No. 14 gauge wire designated as AWM and rated at 105 degrees C.
- C. **OTHER TYPES:** Cables and wires for interior communication systems are described in applicable detailed Specifications.
- D. **MINIMUM SIZE:** Conductors smaller than No. 12 AWG shall not be used for light or power.
- E. **COLOR CODE:** Wires shall have a phase color code, and multiple conductor cables shall be color coded.
- F. **CABLE DATA:** The Contractor shall submit for approval the following information for each size and type of cable to be furnished.
1. Manufacture of Cable - Location of Plant.
  2. Minimum insulation resistance at standard test temperature.
  3. Days required for delivery to site of work after order to proceed with manufacture.
- G. **ORIGINAL REELS:** Cable and wire shall be delivered to the site of the work on original sealed factory reels.
- H. **WIRE INSTALLATION:**
1. **INSTALL WIRES AFTER PLASTERING** - Feeder and branch circuits wiring shall not be installed in conduit before the rough plastering work is completed. No conductors shall be pulled into floor conduits before floor is poured.
  2. **CONDUIT SECURED IN PLACE** - No conductor shall be pulled into any conduit run before all joints are made up tightly and the entire run rigidly secured in place.
  3. **WIRE ENDS** - All wires shall be left with sufficiently long ends for proper connection and stowing.
  4. **PULLING COMPOUNDS** - When required to ease the pulling-in of wires into conduit, only approved compounds as recommended by cable manufacturers shall be used.
  5. **PRESSURE CONNECTORS** - for wires shall be of the cast copper or forged copper pressure plate type. Connectors shall be O.Z., Burndy, National Electric Products or approved equal.
  6. Splices and feeder taps in the gutters of panel boxes shall be made by means of pressure plate type connectors encased in composition covers as manufactured by O.Z., Burndy, National Electric Products or approved equal.
  7. Splices in branch wiring for sound systems and fire systems, shall be first made mechanically secure, then soldered and taped.
  8. In lieu of soldered splices (except for sound and Fire Systems, which must have soldered splices) the following alternates are acceptable for operating temperatures up to 105 degrees C., for fluorescent fixtures and for the splicing of branch circuit wiring up to No. 8 AWG wire:
    - a. Mechanical splices made with mechanical connectors as manufactured by the Minnesota Manufacturing Company "Scotchlock" or approved equal. Mechanical connectors requiring a special tool (pressure connectors, insulators and locking rings) by Buchanan or approved equal. The tool used for connector application shall be as approved by the connector manufacturer.



- b. For wire and cable No. 6 AWG and larger for branch circuit wiring the seamless tubular connector will only be accepted. Application of this connector shall be with a tool recommended by the connector manufacturer.
9. TAGS: All feeders and risers shall be tagged at both ends, and in all pull and junction boxes and gutter spaces through which they pass. Such tags shall be of fiber and have the feeder designation and size stamped thereon.
10. BRANCH CIRCUIT WIRING:
  - a. The Contractor installing branch circuit wiring shall test the work for correct connections and leave all loop splices in the fixture outlet boxes properly spliced and taped. The Contractor shall provide wire ends long enough for convenient connection to device.
  - b. NEUTRALS: No common neutrals shall be used except for lighting branch circuits. Each neutral wire shall be terminated separately on a neutral busbar in the panelboard. No common neutrals will be permitted for convenience receptacle branch circuits.

I. TERMINATIONS

1. LUGS: All lugs for all devices and all cable terminations shall be copper. AL/CU rated lugs will not be permitted. The only exception to this requirement is when the particular device is not manufactured with copper lugs by any manufacturer. Lugs for No. 6 AWG cable and larger shall be cast copper or forged copper pressure plate type. Lugs for 1/0 and larger shall be fastened with two (2) bolts.
2. All lugs shall be of the proper size to accept the cable connected to them. Any subcontractor furnishing a device containing lugs is to coordinate with the Contractor to insure that the device terminations are adequate for the wire or cable (whose size may be larger than expected due to voltage drop considerations) connected to the device.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.5**

**3.5 CIRCUIT PROTECTIVE DEVICES:**

This Section sets forth the circuit protective devices such as circuit breakers and safety switches, used in connection with Motor Control Equipment, Distribution Centers, Panel boards and Service Entrance.

A. CIRCUIT BREAKERS:

1. CIRCUIT BREAKERS: shall be operable in any position and shall be of the quick-make, quick-break type on manual operation. The handle shall be trip free, preventing contacts from being held in closed position against abnormal overloads or short circuits. Positive visual indication of automatic tripped position of breaker shall be provided, in addition to the "On" and "Off" indication. All circuit breakers shall be of the bolted type.
2. TRIP RATING: Circuit breakers shall be provided with the required number of trip elements, calibrated at 40 degrees C., ambient temperature, in accordance with wire sizes or motor currents as shown on Contract Drawings or indicated in the Specifications.
3. POLE BARRIER: Multipole pole breakers shall be designed to break all poles simultaneously. They shall be provided with barriers between poles and arc suppressing devices.
4. ELEMENTS: Multipole circuit breakers shall have frames of not less than a 100 Ampere rating. Multipole circuit breakers for 480 volts AC operation shall have an NEMA interrupting rating of 18,000 Amperes, unless a higher rating is specified in the Specific Requirements or indicated on the Contract Drawings.



5. For circuit breakers with frame size up to and including 225 Amperes, the breakers may be provided with non-interchangeable trip elements. For frame ratings above 225 Amperes, the breakers shall be provided with interchangeable trip elements, which can be replaced readily.
6. Single pole circuit breakers for branch circuits shall have a frame size of no less than 100 Amperes, and shall be rated at 125 volt A.C. with a NEMA interrupting rating of 10,000 Amperes, unless a higher rating is specified in the Specifications or indicated on the Contract Drawings.
7. **INVERSE TIME ACTION:** The circuit breakers shall be dual element type, one (1) element with time limit characteristics, so that tripping will be prevented on momentary overloads, but will occur before dangerous values are reached and the other with instantaneous trip action. Inverse time delay action shall be effective between a minimum tripping point of 125% of rating of breaker and an instantaneous tripping point between 600% and 700% of rated current.
8. **CONSTANCY OF CALIBRATION:** The tripping elements shall insure constant calibration and be capable of withstanding excessive short circuit conditions without injury.
9. **CONTACTS:** shall be non-welding under operating conditions and of the silver to silver type.
10. **TEMPERATURE RISE:** Current carrying parts, except thermal elements, shall not rise in temperature in excess of 30 degrees C. while carrying rated current at rated frequency.
11. **NUMBERING:** Each circuit breaker shall be distinctly numbered when installed in a group with other breakers. The calibration of trip element shall be indicated on each breaker.

**B. SAFETY SWITCHES:**

**NEMA TYPE HD:** When safety switches are permitted to be used for service entrance, motor disconnecting means or to control other types of electrical equipment, they shall be of the type HD of a rating not less than 30 Amperes. Enclosures shall be provided with means for locking. For ratings above 60 Amperes terminals shall have double studs.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.6**

**3.6 DISTRIBUTION CENTERS:**

This Section sets forth the construction and installation procedure for Switchboards, Panel boards and Cabinets.

- A. **PANELBOARDS-GENERAL TYPE:** The panel boards shall be of the automatic circuit breaker type with individual breakers for each circuit, removable without disturbing the other units. Circuit breakers shall be in accordance with the requirements outlined under "Circuit Protective Devices."
- B. **NUMBER AND RATING OF CIRCUIT BREAKERS:** The Contract Drawings show a layout of each panel, giving the number, frame, size and trip setting of circuit breakers and number of branch circuits and spare breakers. Each branch circuit shall be distinctly numbered.
- C. **BUS-BAR CONSTRUCTION AND SUPPORT:** Panel Boards shall be of the dead front type and shall have bus bars and branch circuits designed to suit the system and voltage. Current carrying parts, exclusive of circuit breakers shall be copper and based on a maximum density of 1,000 Amperes per square inch. Bus bars for the main switchboard shall be designed for the frame rating of the Service Breaker. Bus bars shall run up the center of the panel, unless otherwise indicated, and shall have connected thereto the various branch circuits. Unless otherwise specified, bus bars for each panel board shall be equipped with main lugs only and capacity as required on Contract Drawings. Where main protection is required, automatic circuit breakers shall be used. A neutral bus of at least the same capacity as a live bus bar shall be provided for the connection of all neutral conductors. Each terminal shall be identified. All current carrying parts, exclusive of circuit breakers, shall be of copper with a minimum number of joints. The bus bar structure shall be a self-supporting unit, firmly fastened to a ½



inch plastic board, extending the full length and width of assembly which shall serve to insulate the bus structure from the back of panel box. Other methods affording equally effective bus structure support and insulation will be given consideration. An insulating barrier shall separate neutral bus from other parts of panel.

- D. **CIRCUIT BREAKER ASSEMBLY:** The entire circuit breaker and bus bar assembly shall be mounted on an adjustable metal base or pan and secured to the back of panel box. The panel shall have edges flanged for rigidity.
- E. **PANEL MOUNTING:** The panel shall be centered in the panel box to line up with door openings and set level and plumb so that no live parts are exposed with the door open.
- F. **PANEL CABINET:**
1. **PANEL CABINET INSTALLATION:** When installed surface mounted in panel closets they shall be mounted on Kindorf channel.
  2. Where cabinets cannot be set entirely flush due to shallow walls or partitions or where cabinet is extra deep, the protruding sides of cabinet shall be trimmed with a metal or hardwood return molding of approved design and fastened to cabinet so as to conceal the intersection between the wall and cabinet.
- G. **NAMEPLATES:** Nameplates where required, shall be made of engraved Lamicoid sheet, or approved equal. Letters and numbers shall be engraved white on a black background (except for Firehouse projects which shall have white letters on a red background). The Contractor shall submit an engraved sample for approval as to design and style of lettering before proceeding with the manufacture of the nameplate. Nameplates shall be of suitable size and shall also be provided at the top of the switchboard or section thereof and on the trim at the top of all lighting and power panels. Similar nameplates shall also be provided for each distribution circuit breaker giving the breaker number, the number of the feeder, and the name of the equipment fed.
- H. **SHOP DRAWINGS:** showing all details of boxes, panels, etc., shall be submitted for approval.
- I. **DIRECTORIES:** A directory shall be fastened with brass screws and consist of a noncorrosive metal frame with dimensions not less than five (5) inches x eight (8) inches and a transparent window of Plasticile, Plexiglass, Lucite, Polycarbonate or approved equal that is not less than 1/16 inch thick over cardboard or heavy paper. The directory shall be typewritten and show the number of each circuit, the name of circuit and lighting or equipment supplied. The size of riser feeder shall be as indicated on directory. The dimensions of directory shall be submitted for approval for each size of panel.
- J. **CONSTRUCTION**
1. **FINISH:** Panel boxes, doors and trim for installation in dry locations, shall be zinc coated after fabrication by the hot-dip galvanizing or electroplate process on inside and outside surfaces. In damp locations, panel boards shall be enclosed and gasketed NEMA 3R type. Panel boards located outdoors or exposed to the weather shall be NEMA 3X type.
  2. **PAINTING:** Panel boxes, doors and trim shall receive a coat of approved priming paint and a second coat of approved paint in the field after installation. Paint shall be applied to the inside and outside of boxes and on both sides of trim. Panel trims and doors shall receive a third or finishing coat on the outside after installation. Approval as to texture and color must be obtained before the final coat is applied.





**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.7**

**3.7 MOTORS:**

This Section sets forth the general design, construction and performance requirements, which shall apply to all motors furnished in the Contract.

- A. **MOTOR DESIGN:** All motors shall be designed to comply with the New York State Energy Conservation Construction Code and the New York City Energy Conservation Code. In the event of any conflict or inconsistency between such codes, the New York City Energy Conservation Code shall prevail. Motors shall have standard NEMA frames and shall have nameplate ratings adequate to meet the specified conditions of operation. Motor performance under variable conditions of voltage and frequency shall be within the limits set in NEMA standards, unless modified in the Specifications. Motors shall be expressly designed for the hazard duty load, voltage and frequency as specified in the Contract. All motor windings shall be copper. All motors intended to operate on a 208 volt system shall be designed and rated for 200 volts.
- B. **STANDARDS OF COMPARISON:** In the absence of specific motor specifications, in general, the best standard products of the leading motor manufacturers shall be considered as a standard for comparison. The requirements of the NEMA standards for motors and generators shall be deemed to contain the minimum requirements of performance and design.
- C. **OBJECTIONABLE NOISES:** Objectionable noises will not be tolerated and exceptionally quiet motors may be required for certain specified locations. Noise control tests as per the New York City Construction Codes may be performed as directed by the Commissioner. Such motors shall bear a nameplate lettered "Quiet Motor." Springs and slip rings shall be of approved non-ferrous material.
- D. **BEARINGS:**
1. Bearings, unless specified otherwise, shall be of the ball or roller type. Motors one (1) horsepower and larger that are equipped with ball roller bearings shall also have lubrication of the pressure-relief greasing type. The Contractor furnishing four (4) or more such motors shall also furnish, as part of the Contract, a pressure grease gun of rugged design, of approximately 10 ounce capacity, complete with necessary adapters. The Contractor shall also provide 10 pounds of approved gun grease.
  2. For any particular unit where sleeve bearings are deemed desirable, permission for their use may be granted by the Commissioner. Motors one (1) horsepower and larger that are equipped with sleeve type bearings shall in addition to having protected accessible fittings for oiling be provided with visible means for determining normal oil level. Lubrication shall be positive, automatic and continuous.
- E. **MOTOR TERMINALS AND BOXES:** Each motor shall be furnished with flexible leads of sufficient length to extend for a distance of not less than three (3) inches beyond the face of the conduit terminal box. This box shall be furnished of ample size to make and house motor connections. These requirements shall be met irrespective of any other standards or practices. Size of cable terminals and conduit terminal box holes shall be subject to approval. For motors five (5) horsepower or larger, each terminal shall come with two (2) cast or forged copper pressure type connectors with bolts, nuts and washers. For motors of smaller ratings, connectors of other acceptable types may be furnished. For installations exposed to the weather or moist locations, terminal boxes shall be of cast iron with threaded hubs and gasketed covers. Cover screws shall be of non-corrosive material.
- F. **MOTOR TEMPERATURE RISES:** The motor nameplate temperature rises for the various types of motor enclosures shall be as listed below:
1. Open Frame 40 degrees C.
  2. Totally enclosed and enclosed fan cooled 55 degrees C.



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3. Explosion proof and submersible 55 degrees C.
4. Partially enclosed and drip proof 40 degrees C.

The temperature of the various parts of a motor shall meet the requirements of NEMA standards for the size and type of the motors. Tests for heating shall be made by loading the motor to its rated horsepower and keeping it so loaded for the rated time interval or until the temperature becomes constant.

- G. SPECIAL CODE INSTALLATIONS: Electrical installations covered by special publications of NBFU and by special City rulings and regulations shall comply in design and safety features with such applicable codes, regulations and rulings, and shall be furnished and installed complete with all accessories and safety devices as therein specified.
- H. MOTORS ON LIGHTING PANELS: The largest A.C. motor permitted on branch circuits of lighting panels shall not exceed 1/4 horsepower.
- I. MOTORS RATED: 1/2 horsepower and larger shall be polyphase.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.8**

**3.8 MOTOR CONTROL EQUIPMENT:**

This Section sets forth the requirements for motor controllers and associated devices. Such requirements are applicable to all motor control equipment furnished or installed.

- A. MANUFACTURER: All control equipment furnished under the Contract shall be the product of a single manufacturer. Exceptions to this rule may be granted in the case of controllers for fractional horsepower motors driving special equipment, the various units of which have been engineered to obtain specific performance.
- B. CONTROL ITEMS REQUIRED: The Contractor furnishing motors shall also furnish therewith complete disconnecting, starting and control equipment as required by the detailed Specifications, the various code authorities and for the successful operation of the driven equipment. These items include circuit breaker, magnetic starter with overload protection and low voltage release or protection, push button stations, pilot lights and alarms, float, pressure, temperature and limit switches, load transfer switches, devices for manual operation and speed controllers, etc. The Contractor shall furnish as many of these items as are required for the successful operation of the driven unit.
  1. Where a motor is to be located out of sight of the controller, the Contractor shall furnish an approved disconnecting means to be mounted near motor.
- C. TYPES OF STARTERS:
  1. SQUIRREL CAGE: A.C. motors of the squirrel cage type, rated from one (1) to 30 horsepower, shall have magnetic across the line starters; motors rated above 30 horsepower shall be furnished with reduced voltage (autotransformer type) starter or part winding start with time delay to reduce inrush current. Size of starters shall be based on 200V operation.
  2. SLIP RING: A.C. Motors of the slip-ring type shall be furnished with primary across the line starters interlocked with secondary starting and regulating equipment. The interlocking feature shall prevent starting of the motor when the secondary controller is off the initial starting point.
  3. MAGNETIC: For fractional horsepower motors, magnetic type starters are not required unless the particular method of controlling the driven equipment makes them necessary. Where individual single phase fractional horsepower motors or the sum of fractional horsepower motors controlled by an automatic device are 1/2 horsepower or more, magnetic starters and circuit breakers shall be used. Single phase A.C. motors smaller than 1/2 horsepower or three-phase A.C. motors smaller than one (1) horsepower where manual control is specified may be furnished with starters of toggle



switch or push button type with inbuilt thermal protection. No additional disconnecting means is required to be furnished with this type of starter. This type of starter may also be used in series with automatic control devices such as thermostats, float and pressure switches, provided the individual motor or the sum of fractional horsepower motors is less than ½ horsepower. Means for manual operation shall be provided.

- D. **DISCONNECTING BREAKER:** All motor starters, unless otherwise specified, shall be provided with a disconnecting means in the form of a circuit breaker of the type specified under Article 3.5 **CIRCUIT PROTECTIVE DEVICES**. This disconnecting means shall be contained in the same housing with the starter and shall be operable from outside. Means shall be provided for locking the handle of the circuit breaker in the "OFF" position if it is desired to take the equipment out of service and prevent unauthorized starting.
- E. **CONTROL CABINET: DRY LOCATIONS -** All starters shall be furnished with general purpose, NEMA Type 1, sheet metal enclosures with hinged covers and baked enamel finish.
- F. **CONTROL CABINET – WATERTIGHT:** In wet locations, cast iron watertight enclosures with threaded hubs, galvanized and gasketed hinged covers shall be provided.
- G.
  - 1. **PANELS:** Motor control devices and appliances shall be mounted on approved insulating slabs with all wiring and connections made on the back of the slabs.
  - 2. **WIRING AND TERMINALS:** Wiring connections for currents of 100 Amperes or less may be made with copper wire or cable with special flameproof insulating coverings. Such wires shall be installed in a neat workmanlike manner, flat against the slab, and held in place by clips. Connections shall be made with pressure connectors for No. 8 AWG and larger wires, and with grommets for small stranded wires. Except for incoming and outgoing main leads, all connections shall terminate on approved connector blocks, which may be installed on the face of the slab. For small, across the line starters, the above requirements may be modified if satisfactory connections are provided.
  - 3. **COPPER BUS:** For currents exceeding 100 Amperes, copper bus shall be used in place of wires. The bus shall be constructed of copper rods, tubing or flat strap, bent and shaped properly and securely attached to the slab in a neat and workmanlike manner. The cross section of copper shall provide sufficient areas to keep current density at not more than 1,000 Amperes per square inch.
- H. **COOPERATION:** The Contractor's subcontractor(s) who furnish electrically operated equipment shall give to the Contractor and the Contractor's electrical subcontractor full information relative to sizes and locations of apparatus furnished by them which require electrical connections.
- I. **SPARE PARTS:**
  - 1. **FURNISH:** The Contractor shall furnish the following spare parts pertaining to equipment furnished by each subcontractor.
    - One (1) set of contact fingers and springs and thermal elements for each three (3) (or fraction) of each size of magnetic contactor starter.
    - One (1) holding coil for each three (3) (or fraction) of each size of magnetic contactor starter.
  - 2. **WRAPPER MARKING:** All parts shall be delivered to the Resident Engineer neatly wrapped and boxed and plainly tagged and marked for identification and reordering.

END OF SECTION 01 35 06



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**SECTION 01 35 26**  
**SAFETY REQUIREMENTS PROCEDURES**

**PART I – GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].
- B. The Contractor shall comply with the requirements of "*The City of New York Department of Design and Construction Safety Requirements*". This document is included in the Information for Bidders.

**1.2 SUMMARY:**

- A. This Section includes administrative and general procedural requirements for Safety and Health Requirements, including:
  - 1. Definitions
  - 2. Required Safety Meeting
  - 3. Compliance with Regulations
  - 4. Submittals
  - 5. Personnel Protective Equipment
  - 6. Hazardous Materials
  - 7. Emergency Suspension of Work
  - 8. Protection of Personnel
  - 9. Environmental Protection

**1.3 DEFINITIONS:**

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

**1.4 REQUIRED SAFETY MEETINGS:**

- A. Prior to commencing construction, the Resident Engineer will schedule and hold a preconstruction kick-off meeting either at DDC's main office or at the Project site with representatives of the Contractor, including the principal on-site project representative and one or more safety representatives, Commissioner's designated representatives and other concerned parties for the purpose of reviewing the Contract Safety requirements. The Contractor's safety requirements shall be reviewed, and implementation of safety provisions pertinent to the Work shall be discussed.
- B. The Contractor is responsible for conducting weekly documented jobsite safety meetings, given to all jobsite personnel including all subcontractors on the project, with the purpose of discussing safety topics and job specific requirements at the DDC worksite.



#### 1.5 COMPLIANCE WITH REGULATIONS:

- A. The Work, including contact with or handling of hazardous materials, disturbance or dismantling of structures containing hazardous materials, and disposal of hazardous materials, shall comply with the applicable requirement for CFR Parts 1910 and 1926, and 40 CFR, Parts 61, 261, 761 and 763.
- B. Work involving disturbance or dismantling of asbestos or asbestos containing materials, demolition of structures containing asbestos and removal of asbestos, shall comply with 40 CFR Part 61, Subparts A and M, and 40 CFR Part 763, as applicable.
- C. Work shall additionally comply with all applicable federal, state and local safety and health regulations.
- D. In case of a conflict between applicable regulations, the more stringent requirements shall apply.
- E. All workers working on the DDC project site are required by NYC Local Law 41 to complete the OSHA 10 –hour training course.

#### 1.6 SUBMITTALS:

- A. The Contractor shall submit, to the Resident Engineer, copies of the Safety Program, Site Safety Plan and other required documentation in accordance with the "New York City Department of Design and Construction Safety Requirements."
- B. Permits: If hazardous materials are disposed of off-site submit copies of shipping manifests and permits from applicable federal, state or local authorities and disposal facilities, and submit certificates that the material has been disposed of in accordance with regulations to the Resident Engineer.
- C. Accident Reporting: Submit a copy of each accident report to the Resident Engineer in accordance with the "New York City Department of Design and Construction Safety Requirements."
- D. All Asbestos and Lead project regulatory notifications are to be submitted to DDC's Bureau of Environmental and Geotechnical Services (BEGS) through the Resident Engineer.
- E. Request for Subcontractor Approval: Any subcontractor performing environmental work shall submit required documentation for approval to perform such work as required by DDC's BEGS.

### PART II – PRODUCTS

#### 2.1 PERSONNEL PROTECTIVE EQUIPMENT:

Special facilities, devices, equipment and similar items used by the Contractor in execution of the Work shall comply with 29 CFR Part 1910, subpart I, Part 1926, subpart E and other applicable regulations.

#### 2.2 HAZARDOUS MATERIALS:

- A. The Contractor shall bring to the attention of the Commissioner, any material encountered during execution of the Work that the Contractor suspects to be hazardous.
- B. The Commissioner shall determine whether the Contractor shall perform tests to determine if the material is hazardous. A change to the Contract price may be provided, subject to the applicable provisions of the Contract.
- C. If the material is found to be hazardous, the Commissioner may direct the Contractor to remediate the hazard and a change to the Contract price may be provided, subject to the applicable provisions of the Contract.



### **PART III – EXECUTION**

#### **3.1 EMERGENCY SUSPENSION OF WORK:**

- A. When the Contractor is notified by the Commissioner of noncompliance with the safety provisions of the Contract, the Contractor shall immediately, unless otherwise instructed, correct the unsafe condition, at no additional cost to the City.
- B. If the Contractor fails to comply promptly, all or part of the Work may be stopped by notice from the Commissioner.
- C. When, in the opinion of the Commissioner, the Contractor has taken satisfactory corrective action, the Commissioner shall provide written notice to the Contractor that work may resume.
- D. The Contractor shall not be allowed any extension of time or compensation for damages in connection with a work stoppage for an unsafe condition.

#### **3.2 PROTECTION OF PERSONNEL:**

- A. The Contractor shall take all necessary precautions to prevent injury to the public, occupants, or damage to property of others. The public and occupants includes all persons not employed by the Contractor or a subcontractor.
- B. Whenever practical, the work area shall be fenced, barricaded or otherwise blocked off from the Public or occupants to prevent unauthorized entry into the work area, in compliance with the requirements of Section 01 50 00, TEMPORARY FACILITIES, SERVICES AND CONTROLS, and including, without limitation, the following:
  - 1. Provide traffic barricades and traffic control signage where construction activities occur in vehicular areas.
  - 2. Corridors, aisles, stairways, doors and exit ways shall not be obstructed or used in a manner to encroach upon routes of ingress or egress utilized by the public or occupants, or to present an unsafe condition to the public or occupants.
  - 3. Store, position and use equipment, tools, materials, scraps and trash in a manner that does not present a hazard to the public or occupant by accidental shifting, ignition or other hazardous activity.
  - 4. Store and transport refuse and debris in a manner to prevent unsafe and unhealthy conditions for the public and occupants. Cover refuse containers, and remove refuse on a frequent regular basis acceptable to the Resident Engineer. Use tarpaulins or other means to prevent loose transported materials from dropping from trucks or other vehicles.

#### **3.3 ENVIRONMENTAL PROTECTION:**

- A. Dispose of solid, liquid and gaseous contaminants in accordance with local codes, laws, ordinances and regulations.
- B. Comply with applicable federal, state and local noise control laws, ordinances and regulations, including but not limited to 29 CFR 1910.95, 29 CFR 1926.52 and NYC Administrative Code Chapter 28 of Title 15.

**END OF SECTION 01 35 26**



NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

Division 01 – DDC STANDARD GENERAL CONDITIONS  
SINGLE CONTRACT PROJECTS  
Issue Date - June 01, 2013

No Text





**SECTION 01 35 91**  
**HISTORIC TREATMENT PROCEDURES**

**REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 35 91**

**PART I – GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

**1.2 SUMMARY:**

- A. This Section includes administrative and procedural requirements for the treatment of Landmark Structures and Landmark Quality Structures, as identified in the Addendum. Specific requirements are indicated in other sections of the Specifications.
- B. This Section includes, without limitation, the following:
1. Storage and protection of existing historic materials.
  2. Temporary protection of historic materials during construction.
  3. General Protection
  4. Protection during use of heat-generating equipment.
  5. Photographic Documentation
  6. NYC Landmarks Preservation Commission Final Approval signoffs.

**1.3 RELATED SECTIONS: include without limitation the following:**

- A. Section 01 10 00 SUMMARY
- B. Section 01 32 33 PHOTOGRAPHIC DOCUMENTATION
- C. Section 01 33 00 SUBMITTAL PROCEDURES
- D. Section 01 77 00 CLOSEOUT PROCEDURES
- E. Section 01 78 39 CONTRACT RECORD DOCUMENTS

**1.4 DEFINITIONS:**

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.
- C. Landmark Structure or Site: Any building or site which has been designated as a landmark, or any building or site within a landmark district, as designated by the New York City Landmarks Preservation Commission or the New York State Historic Preservation Office.



- D. **Landmark Quality Structure:** Any building which has been determined by the City to be of landmark quality and/or historical significance
- E. **Preservation:** To apply measures necessary to sustain the existing form, integrity, and materials of a historic property. Work may include preliminary measures to protect and stabilize the property.
- F. **Rehabilitation:** To make possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, or architectural values.
- G. **Restoration:** To accurately depict the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and the reconstruction of missing features from the restoration period.
- H. **Reconstruction:** To reproduce in the exact form and detail a building, structure, or artifact as it appeared at a specific period in time.
- I. **Stabilize:** To apply measures designed to reestablish a weather-resistant enclosure and the structural reinforcement of an item or portion of the building while maintaining the essential form as it exists at present.
- J. **Protect and Maintain:** To remove deteriorating corrosion, reapply protective coatings, and install protective measures such as temporary guards; to provide the least degree of intervention.
- K. **Repair:** To stabilize, consolidate, or conserve; to retain existing materials and features while employing as little new material as possible. Repair includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials. Within restoration, repair also includes limited replacement in kind, rehabilitation, and reconstruction, with compatible substitute materials for deteriorated or missing parts of features when there are surviving prototypes.
- L. **Replace:** To duplicate and replace entire features with new material in kind. Replacement includes the following conditions:
  - 1. **Duplication:** Includes replacing elements damaged beyond repair or missing. Original material is indicated as the pattern for creating new duplicated elements.
  - 2. **Replacement with New Materials:** Includes replacement with new material when original material is not available as patterns for creating new duplicated elements.
  - 3. **Replacement with Substitute Materials:** Includes replacement with compatible substitute materials. Substitute materials are not allowed, unless otherwise indicated.
- M. **Remove:** To detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- N. **Remove and Salvage:** To detach items from existing construction and deliver them to the City ready for reuse.
- O. **Remove and Reinstall:** To detach items from existing construction, repair and clean them for reuse, and reinstall them where indicated.
- P. **Existing to Remain or Retain:** Existing items of construction that are not to be removed and that are not otherwise indicated to be removed and salvaged, or removed and reinstalled.



- Q. Material in Kind: Material that matches existing materials, as much as possible, in species, cut, color, grain, and finish.

**1.5 SUBMITTALS:**

- A. Historic Treatment Program: Submit a written plan for each phase or process, including protection of surrounding materials during operations. Describe in detail materials, methods, and equipment to be used for each phase of work.
- B. Alternative Methods and Materials: If alternative methods and materials to those indicated are proposed for any phase of work, submit for Commissioner's approval a written description including evidence of successful use on other comparable projects, and program of testing to demonstrate effectiveness for use on this Project.
- C. Qualification Data: For historic treatment specialists as specified and required by individual sections of the project specifications.
- D. Photographs for Designated Landmark Structures: Submit photographs in accordance with Section 01 32 33, PHOTOGRAPHIC DOCUMENTATION and as described in this section.
- E. Record Documents: Include modifications to manufacturer's written instructions and procedures, as documented in the historic treatment preconstruction conference and as the Work progresses.

**1.6 QUALITY ASSURANCE:**

- A. Special Experience Requirements: Special Experience Requirements may apply to the firm that will provide Historic Treatment Services. If applicable, such Special Experience Requirements are set forth in the Bid Booklet and the Addendum.
- B. Historic Treatment Preconstruction Conference: The Resident Engineer will schedule and hold a preconstruction meeting at the site in accordance with Section 01 31 00, PROJECT MANAGEMENT AND COORDINATION.
1. Review manufacturer's written instructions for precautions and effects of products and procedures on building materials, components, and vegetation.
    - a. Record procedures established as a result of the review and distribute to affected parties.

**1.7 STORAGE AND PROTECTION OF HISTORIC MATERIALS:**

- A. Removed and Salvaged Historic Materials: As specified and required by individual sections of the project specifications.
- B. Removed and Reinstalled Historic Materials: As specified and required by individual sections of the project specifications.
- C. Existing Historic Materials to Remain: Protect construction indicated to remain against damage and soiling during historic treatment. When permitted by the Commissioner, items may be removed to a suitable, protected storage location during historic treatment and reinstalled in their original locations after historic treatment operations are complete.
- D. Storage and Protection: When removed from their existing location, store historic materials, at a location acceptable to the Commissioner, within a weather tight enclosure where they are protected from wetting by rain, snow, or ground water, and temperature variations. Secure stored materials to protect from theft.
1. Identify removed items with an inconspicuous mark indicating their original location.



**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION**

**3.1 PROTECTION, GENERAL:**

- A. Comply with manufacturer's written instructions for precautions and effects of products and procedures on adjacent building materials, components, and vegetation.
- B. Ensure that supervisory personnel are present when work begins and during its progress.
- C. Temporary Protection of Historic Materials during Construction:
  - 1. Protect existing materials during installation of temporary protections and construction. Do not deface or remove existing materials.
  - 2. Attachments of temporary protection to existing construction shall be approved by the Commissioner prior to installation.
- D. Protect landscape work adjacent to or within work areas as follows:
  - 1. Provide barriers to protect tree trunks.
  - 2. Bind spreading shrubs.
  - 3. Use coverings that allow plants to breathe and remove coverings at the end of each day. Do not cover plant material with a waterproof membrane for more than 8 hours at a time.
  - 4. Set scaffolding and ladder legs away from plants.
- E. Existing Drains: Prior to the start of work or any cleaning operations, test drains and other water removal systems to ensure that drains and systems are functioning properly. Notify Commissioner immediately of drains or systems that are stopped or blocked. Do not begin Work of this Section until the drains are in working order.
  - 1. Provide a method to prevent solids, including stone or mortar residue, from entering the drains or drain lines. Clean out drains and drain lines that become blocked or filled by sand or any other solids because of work performed under this Contract.
  - 2. Protect storm drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.

**3.2 PROTECTION DURING USE OF HEAT-GENERATING EQUIPMENT:**

- A. No roofing work requiring the use of an open flame shall be permitted on any Landmark Structure or any Landmark Quality Structure, whose roof or wall structure is made of wood or primarily of wood.
- B. Comply with the following procedures while performing work with heat-generating equipment, including welding, cutting, soldering, brazing, paint removal with heat, and other operations where open flames or implements utilizing heat are used:
  - 1. Obtain Commissioner's approval for operations involving use of open-flame or welding equipment. Notification shall be given for each occurrence and location of work with heat-generating equipment.
  - 2. As far as practical, use heat-generating equipment in shop areas or outside the building.
  - 3. Before work with heat-generating equipment commences, furnish personnel to serve as a fire watch (or watches) for location(s) where work is to be performed.



4. Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.
  5. Remove and keep the area free of combustibles, including, rubbish, paper, waste, etc., within area of operations.
  6. If combustible material cannot be removed, provide fireproof blankets to cover such materials.
  7. Where possible, furnish and use baffles of metal or gypsum board to prevent the spraying of sparks or hot slag into surrounding combustible material.
  8. Prevent the extension of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.
  9. Inspect each location of the day's work not sooner than 30 minutes after completion of operations to detect hidden or smoldering fires and to ensure that proper housekeeping is maintained.
- C. Where sprinkler protection exists and is functional, maintain it without interruption while operations are being performed. If operations are performed close to automatic sprinkler heads, shield the individual heads temporarily with guards.

### **3.3 PHOTOGRAPHIC DOCUMENTATION:**

Photographs for Designated Landmark Structures: Show existing conditions prior to any historic treatments, including one overall photograph and two close-up photographs of all areas of work affected. Show one overall photograph and two close-up photographs of all areas of work after the successful execution of all historical treatments.

### **3.4 NEW YORK CITY LANDMARKS PRESERVATION COMMISSION FINAL APPROVALS SIGNOFF:**

For all projects involving a Landmark Structure or Site, the Contractor, at the completion of the work, shall submit to the Commissioner, in accordance with Section 01 78 39, CONTRACT RECORD DOCUMENTS, all documentation concerning the successful execution of all historic treatments. This shall include, but not be limited to, copies of all before and after photographs of historic treatments, one copy of the Contractor's as-built drawings, copies of testing and analysis results, including cleaning, mortar analysis, pointing mortars and all other information pertaining to work performed under the New York City Landmarks Preservation Commission jurisdiction.

**END OF SECTION 01 35 91**



NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

Division 01 – DDC STANDARD GENERAL CONDITIONS  
SINGLE CONTRACT PROJECTS  
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No Text



**SECTION 01 40 00  
QUALITY REQUIREMENTS**

**PART I - GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

**1.2 SUMMARY:**

- A. This Section includes the following:
- a. Definitions
  - b. Conflicting Requirements
  - c. Quality Assurance
  - d. Quality Control
  - e. Approval of Materials
  - f. Special Inspections (Controlled Inspection)
  - g. Inspections by Other City Agencies
  - h. Certificates of Approval
  - i. Acceptance Tests
  - j. Repair and Protection
- B. This Section includes administrative and procedural requirements for quality control to assure compliance with quality requirements specified in the Contract Documents.
- C. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
- D. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
- E. Provisions of this Section do not limit requirements for the Contractor to provide quality-assurance and -control services required by the Commissioner or authorities having jurisdiction.
- F. Specific test and inspection requirements are specified in the individual sections of the Specifications.
- G. LEED: Refer to the Addendum to identify whether this project is designed to comply with a Certification Level according to the U.S. Green Building Council's Leadership in Energy & Environmental Design (LEED) Rating System, as specified in Section 01 81 13, "SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS."
- H. COMMISSIONING: Refer to the Addendum to identify whether this project will be Commissioned by an independent third party under separate contract with the City of New York. Commissioning shall be in accordance with ASHRAE and USGBC LEED-NC procedures, as described in Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS. The Contractor shall cooperate with the commissioning agent and provide whatever assistance is required.



**1.3 RELATED SECTIONS:** Include without limitation the following:

- A. Section 01 10 00 SUMMARY
- B. Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION
- C. Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
- D. Section 01 33 00 SUBMITTAL PROCEDURES
- E. Section 01 77 00 CLOSEOUT PROCEDURES
- F. Section 01 78 39 CONTRACT RECORD DOCUMENTS

**1.4 DEFINITIONS:**

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.
- C. Commissioning: A Total Quality Assurance process that includes checking the design and installation of equipment, as well as performing functional testing of the same to confirm that the installed equipment is operating and in conformance with the Contract Documents and the City's requirements.

**1.5 CONFLICTING REQUIREMENTS:**

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, the Contractor shall comply with the most stringent requirement as determined by the Commissioner. The Contractor shall refer any uncertainties and/or conflicting requirements to the Commissioner for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. The Contractor shall refer any uncertainties to the Commissioner for a decision before proceeding.

**1.6 QUALITY ASSURANCE:**

- A. General: Qualifications paragraphs in this Sub-Section establish the minimum qualification levels required. Individual Specification Sections specify additional requirements.
- B. Installer Qualifications: Special Experience Requirements may apply to the firm that will install, erect or assemble specified work required for the Project. If applicable, such Special Experience Requirements are set forth in the Bid Booklet and the Addendum.
- C. Manufacturer Qualifications: Special Experience Requirements may apply to the firm that will manufacture equipment, products or systems specified for the Project. If applicable, such Special Experience Requirements are set forth in the Bid Booklet and the Addendum.





- D. **Fabricator Qualifications:** Special Experience Requirements may apply to the firm that will fabricate material, products or systems specified for the Project. If applicable, such Special Experience Requirements are set forth in the Bid Booklet and the Addendum
- E. **Professional Engineer Qualifications:** A professional engineer who is licensed to practice in the State of New York and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.
- F. **Factory-Authorized Service Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- G. **Mockups:** Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
  - 1. Build mockups in location and of size indicated or, if not indicated, as directed by the Resident Engineer.
  - 2. Notify Resident Engineer seven (7) days in advance of dates and times when mockups will be constructed.
  - 3. Demonstrate the proposed range of aesthetic effects and workmanship.
  - 4. Obtain Design Consultant's approval of mockups before starting work, fabrication, or construction.
  - 5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
  - 6. Demolish and remove mockups when directed, unless otherwise directed or indicated.

#### 1.7 QUALITY CONTROL:

- A. **City's Responsibilities:** Where quality-control services are indicated as the City's responsibility in the Specifications, the City will engage a qualified testing agency to perform these services.
  - 1. **COST OF TESTS BORNE BY THE CITY:** Where the City directs tests to be performed to determine compliance with the Specifications regarding materials or equipment, and where such compliance is ascertained as a result thereof, the City will bear the cost of such tests.
  - 2. The City will furnish the Contractor with names, addresses, and telephone numbers of testing entities engaged and a description of the types of testing and inspecting they are engaged to perform.
  - 3. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to the Contractor.
- B. **Contractor's Responsibility:** Tests and inspections not explicitly assigned to the City are the Contractor's responsibility. Unless otherwise indicated, the Contractor shall provide quality-control services as set forth in the Specifications and those required by Authorities having jurisdiction. The Contractor shall provide quality-control services required by Authorities having jurisdiction, whether specified or not.
  - 1. **COST OF TESTS BORNE BY CONTRACTOR** – In the case of tests which are specifically called for in the Specifications to be provided by the Contractor or tests which are required by any Authority having jurisdiction, but are not indicated as the responsibility of the City, the cost thereof shall be borne by the Contractor and shall be deemed to be included in the Contract price. The Contractor shall reimburse the City for expenditures incurred in providing tests on materials and equipment submitted by the Contractor as the equivalent of that specifically named in the Specifications and rejected for non-compliance.
  - 2. Where services are indicated as Contractor's responsibility, the Contractor shall engage a qualified testing agency to perform these quality-control services. Any testing agency engaged by the Contractor to perform quality control services is subject to prior approval by the Commissioner.



3. The Contractor shall not employ same entity engaged by the City, unless agreed to in writing by the Commissioner.
  4. The Contractor shall notify testing agencies and the Resident Engineer at least 72 hours in advance of the date and time for the performance of Work that requires testing or inspecting.
  5. Where quality-control services are indicated as Contractor's responsibility, the Contractor shall submit a certified written report, in triplicate to the Commissioner, of each quality-control service.
  6. Testing and inspecting requested by the Contractor and not required by the Contract Documents are Contractor's responsibility.
  7. The Contractor shall submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. **Manufacturer's Field Services:** Where indicated, the Contractor shall engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Results shall be submitted in writing as specified in Section 01 33 00 SUBMITTAL PROCEDURES.
- D. **Retesting/Re-inspecting:** Regardless of whether the original tests or inspections were the Contractor's responsibility, the Contractor shall provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- E. **Associated Services:** The Contractor shall cooperate with entities performing required tests, inspections, and similar quality-control services, and shall provide reasonable auxiliary services as requested. The Contractor shall notify the testing agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
  2. Incidental labor and facilities necessary to facilitate tests and inspections.
  3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist testing entity in obtaining samples.
  4. Facilities for storage and field curing of test samples.
  5. Delivery of samples to testing entities.
  6. Design mix proposed for use for material mixes that require control by the testing entity.
  7. Security and protection for samples and for testing and inspecting equipment at the Project site.
- F. **Coordination:** Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
  2. Coordinate and cooperate with the Commissioning Authority/Agent as applicable for start-up, inspection and functional testing in the implementation of the Commissioning Plan.
- G. **Manufacturer's Directions:** Where the Specifications provide that the manufacturer's directions are to be used, such printed directions shall be submitted to the Commissioner.
- H. **Inspection of Material:** In the event that the Specifications require the Contractor to engage the services of an entity to witness and inspect any material especially manufactured or prepared for use in or part of the permanent construction, such entity shall be subject to prior written approval by the Commissioner.
1. **NOTICE** - The Contractor shall give notice in writing to the Commissioner sufficiently in advance of its intention to commence the manufacture or preparation of materials especially manufactured or prepared for use in or as part of the permanent construction. Such notice shall contain a request for inspection, the date of commencement and the expected date of completion of the manufacture or preparation of materials. Upon receipt of such notice, the Commissioner will arrange to have a representative present at such times during the manufacture as may be necessary to inspect the materials, or the Commissioner will notify the Contractor that the inspection will be made at a point



other than the point of manufacture, or the Commissioner will notify the Contractor that inspection will be waived.

- I. **No Shipping Before Inspection:** The Contractor shall comply with the foregoing before shipping any material.
- J. **Certificate of Manufacture:** When the Commissioner so requires, the Contractor shall furnish to the Commissioner authoritative evidence in the form of Certificates of Manufacture that the materials to be used in the work have been manufactured and tested in conformity with the Specifications. These certificates shall include copies of the results of physical tests and chemical analyses where necessary, that have been made directly on the product, or on similar products being fabricated by the manufacturer. This may include such approvals as B.S.A., M.E.A., B.E.C. Advisory Board, etc.
- K. **Acceptance:** When materials or manufactured products shall comprise such quantity that it is not practical to make physical tests or chemical analyses directly on the product furnished, a certificate stating the results of such tests or analyses of similar materials which were concurrently produced may, at the discretion of the Commissioner, be considered as the basis for the acceptance of such material or manufactured product.
- L. **Testing Compliance:** The testing personnel shall make the necessary inspections and tests, and the reports thereof shall be in such form as will facilitate checking to determine compliance with the Specifications, indicating thereon all analyses and/or test data and interpreted results thereof.
- M. **Reports:** Six (6) copies of the reports shall be submitted and authoritative certification thereof must be furnished to the Commissioner as a prerequisite for the acceptance of any material or equipment.
- N. **Rejections:** If, in making any test, it is ascertained by the Commissioner that the material or equipment does not comply with the Specifications, the Contractor will be notified thereof, and will be directed to refrain from delivering said materials or equipment, or to promptly remove it from the site or from the work and replace it with acceptable material at no additional cost to the City.
- O. **Furnish Designated Materials:** Upon rejection of any material or equipment submitted as the equivalent of that specifically named in the Specifications, the Contractor shall immediately proceed to furnish the designated material or equipment.

#### **1.8 APPROVAL OF MATERIALS:**

- A. **Local Laws:** All materials, appliances and types or methods of construction shall be in accordance with the Specifications and shall in no event be less than that necessary to conform to the requirements of the New York City Construction Codes, Administrative Code and Charter of the City of New York.
- B. **Approval of Manufacturer:** The names of proposed manufacturers, material suppliers, and dealers who are to furnish materials, fixtures, equipment, appliances or other fittings shall be submitted to the Commissioner for approval, as early as possible, to afford proper review and analysis. No manufacturer will be approved for any materials to be furnished under the Contract unless it shall have a plant of ample capacity and shall have successfully produced similar products. All approvals of materials or equipment that are legally required by the New York City Construction Codes and other governing Authorities must be obtained prior to installation.
- C. **All Materials:** Fixtures, fittings, supplies and equipment furnished under the Contract shall be new and unused, except as approved by the Commissioner, and of standard first-grade quality and of the best workmanship and design. The City of New York encourages the use of recycled products where practical.
- D. **INFORMATION TO SUPPLIERS -** In asking for prices on materials under any item of the Contract, the Contractor shall provide the manufacturer or dealer with such complete information from the



Specifications and Contract Drawings as may in any case be necessary, and in every case the Contractor shall inform the manufacturer or dealer of all the General Conditions and requirements herein contained.

#### 1.9 SPECIAL INSPECTIONS:

##### A. SPECIAL INSPECTIONS:

1. Inspection of selected materials, equipment, installation, fabrication, erection or placement of components and connections made during the progress of the Work to ensure compliance with the Contract Documents and provisions of the New York City Construction Codes, shall be made by a Special Inspector. The City of New York will retain the services of the Special Inspector and bear the costs for the performance of Special Inspections in compliance with NYC Construction Codes requirements or as additionally may be called for in the project specifications, except as noted below for Form TR-3: Technical Report for Concrete Design Mix. The Special Inspector shall be an entity compliant with the requirements of the New York City Construction Codes. The Contractor shall notify the relevant Special Inspector in writing at least 72 hours before the commencement of any work requiring special inspection.
2. Form TR3: Technical Report Concrete Design Mix: The contractor shall be responsible for, and bear all costs associated with the filing and securing of approvals, if any, for Form TR3: Technical Report Concrete Design Mix, including, but not limited to, engaging the services of a New York City licensed Concrete Testing Lab for the review and approval of concrete design mix, testing, signatures and professional seals, etc., compliant with NYC Department of Buildings requirements, for each concrete design mix.
3. The Contractor shall notify the relevant Special Inspector in writing at least 72 hours before the commencement of any work requiring Special Inspection. The contractor shall be responsible for, and bear related costs to assure that all construction or work shall remain accessible and exposed for inspection purposes until the required inspection is completed.
4. Inspections and tests performed under "Special Inspection" shall not relieve the Contractor of the responsibility to comply with the Contract Documents, and that there is no warranty given to the Contractor by the City of New York in connection with such inspection and tests or certifications made under "Special Inspections".
5. The contractor must coordinate with the Resident Engineer or DDC Project Manager to provide access and schedule the work for inspection by the Special Inspector.

#### 1.10 INSPECTIONS BY OTHER CITY AGENCIES:

- A. Letter of Completion: Just prior to substantial completion of this Project, the Commissioner will file with the Department of Buildings, an application for a Letter of Completion or a Certificate of Occupancy for the structure.
- B. Final Inspections: In connection with the above mentioned application for a Letter of Completion or a Certificate of Occupancy and before certificates of final payments are issued, the Contractor will be required to arrange for all final inspections by the inspection staff of the Department of Buildings, Fire Department or other Governmental Agencies having jurisdiction, and secure all reports, sign offs, certificates, etc., by such inspection staff or other governmental agencies, in order that a Letter of Completion or Certificate of Occupancy can be issued promptly.

#### 1.11 CERTIFICATES OF APPROVAL:

- A. Responsibility: The Contractor shall be responsible for and shall obtain all final approvals for the work installed under the Contract in the form of such certificates that are required by all governmental agencies having jurisdiction over the work of the Contract.
- B. Transmittal: All such certificates shall be forwarded to the Commissioner through the Resident Engineer.



### 1.12 ACCEPTANCE TESTS:

- A. Government Agencies: All equipment and appliances furnished and installed under the Contract shall conform to the requirements of the Specifications, and shall in no event be less than that necessary to comply with the minimum requirements of the law and all of the governmental agencies having jurisdiction.
- B. Notice of Tests: Whenever the Specifications and/or any governmental agency having jurisdiction requires the acceptance test, the Contractor shall give written notice to all concerned of the time when these tests will be conducted.
- C. Energy: The City will furnish all energy, fuel, water and light required for tests.
- D. Labor and Materials: The Contractor shall furnish labor and all other material and instruments necessary to conduct the acceptance tests at no additional cost to the City.
- E. Certificates: The final acceptance by the Commissioner shall be contingent upon the Contractor delivering to the Commissioner all necessary certificates evidencing compliance in every respect with the requirements of the regulatory agencies having jurisdiction.
- F. Results: If the results of tests and Special Inspections indicate that the material or procedures do not meet requirements as set forth on the Contract Drawings or in the Specifications or are otherwise unsatisfactory, the Contractor shall only proceed as directed by the Resident Engineer. Additional costs resulting from retesting, re-inspecting, replacing of material and/or damage to the work and any delay caused to the schedule shall be borne by the Contractor.

### PART II – PRODUCTS (Not Used)

### PART III – EXECUTION

#### 3.1 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, the Contractor shall repair damaged construction and restore substrates and finishes.
  - 1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.

END OF SECTION 01 40 00



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**SECTION 01 42 00  
REFERENCES**

**PART I – GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

**1.2 DEFINITIONS:**

**REFER TO THE ADDENDUM, Article IX, FOR ADDITIONAL DEFINITIONS AND REVISIONS TO THE CONTRACT AND SPECIFICATIONS**

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. "APPROVED," ETC. - "Approved," "acceptable," "satisfactory," and words of similar import shall mean and intend approved, acceptable or satisfactory to the Commissioner.
- C. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.
- D. "DIRECTED," "REQUIRED," ETC.- Wherever reference is made in the Contract to the work or its performance, the terms "directed," "required," "permitted," "ordered," "designated," "prescribed," "determined," and words of similar import shall, unless expressed otherwise, imply the direction, requirements, permission, order, designation or prescription of the Commissioner.
- E. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings.



### 1.3 CODES, AGENCIES AND REGULATIONS:

A.D.A.A.G.	Americans with Disabilities Act (ADA) – Architectural Barriers Act (ABA)
B.G. & E.	Bureau of Gas and Electricity of the City of New York
B.S. & A.	New York City Board of Standards and Appeals
DOE	Department of Energy
E.C.C.C.N.Y.S.	Energy Conservation Construction Code of New York State
EPA	Environmental Protection Administration
N.Y.C.C.C.	New York City Construction Codes – includes: New York City Plumbing Code New York City Building Code New York City Mechanical Code New York City Fuel Gas Code
N.Y.S.D.O.L	New York State Department of Labor
N.Y.C.D.E.P	New York City Department of Environmental Protection
N.Y.C.E.C.	New York City Electrical Code
N.Y.C.E.C.C	New York City Energy Conservation Code
N.Y.C.F.C	New York City Fire Code
N.Y.S...D.E.C.	New York State Department of Environmental Conservation
O.S.H.A.	Occupational Safety & Health Administration

### 1.4 INDUSTRY STANDARDS:

- A. **STANDARD REFERENCES** – Unless otherwise specifically indicated in the Contract Documents, whenever reference is made to the furnishing of materials or testing thereof that conforms to the standards of any technical society, organization or body, it shall be construed to mean the latest standard, code, specification adopted and published by that technical society, organization or body, as of the date of the bid opening, unless the provisions of the New York City Construction Codes adopt a different or earlier dated version of such standard.
- B. **APPLICABILITY OF STANDARDS:** Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect, to the extent referenced, as if bound or copied directly into the Contract Documents. Such standards are made a part of the Contract Documents by reference.
- C. **CONFLICTING REQUIREMENTS:** Where compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantity or quality, comply with the most stringent requirements. Immediately refer uncertainties, and requirements that are different but apparently equal, to the Commissioner in writing for a decision before proceeding.
- D. **STANDARD SPECIFICATIONS** - When no reference is made to a code, standard or specification, the Standard Specifications of the ASTM or the AIEE, as the case may be, shall govern.
- E. **REFERENCES** - Reference to a technical society, organization or body may be made in the Specifications by abbreviations. Abbreviations and acronyms used in the Specifications and other Contract Documents mean the associated name. The following names are subject to change and are





believed, but are not assured, to be accurate and up-to-date as of the Issue Date of the Contract Documents.

AA	Aluminum Association, Inc. (The)
AAADM	American Association of Automatic Door Manufacturers
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists (The)
ABAA	Air Barrier Association of America
ABMA	American Bearing Manufacturers Association
ACI	ACI International (American Concrete Institute)
ACPA	American Concrete Pipe Association
AEIC	Association of Edison Illuminating Companies, Inc. (The)
AF&PA	American Forest & Paper Association
AGA	American Gas Association
AGC	Associated General Contractors of America (The)
AGMA	American Gear Manufacturer Association
AHA	American Hardboard Association (Now part of CPA)
AHAM	Association of Home Appliance Manufacturers
AI	Asphalt Institute
AIA	American Institute of Architects (The)
AIEE	American Institute of Electrical Engineers
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALCA	Associated Landscape Contractors of America (Now PLANET - Professional Landcare Network)



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ALSc	American Lumber Standard Committee, Incorporated
ALI	Automotive Lift Institute
AMCA	Air Movement and Control Association International, Inc.
ANSI	American National Standards Institute
AOSA	Association of Official Seed Analysts, Inc.
APA	APA - The Engineered Wood Association
APA	Architectural Precast Association
API	American Petroleum Institute
ARI	Air-Conditioning & Refrigeration Institute
ARMA	Asphalt Roofing Manufacturers Association
ASA	American Standards Association
ASAE	American Society of Agricultural Engineers
ASCE/SEI	American Society of Civil Engineers, Structural Engineering Institute
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASSE	American Society of Sanitary Engineering
ASTM	ASTM International (American Society for Testing and Materials International)
AWCI	AWCI International (Association of the Wall and Ceiling Industry International)
AWCMA	American Window Covering Manufacturers Association (Now WCSC)
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWSC	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Industry Association (The)



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BICSI	BICSI
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International)
BISSC	Baking Industry Sanitation Standards Committee
CIBSE	Chartered Institute of Building Services Engineers
CCC	Carpet Cushion Council
CDA	Copper Development Association
CEA	Canadian Electricity Association
CFFA	Chemical Fabrics & Film Association, Inc.
CGA	Compressed Gas Association
CGSB	Canadian General Standards Board
CIMA	Cellulose Insulation Manufacturers Association
CIPRA	Cast Iron Pipe Research Association
CISCA	Ceilings & Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturers Institute
CPA	Composite Panel Association
CPPA	Corrugated Polyethylene Pipe Association
CPSC	Consumer Product Safety Commission
CRI	Carpet & Rug Institute (The)
CRSI	Concrete Reinforcing Steel Institute
CSA	Canadian Standards Association
CSI	Cast Stone Institute
CSI	Construction Specifications Institute (The)
CSSB	Cedar Shake & Shingle Bureau
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute)



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DASMA	Door and Access Systems Manufacturer's Association International
DHI	Door and Hardware Institute
DOC	U.S. Department of Commerce – National Institute of Standards and Technology
EIA	Electronic Industries Alliance
DOJ	U.S. department of Justice
EIMA	EIFS Industry Members Association
DOL	U.S. Department of labor
EJCDC	Engineers Joint Contract Documents Committee
DOTn	U.S. Department of Transportation
EN	European Committee of Standards
EJMA	Expansion Joint Manufacturers Association, Inc.
ESD	ESD Association
EVO	Efficiency Valuation Organization
FEME	Federal Emergency Management Agency
FIBA	Federation Internationale de Basketball Amateur (The International Basketball Federation)
FIVB	Federation Internationale de Volleyball (The International Volleyball Federation)
FMG	FM Global (Formerly: FM - Factory Mutual System)
FMRC	Factory Mutual Research (Now FMG)
FRSA	Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.
FSA	Fluid Sealing Association
FSC	Forest Stewardship Council
GA	Gypsum Association
GANA	Glass Association of North America
GRI	(Now GSI)
GS	Green Seal
GSI	Geosynthetic Institute



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HI	Hydraulic Institute
HI	Hydronics Institute
HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)
HPVA	Hardwood Plywood & Veneer Association
HPW	H. P. White Laboratory, Inc.
HUD	U.S. Department of Housing and Urban Development
IAPMO	International Association of Plumbing and Mechanical Officials
IAS	International Approval Services (Now CSA International)
IBF	International Badminton Federation
ICC	International Code Council, Inc.
ICEA	Insulated Cable Engineers Association, Inc.
ICRI	International Concrete Repair Institute, Inc.
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The)
IESNA	Illuminating Engineering Society of North America
IEST	Institute of Environmental Sciences and Technology
IGCC	Insulating Glass Certification Council
IGMA	Insulating Glass Manufacturers Alliance
ILI	Indiana Limestone Institute of America, Inc.
ISO	International Organization for Standardization
ISSFA	International Solid Surface Fabricators Association
ITS	Intertek
ITU	International Telecommunication Union
KCMA	Kitchen Cabinet Manufacturers Association
LMA	Laminating Materials Association (Now part of CPA)
LPI	Lightning Protection Institute
MBMA	Metal Building Manufacturers Association



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MFMA	Maple Flooring Manufacturers Association, Inc.
MFMA	Metal Framing Manufacturers Association
MH	Material Handling (Now MHIA)
MHIA	Material Handling Industry of America
MIA	Marble Institute of America
MPI	Master Painters Institute
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc.
NAAMM	National Association of Architectural Metal Manufacturers
NACE	NACE International (National Association of Corrosion Engineers International)
NADCA	National Air Duct Cleaners Association
NAGWS	National Association for Girls and Women in Sport
NAIMA	North American Insulation Manufacturers Association
NBGQA	National Building Granite Quarries Association, Inc.
NCAA	National Collegiate Athletic Association (The)
NCMA	National Concrete Masonry Association
NCPI	National Clay Pipe Institute
NCTA	National Cable & Telecommunications Association
NEBB	National Environmental Balancing Bureau
NECA	National Electrical Contractors Association
NeLMA	Northeastern Lumber Manufacturers' Association
NEMA	National Electrical Manufacturers Association
NETA	InterNational Electrical Testing Association
NFHS	National Federation of State High School Associations
NFPA	NFPA (National Fire Protection Association)
NFRC	National Fenestration Rating Council



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NGA	National Glass Association
NHLA	National Hardwood Lumber Association
NLGA	National Lumber Grades Authority
NIS	National Institute of Standards and Technology
NOFMA	NOFMA: The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association)
NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association
NSF	NSF International (National Sanitation Foundation International)
NSSGA	National Stone, Sand & Gravel Association
NTMA	National Terrazzo & Mosaic Association, Inc. (The)
NTRMA	National Tile Roofing Manufacturers Association (Now TRI)
NWWDA	National Wood Window and Door Association (Now WDMA)
OPL	Omega Point Laboratories, Inc. (Acquired by ITS - Intertek)
PCI	Precast / Pre-stressed Concrete Institute
PDCA	Painting & Decorating Contractors of America
PDI	Plumbing & Drainage Institute
PGI	PVC Geomembrane Institute
PLANET	Professional Landcare Network (Formerly: ACLA - Associated Landscape Contractors of America)
PPS	Power Piping Society
PTI	Post-Tensioning Institute
RCSC	Research Council on Structural Connections
RFCI	Resilient Floor Covering Institute
RIS	Redwood Inspection Service
RMI	Rack Manufacturers Institute
RTI	(Formerly: NTRMA - National Tile Roofing Manufacturers Association) (Now TRI)



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SAE	SAE International
SCAQMD	South Coast Air Quality Management District
SCS	Scientific Certification System
SDI	Steel Deck Institute
SDI	Steel Door Institute
SEFA	Scientific Equipment and Furniture Association
SGCC	Safety Glazing Certification Council
SHBI	Steel Heating Boiler Institute
SIA	Security Industry Association
SIGMA	Sealed Insulating Glass Manufacturers Association (Now IGMA)
SJI	Steel Joist Institute
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SMPTE	Society of Motion Picture and Television Engineers
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division)
SPIB	Southern Pine Inspection Bureau (The)
SPRI	Single Ply Roofing Industry
SSINA	Specialty Steel Industry of North America
SSPC	SSPC: The Society for Protective Coatings
STI	Steel Tank Institute
SWI	Steel Window Institute
SWRI	Sealant, Waterproofing, & Restoration Institute
TCA	Tile Council of America, Inc.
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance
TMS	The Masonry Society

REFERENCES  
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TPI	Truss Plate Institute, Inc.
TPI	Turfgrass Producers International
TRI	Tile Roofing Institute (Formerly: RTI - Roof Tile Institute)
UL	Underwriters Laboratories Inc.
ULC	Underwriters Laboratories of Canada
UNI	Uni-Bell PVC Pipe Association
USAV	USA Volleyball
USC	United States Code
USGBC	U.S. Green Building Council
USITT	United States Institute for Theatre Technology, Inc.
WASTEC	Waste Equipment Technology Association
WCLIB	West Coast Lumber Inspection Bureau
WCMA	Window Covering Manufacturers Association (Now WCSC)
WCSC	<b>Window Covering Safety Council</b> (Formerly: WCMA - Window Covering Manufacturers Association)
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association)
WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California)
WIC	Woodwork Institute of California (Now WI)
WMMPA	Wood Moulding & Millwork Producers Association
WRI	Wire Reinforcement Institute, Inc.
USEPA	United States Environmental Protection Agency
WSRCA	Western States Roofing Contractors Association
WWPA	Western Wood Products Association

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 42 00**



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REFERENCES  
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**SECTION 01 50 00  
TEMPORARY FACILITIES, SERVICES AND CONTROLS**

**PART I – GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

**1.2 SUMMARY:**

- A. This section includes the following:
  - a. Temporary Water System
  - b. Temporary Sanitary Facilities
  - c. Temporary Electric Power, Temporary Lighting System, And Site Security Lighting
  - d. Temporary Heat
  - e. Dewatering Facilities And Drains
  - f. Temporary Field Office for Contractor
  - g. Resident Engineer's Office
  - h. Material Sheds
  - i. Temporary Enclosures
  - j. Temporary Partitions
  - k. Temporary Fire Protection
  - l. Work Fence Enclosure
  - m. Rodent and Insect Control
  - n. Plant Pest Control Requirements
  - o. Project Identification Signage
  - p. Security Guards/Fire Guards on Site
  - q. Project Sign and Rendering
  - r. Safety

**1.3 RELATED SECTIONS:** include without limitation the following:

- A. Section 01 10 00 SUMMARY
- B. Section 01 42 00 REFERENCES
- C. Section 01 54 11 TEMPORARY ELEVATORS AND HOISTS
- D. Section 01 54 23 TEMPORARY SCAFFOLDS AND SWING STAGING
- E. Section 01 77 00 CLOSE OUT PROCEDURES

**1.4 DEFINITIONS:**

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Permanent Enclosure: As determined by Commissioner, permanent or temporary roofing that is complete, insulated, and weather tight; exterior walls which are insulated and weather tight; and all openings that are closed with permanent construction or substantial temporary closures.



- C. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

**1.5 SUBMITTALS:**

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. Reports: Submit reports of tests, inspections, meter readings and similar procedures for temporary use.

**1.6 PROJECT CONDITIONS:**

- A. Temporary Use of Permanent Facilities and Services: The Contractor shall be responsible for the operation, maintenance, and protection of each permanently installed facility and service while in use during construction before Final Acceptance by the City, regardless of previously assigned responsibilities.
- B. Install, operate, maintain and protect temporary facilities, services and controls.
1. Keep temporary services and facilities clean and neat in appearance.
  2. Operate temporary services in a safe and efficient manner.
  3. Relocate temporary services and facilities as needed as Work progresses.
  4. Do not overload temporary services and facilities or permit them to interfere with progress.
  5. Provide necessary fire prevention measures.
  6. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on-site

**1.7 NON-REGULAR WORK HOURS (OVERTIME):**

- A. The Contractor shall provide the temporary services, facilities and controls set forth in this Section during other than regular working hours if the Drawings and/or the Specifications indicate that the Work, or specific components thereof, must be performed during other than regular working hours. In such case, all costs for the provision of temporary services, facilities and controls during other than regular working hours shall be deemed included in the total Contract Price.
- B. The Contractor shall provide the temporary services, facilities and controls set forth in this Section during other than regular working hours if a change order is issued directing the Contractor to perform the Work, or specific components thereof, during other than regular working hours. In such case, compensation for the provision of temporary services, facilities and controls during other than regular working hours shall be provided through the change order.

**1.8 SERVICES BEYOND COMPLETION DATE:**

- A. The Contractor shall provide the temporary services, facilities and controls set forth in this Section until the date on which it completes all required work at the site, including all punch list work, as certified in writing by the Resident Engineer, or earlier if so directed in writing by the Commissioner. The Contractor shall provide such temporary services, facilities and controls even if completion of all required work at the site occurs after the time fixed for such completion in Schedule A.



## PART II -- PRODUCTS

### 2.1 MATERIALS:

- A. Provide undamaged materials in serviceable condition and suitable for use intended.
- B. Tarpaulins: Waterproof, fire-resistant UL labeled with flame spread rating of 15 or less. For temporary enclosures, provide translucent, nylon-reinforced, laminated polyethylene or polyvinyl chloride, fire-retardant tarpaulins.
- C. Water: Potable and in compliance with requirements of the Department of Environmental Protection.

### 2.2 EQUIPMENT:

- A. Provide undamaged equipment in serviceable condition and suitable for use intended.
- B. Water Hoses: Heavy-duty abrasive-resistant flexible rubber hoses, 100 feet (30 m) long with pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shutoff nozzles at hose discharge.
- C. Electric Power Cords: Grounded extension cords.
  - 1. Provide hard-service cords where exposed to abrasion or traffic.
  - 2. Provide waterproof connectors to connect separate lengths of electric cords where single lengths will not reach areas of construction activity.
  - 3. Do not exceed safe length-voltage ratio.
- D. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

## PART III -- EXECUTION:

### 3.1 INSTALLATION, GENERAL:

- A. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities as approved by the Resident Engineer.

### 3.2 TEMPORARY WATER SYSTEM:

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.2 A**

- A. TEMPORARY WATER SYSTEM - NEW FACILITIES: During construction, the Contractor shall furnish a Temporary Water System as set forth below.
  - 1. Immediately after the Commissioner has issued an order to start work, the Contractor shall file an application with the Dept. of Environmental Protection for the schedule of charges for water use during construction. The Contractor will be responsible for payment of water charges.
  - 2. Immediately after the Commissioner has issued an order to start work, the Contractor shall file an application with the Department of Environmental Protection's Bureau of Water Supply and obtain a permit to install the temporary water supply system. The system shall be installed and maintained for the use of the Contractor and its subcontractors. A copy of the above mentioned permit shall be filed with the Commissioner. The Contractor shall provide temporary water main, risers and waste stacks as directed and install on each floor, outlets with two (2) 3/4" hose valve connections over a barrel installed on a steel pan. The Contractor shall provide drains from the pans to the stack and house sewer and hose bibs to drain the water supply



risers and mains. During winter months, the Contractor shall take the necessary precautions to prevent the temporary water system from freezing. The Contractor shall provide repairs to the temporary water supply system for the duration of the project until said temporary system is dismantled and removed.

3. Disposition of Temporary Water System: The Contractor shall be responsible for dismantling the temporary water system when no longer required for the construction operations, or when replaced by the permanent water system installed for the project, or as otherwise directed by the Resident Engineer. All repair work resulting from the dismantling of the temporary water system shall be the responsibility of the Contractor.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.2 B**

**B. TEMPORARY WATER SYSTEM – PROJECTS IN EXISTING FACILITIES:**

1. When approved by the Commissioner, use of existing water system will be permitted for temporary water service during construction, as long as the system is cleaned and maintained in a condition acceptable to the Commissioner. At Substantial Completion, the Contractor shall restore the existing water system to conditions existing before initial use.
2. The Contractor shall be responsible for all repairs to the existing water system permitted to be used for temporary water service during construction. The Contractor shall be responsible to maintain the existing system in a clean condition on a daily basis, acceptable to the Commissioner.
3. The Contractor will be responsible for payment of water charges as directed by the Commissioner. Billing will be in accordance with the Department of Environmental Protection schedule of charges for Building Purposes.

**C. WASH FACILITIES:** The Contractor shall install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition.

1. Dispose of drainage properly.
2. Supply cleaning compounds appropriate for each condition.
3. Include safety showers, eyewash fountains and similar facilities for the convenience, safety and sanitation of personnel.

**D. DRINKING WATER FACILITIES:** The Contractor shall provide drinking water fountains or containerized tap-dispenser bottled-drinking water units, complete with paper cup supplies. Where power is accessible, provide electric water coolers to maintain dispensed water temperature at 45 to 55 deg. F (7 to 13 deg. C).

**3.3 TEMPORARY SANITARY FACILITIES:**

- A. The Contractor shall provide toilets, wash facilities and drinking water fixtures in compliance with regulations and health codes for type, number, location, operation and maintenance of fixtures and facilities. Provide toilet tissue, paper towels, paper cups and similar disposable materials as appropriate for each facility, and provide covered waste containers for used materials.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.3 B**

**B. SELF-CONTAINED TOILET UNITS:**

1. The Contractor shall provide temporary single-occupant toilet units of the chemical, aerated recirculation, or combustion type for use by all construction personnel. Units shall be properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material. Quantity of toilet units shall comply with the latest OSHA regulations.
2. Toilets: Install separate self-contained toilet units for male and female personnel. Shield toilets to ensure privacy.



**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.3 C**

**C. EXISTING TOILETS:**

1. **TOILET FACILITIES:** When approved by the Commissioner, the Contractor shall arrange for the use of existing toilet facilities by all personnel during the execution of the work. The Contractor shall be responsible to clean and maintain facilities in a condition acceptable to the Resident Engineer and, at completion of construction, to restore facilities to their condition at the time of initial use.
2. **MAINTENANCE** - The Contractor shall maintain the temporary toilet facilities in a clean and sanitary manner and make all necessary repairs.
3. **NUISANCES** - The Contractor shall not cause any sanitary nuisance to be committed by its employees or the employees of its subcontractors in or about the work, and shall enforce all sanitary regulations of the City and State Health Authorities.

**3.4 TEMPORARY ELECTRIC POWER, TEMPORARY LIGHTING SYSTEM, AND SITE SECURITY LIGHTING:**

- A. **SCOPE:** This Section sets forth the General Conditions and procedures relating to Temporary Electric Power, Temporary Lighting System and Site Security Lighting during the construction period.
- B. **TEMPORARY ELECTRIC POWER:**  
The Contractor shall provide and maintain a Temporary Electric Power service and distribution system of sufficient size, capacity and power characteristics required for construction operations for all required work by the Contractor and its subcontractors, including but not limited to power for the Temporary Lighting System, Site Security Lighting, construction equipment, hoists, temporary elevators and all field offices. Temporary Electric Power shall be provided as follows:

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4 B (1)**

1. **CONNECTION TO UTILITY LINES:**
  - a. Temporary Electric Power Service for use during construction shall be provided as follows: The Contractor shall make all necessary arrangements with the Public Utility Company and pay all charges for the Temporary Electric Power system. The Contractor shall include in its total Contract Price any charges for Temporary Electric Power, including charges that may be made by the Public Utility Company for extending its electrical facilities, and for making final connections. The Contractor shall make payment directly to the Public Utility Company.
  - b. **APPLICATIONS FOR METER:** The Contractor shall make application to the Public Utility Company and sign all documents necessary for, and pay all charges incidental to, the installation of a watt hour meter or meters for Temporary Electric Power. The Contractor shall pay to the Public Utility Company, all bills for Temporary Electric energy used throughout the work, as they become due.
  - c. **SERVICE AND METERING EQUIPMENT** - The Contractor shall furnish and install, at a suitable location on the site, approved service and metering equipment for the Temporary Electric Power System, ready for the installation of the Public Utility Company's metering devices. The temporary service mains to and from the metering location shall be not less than 100 Amperes, 3-phase, 4-wire and shall be of sufficient capacity to take care of all demands for all construction operations and shall meet all requirements of the NYCEC.



**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4 B (2)**

2. CONNECTION TO EXISTING ELECTRICAL POWER SERVICE:
- When approved by the Commissioner, electrical power service for the Temporary Lighting System and for the operation of small tools and equipment less than ¼ horsepower may be taken from the existing electric distribution system if the existing system is of adequate capacity for the temporary power load. The Contractor shall cooperate and coordinate with the facility custodian, so as not to interfere with the normal operation of the facility.
  - There will be no charge to the Contractor for the electrical energy consumed.
  - The Contractor shall provide, maintain and pay all costs for separate temporary electric power for any temporary power for equipment larger than 1/4 horsepower. When directed by the Commissioner, the Contractor shall remove its own temporary power system.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4 B (3)**

3. ELECTRICAL GENERATOR POWER SERVICE:
- When connection to Utility Lines or existing facility electric service is not available or is not adequate to supply the electric power need for construction operations, the Contractor shall provide self-contained generators to provide power beyond that available.
  - Pay for all energy consumed in the progress of the Work, exclusive of that available from the existing facility or Utility Company.
  - Provide for control of noise from the generators.
  - Comply with the Ultra Low Sulfur Fuel in Non-Road Vehicles requirements as set forth in Article 5.4 of the Contract.

C. USE OF COMPLETED PORTIONS OF THE ELECTRICAL WORK:

- USE OF MAIN DISTRIBUTION PANEL:** As soon as the permanent electric service feeders and equipment, metering equipment and main distribution panel are installed and ready for operation, the Contractor shall have the temporary lighting and power system changed over from the temporary service points to the main distribution panel.
- COST OF CHANGE OVER -** The Contractor shall be responsible for all costs due to this change over of service and it shall also make application to the Public Utility Company for a watt hour meter to be set on the permanent meter equipment.
- The requirements for temporary electric power service specified herein shall be adhered to after change over of service until final acceptance of the project.
- NO EXTRA COST -** The operation of the service and switchboard equipment shall be under the supervision of the Contractor, but this shall in no way be interpreted to mean the acceptance of such part of the installation or relieve the Contractor from its responsibility for the complete work or any part thereof. There shall be no additional charge for supervision by the Contractor.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4 D**

D. TEMPORARY LIGHTING SYSTEM:

- The Contractor shall provide adequate service for the temporary lighting system, or a minimum of 100 Amperes, 3-phase, 4-wire service for the temporary lighting system, whichever is





- greater, and make all necessary arrangements with the Public Utility Company and pay all charges by them for the Temporary Lighting System
2. The Contractor shall furnish and connect to the metered service point, a Temporary Lighting System to illuminate the entire area where work is being performed and points adjacent to the work, with separately fused circuits for stairways and bridges. Control switches for stairway circuits shall be located near entrance on ground floor.
  3. ITEMS: The Temporary Lighting System provided by the Contractor shall consist of wiring, fixtures, left-hand double sockets, (one (1) double socket for every 400 square feet, with one (1) lamp and one (1) three-prong outlet) lamps, fuses, locked type guards, pigtails and any other incidental material. Additional details may be outlined in the detailed Specifications for the Electrical Work. Changes may be made, provided the full equivalent of those requirements is maintained.
  4. The Temporary Lighting System shall be progressively installed as required for the advancement of the work under the Contract.
  5. RELOCATION: The cost for the relocation or extension of the original Temporary Lighting System, required by the Contractor or its subcontractors, that is not required due to the normal advancement of the work, as determined by the Resident Engineer, shall be borne by the Contractor.
  6. PIGTAILS: shall be furnished with left-hand sockets with locked type guards and 40 feet of rubber covered cable. The Contractor shall furnish and distribute a minimum of three (3) complete pigtails to each subcontractor. See the detailed Electrical Specifications for possible additional pigtails required.
  7. LAMPS: The Contractor shall furnish and install one (1) complete set of lamps, including those for the trailers. Broken and burned out lamps in the temporary lighting system, DDC field office and construction trailers, shall be replaced by the Contractor. All lamps shall be compact fluorescent
  8. CIRCUIT PROTECTION: The Contractor shall furnish and install GFI protection for the Temporary Lighting and Site Security Lighting Systems.
  9. MAINTENANCE OF TEMPORARY LIGHTING SYSTEM:
    - a. The Contractor shall maintain the Temporary Lighting System in good working order during the scheduled hours established.
    - b. The Contractor shall include in its total Contract Price all costs in connection with the Temporary Lighting System, including all costs for installation, maintenance and electric power.
  10. REMOVAL OF TEMPORARY LIGHTING SYSTEM: The temporary lighting system shall be removed by the Contractor when authorized by the Commissioner.
  11. HAND TOOLS: The temporary lighting system shall not be used for power purposes, except that light hand tools not larger than 1/4 horsepower may be operated from such system by the Contractor and its subcontractors.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4 E**

- E. SITE SECURITY LIGHTING (FOR NEW CONSTRUCTION ONLY):
1. The Contractor shall furnish, install and maintain a system of site security lighting, as herein specified, to illuminate the construction site of the project, and it shall be connected to and energized from the Temporary Lighting System. All costs in connection with site security lighting shall be deemed included in the total Contract Price.
  2. It is essential that the site security lighting system be completely installed and operating, at the earliest possible date. The Contractor shall direct its subcontractors to cooperate, coordinate and exert every effort to accomplish an early complete installation of the site security lighting system. After the system is installed and in operation, if a part of the system interferes with the work of any trade, the Contractor shall be completely responsible for the expense of removing,



- relocating and replacing all equipment necessary to reinstate the system to proper operating conditions.
3. The system shall consist of flood lighting by pole mounted guarded sealed-beam units. Floodlight units shall be mounted 16 feet above grade. Floodlights shall be spaced around the perimeter of the site to produce an illumination level of no less than one (1) foot candle around the perimeter of the site, as well as in any potentially hazardous area or any other area within the site that might be deemed by the Resident Engineer to require security illumination. The system shall be installed in a manner acceptable to the Resident Engineer. The first lighting unit in each circuit shall be provided with a photoelectric cell for automatic control. The photoelectric cell shall be installed as per manufacturer's recommendations.
  4. All necessary poles shall be furnished and installed by the Contractor.
  5. The site security lighting shall be kept illuminated at all times during the hours of darkness. The Contractor shall, at its own expense, shall keep the system in operation, and shall furnish and install all material necessary to replace all damaged or burned out parts.
  6. The Contractor shall be on telephone call alert for maintaining the system during the operating period stated above.
  7. All materials and equipment furnished under this section shall remain the property of the Contractor and shall be removed and disposed of by the Contractor when authorized in writing by the Resident Engineer.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.5**

**3.5 TEMPORARY HEAT:**

**A. GENERAL:**

1. **Definition:** The provision of Temporary Heat shall mean the provision of heat in order to permit construction to be performed in accordance with the Progress Schedule during all seasons of the year and to protect the work from the harmful effects of low temperature. In the event the building, or any portion thereof, is occupied during construction, the provision of Temporary Heat shall include the provision of heat to permit normal operations in such occupied areas.
  - a. The provision of Temporary Heat shall be in accordance with the temperature requirements set forth in Sub-Section 3.5 C herein.
  - b. The provision of Temporary Heat shall include the provision of: 1) all fuel necessary and required, 2) all equipment necessary and required, and 3) all operating labor necessary and required. Operating labor shall mean that minimum force required for the safe day to day operation of the system for the provision of Temporary Heat and shall include, without limitation, heating maintenance labor and/or Fire Watch as required by NYC Fire Department regulations. Operating labor may be required seven (7) days per week and during other than normal working hours, for the period of time required by seasonal weather conditions.
  - c. In the event the building, or any portion thereof, is occupied and the Project involves the replacement, modification and/or shut down of the permanent heating system, or any key component thereof; and such system is a combined system which furnishes domestic hot water for the building occupants, the provision of Temporary Heat shall include the provision of domestic hot water at the same temperature as the system which is being replaced. Domestic hot water shall be provided in accordance with the phasing requirements set forth in the Contract Documents.
2. **Responsibility:** The Contractor's responsibility for the provision of Temporary Heat, including all expenses in connection therewith, shall be as set forth below:
  - a. Projects Involving Enclosure of the Building:



- 1) Prior to Enclosure - Until the Commissioner determines that the building has been enclosed, as set forth in Sub-Section 3.5 B; the Contractor shall be responsible for the provision of Temporary Heat.
  - 2) Post Enclosure - Once the Commissioner determines that the building, or any portion thereof, has been enclosed, as set forth in Sub-Section 3.5 B, the Contractor shall be responsible for the provision of Temporary Heat by one or more of the following means: 1) by an existing heating system (if any), 2) by a permanent heating system which is being installed as part of the Project, or 3) by a temporary heating system(s).
  - 3) The Contractor shall, within two (2) weeks of the kick-off meeting, submit to DDC for review its proposed plan to provide Temporary Heat. Such plan is subject to approval by the Resident Engineer. The Contractor shall provide Temporary Heat in accordance with the approved plan until written acceptance by the Commissioner of the work of all Contractors, including punch list work, unless directed otherwise in writing by the Commissioner. The responsibility of the Contractor provided for herein is subject to the exception set forth in Sub-Section 3.5 A.2 (b) herein.
- b. Projects not involving Enclosure of the Building:
- 1) If the Project involves the installation of a new permanent heating system if one did not exist previously, or the replacement, modification and/or shut down of the existing permanent heating system, or any key component thereof, the Contractor shall be responsible for the provision of Temporary Heat, except as otherwise provided in Sub-Section 3.5 H.3(b).2 herein.
  - 2) If the Project does not involve the installation of a new permanent heating system if one did not exist previously, or the replacement, modification and/or shut down of the existing permanent heating system, or any key component thereof; there is no Contractor responsibility of the provision of Temporary Heat, unless otherwise specified in the Contract Documents. However, if the Commissioner, pursuant to Sub-Section 3.5 H.3 (b).1 herein, determines that the provision of Temporary Heat is necessary due to special and/or unforeseen circumstances, the Contractor shall be responsible for the provision of Temporary Heat and shall be paid for the same in accordance with Sub-Section 3.5 H.3 (b).1 herein.
- B. ENCLOSURE OF STRUCTURES:**
1. Notification: The Contractor shall notify all its subcontractors and the Resident Engineer at least 30 days prior to the anticipated date that the building(s) will be enclosed.
  2. Commissioner Determination: The Commissioner shall determine whether the building, or any portion thereof, has been enclosed. As indicated in Sub-Section 3.5 A.2 above, once the building has been enclosed, the Contractor shall be responsible for the provision of Temporary Heat. The Commissioner's determination with respect to building enclosure shall be based upon all relevant facts and circumstances, including without limitation, 1) whether the building meets the criteria set forth in Paragraph 3 below, and 2) whether the openings in the building, such as doorways and windows, have been sufficiently covered so as to provide reasonable heat retention and protection from the elements
  3. Criteria for enclosure:
    - a. Roof Area:
      - 1) A building shall be considered to be roofed when the area to be roofed is covered by a permanent structure and all openings through the permanent structure are covered and protected by temporary covers as described in Paragraph (c) below.
      - 2) Intermediate floor structures of multi-floor buildings shall be considered to be roofed subject to the same requirements of the building roof.



- 3) The final roofing system need not be in place for the building or structure to be determined to be enclosed; provided, however, all openings through the permanent structure covering the roof must be covered and protected by temporary covers, as described in Paragraph (c) below.
- b. Walls: For the walls to be determined to be enclosed permanent exterior wall elements or facing material must be in place and all openings must be covered and protected by temporary covers, as described in Paragraph (c) below.
- c. Temporary Covers: In order to be acceptable, temporary covers must be securely fixed to prevent the entrance of rain, snow and direct wind. The minimum material requirements for temporary covers are as follows: 1) minimum 10 mil. Plastic 2) minimum 12 ounce waterproof canvas tarpaulins, or 3) a minimum three-eighths (3/8) inch thickness exterior grade plywood.
- d. Temporary covers for openings shall be the responsibility of the Contractor and such work shall be deemed included in the Contract price.

C. TEMPERATURE REQUIREMENTS:

- 1. Unoccupied Buildings: The temperature requirement for the provision of Temporary Heat in unoccupied buildings shall be the GREATER of the following: 1) 50 degrees Fahrenheit, or 2) the temperature requirement for the particular type of work set forth in the Contract Documents.
- 2. Occupied Buildings: The temperature requirement for the provision of Temporary Heat in occupied buildings, or portions thereof, shall be the GREATER of the following: 68 degrees Fahrenheit or the temperature requirement for the particular type of work set forth in the Contract Documents.

D. DURATION:

- 1. The Contractor shall be required to provide Temporary Heat until the date on which it completes all required work at the site, including all punch list work, as certified in writing by the Resident Engineer, or earlier if so directed in writing by the Commissioner. The Contractor shall be responsible for the provision of Temporary Heat for the time specified herein, regardless of any delays in completion of the Project, including delays that result in the commencement of the provision of Temporary Heat during a season that is later than that which may have been originally anticipated. The Contractor shall include in its Total Contract Price all expenses in connection with the provision of Temporary Heat in accordance with the requirements specified herein.
- 2. The total Contract duration is set forth in consecutive calendar days in Schedule A of the Addendum. The Table set forth below indicates the number of full heating seasons that are deemed included in various contract durations, which are specified in consecutive calendar days (ccds). At a minimum, a full heating season shall extend from October 15<sup>th</sup> to April 15<sup>th</sup>.

Contract Duration	Full Heating Seasons Required
up to 360 ccds	1 full heating season
360 to 720 ccds	2 full heating seasons
more than 720 ccds	3 full heating seasons

E. METHOD OF TEMPORARY HEAT:

- 1. The method of temporary heat shall be in conformance with the New York City Fire Code and with all applicable laws, rules and regulations. Prior to implementation, such method shall be subject to the written approval of the Commissioner.
- 2. The method of temporary heat shall:
  - a. Not cause the deposition of dirt or smudges upon any finished work or cause any defacement or discoloration to the finished work.
  - b. Not be injurious or harmful to people or materials.



- c. Portable fueled heating devices or equipment SHALL NOT BE ALLOWED for use as temporary heat other than construction-related curing or drying in conformance with the NYC Fire Code.
  3. No open fires will be permitted.
- F. TEMPORARY HEATING SYSTEM:
1. The temporary system for the provision of Temporary Heat provided by the Contractor following enclosure of the building shall be complete including, subject to provisions of paragraph E above, boilers pumps, radiators, space heaters, water and heating piping, insulation and controls. The temporary system for the provision of Temporary Heat shall be capable of maintaining the minimum temperature requirements set forth in Paragraph C above.
- G. COORDINATION:
1. The Contractor, in the provision of Temporary Heat, shall coordinate its operations in order to insure sufficient and timely performance of all required work, including work performed by trade subcontractors. The Contractor shall supply and pay for all water required and used in the building for the operation of the heating system(s) for the purpose of Temporary Heat. The Contractor shall include all expenses in connection with the supply of water for Temporary Heat in its Total Contract Price. During the period in which Temporary Heat in an enclosed building is being furnished and maintained, the Contractor shall provide proper ventilating and drying, open and close the windows and other openings when necessary for the proper execution of the work and also when directed by DDC. The Contractor shall maintain all permanent or temporary enclosures at its own expense.
- H. USE OF PERMANENT HEATING SYSTEMS:
1. Use of Permanent Heating System for Temporary Heat after Building Enclosure
    - a. The Contractor shall provide all labor and materials to promptly furnish and set all required equipment and convectors and/or radiators, piping, valves, fitting, etc., in ample time for their use for the provision of Temporary Heat after enclosure of the building.
    - b. New portions of the permanent heating system that are used for furnishing Temporary Heat shall be left in near perfect condition when delivered to the City for operation. Any repairs required, other than for ordinary wear and tear on the equipment, shall be made by the Contractor at his/her expense. The starting date for the warranty or guarantee period for such equipment shall be the date of Substantial Completion acceptance.
    - c. In the event that the Contractor does not advance the installation of the permanent heating system in sufficient time to permit its use for Temporary Heat as determined by DDC, the Contractor shall furnish and install a separate system for the provision of Temporary Heat as required to maintain the minimum temperature requirements set forth in Paragraph C above.
  2. All equipment for the system for the provision of Temporary Heat shall be placed so as to comply with the requirements specified hereinbefore, and shall be connected, disconnected and suitably supported and located so as to permit construction work, including finish work such as wall plastering and painting, to proceed. The installation of the system for the provision of Temporary Heat by the Contractor, including the placing of ancillary system equipment, shall be coordinated with the operations of all trade subcontractors so as to insure sufficient and timely performance of the work. Once the permanent heating system is operating properly, the Contractor shall remove all portions of the system for Temporary Heat not part of the permanent heating system.
  3. Temporary Heat Allowance for Special Conditions or and/or Unforeseen Circumstances.
    - a. The City may establish an allowance in the Contract for payment of costs and expenses in connection with the provision of Temporary Heat as set forth herein. If established, the City will include an amount for such allowance on the Bid Form, and the Contractor shall



include such allowance amount in its Total Contract Price. The Contractor shall only be entitled to payment from this allowance under the conditions and in accordance with the requirements set forth below. In the event this allowance or any portion thereof remains unexpended at the conclusion of the Contract, such allowance shall remain the sole property of the City. Should the amount of the allowance be insufficient to provide payment for the expenses specified below, the City will increase the amount of the allowance.

- b. The allowance set forth herein may be utilized only under the conditions set forth below.
  1. In the event the Project does not involve the installation of a new permanent heating system if one did not exist previously, or the replacement, modification and/or shut down of the existing permanent heating system, or any key component thereof, and the Commissioner determines that the provision of Temporary Heat is necessary due to special and/or unforeseen circumstances, the Contractor shall be responsible for the provision of Temporary Heat, as directed by the Commissioner. The City shall pay such Contractor for all costs for labor, material, and equipment necessary and required for the same. Payment shall be made in accordance with Article 26 of the Contract, except that the cost of fuel shall be as set forth in Paragraph (c) below.
  2. In the event the Commissioner determines that there is a need for maintenance of the permanent heating system by the Contractor after written acceptance by the Commissioner of the work, and that the need for such maintenance is not the fault of the Contractor, the Contractor shall provide the required maintenance of the permanent heating system for the period of time directed by the Commissioner. The City shall pay the Contractor for the cost of direct labor and fuel necessary and required in connection with such maintenance, excluding the cost of any foremen or other supervision. Payment shall be made in accordance with Article 26 of the Contract, except that the cost of fuel shall be as set forth in Paragraph (c) below.
- c. Payment for Fuel Costs - Payment from the allowance set forth herein for the cost of fuel necessary and required to operate the system for the provision of Temporary Heat or to maintain the permanent heating system under the conditions set forth in Paragraph b above shall be limited to the direct cost of such fuel. The Contractor shall not be entitled to any overhead and/or profit for such fuel costs. In order to receive payment for such fuel costs, the Contractor must present original invoices for the same. DDC reserves the right to furnish the required fuel.

I. RELATED ELECTRICAL WORK:

1. The Contractor shall be responsible for providing the items set forth below and shall include all expenses in connection with such items in its Total Contract Price. The Contractor shall provide such items promptly when required and shall in all respects coordinate its work with the work performed by trade subcontractors in order to facilitate the provision of Temporary Heat.
  - a. The Contractor shall provide all labor, materials, equipment and power necessary and required to furnish and maintain any temporary or permanent electrical connections to all equipment specified to be connected as part of the work of his Contract.
  - b. The Contractor shall supply and pay for all power necessary and required for the operation of the system for the provision of Temporary Heat and/or the permanent heating system used for Temporary Heat. Such power shall be provided by the Contractor for the duration the Contractor is required to provide Temporary Heat, as set forth in Sub-Section 3.5 D herein.
2. In providing the items set forth in Paragraph 1 above, the Contractor is advised that labor may be required seven (7) days a week and/or during other than normal working hours for the period of time required by seasonal weather conditions.



**J. RELATED PLUMBING WORK:**

1. The Contractor shall be responsible for providing all labor, materials and equipment necessary and required to furnish and maintain all temporary or permanent connections to all equipment or plumbing outlets specified to be provided as part of the work of this Contract. The Contractor shall include all expenses in connection with such items of work in its Total Contract Price. The Contractor shall provide such items of work promptly when required and shall in all respects coordinate its work with the work performed by trade subcontractors in order to facilitate the provision of Temporary Heat.
2. In the event portions of the permanent plumbing equipment furnished by the Contractor as part of the work of this Contract are used for the provision of Temporary Heat either during construction or prior to acceptance by the City of the complete plumbing system, the Contractor shall be responsible to provide such plumbing equipment to the City in near perfect condition and shall make any repairs required, other than for ordinary wear and tear on the equipment, at his expense. The starting date for warranty and/or guarantee period for such plumbing equipment shall be the date of Substantial Completion acceptance by the City.
3. For Projects requiring the installation of new and/or modified gas service, as well as associated meter installations, the Contractor shall promptly perform all required filings and coordination with the Utility Companies in order to expedite the installation, testing, and approval of the gas service and associated meter(s).

**3.6 STORM WATER CONTROL, DEWATERING FACILITIES AND DRAINS:**

**A. PUMPING:**

1. Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of storm water from heavy rainfall.
2. Contractor shall furnish and install all necessary automatically operated pumps of adequate capacity with all required piping to run-off agencies, so as to maintain the excavation, cellar floor, pits and exterior depressions and excavations free from accumulated water during the entire period of construction and up to the date of final acceptance of work of the Contract.
3. All pumps shall be maintained at all times in proper working order.
4. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties nor endanger permanent Work or temporary facilities.
5. Remove snow and ice as required to minimize accumulations.

**3.7 TEMPORARY FIELD OFFICE FOR CONTRACTOR:**

- A. The Contractor shall establish a temporary field office for its own use at the site during the period of construction, at which readily accessible copies of all Contract Documents shall be kept.
- B. The field office shall be located where it will not interfere with the progress of any part of the work or with visibility of traffic control devices.
- C. **CONTRACTOR'S REPRESENTATIVE:** In charge of the office there shall be a responsible and competent representative of the Contractor, duly authorized to receive orders and directions and to put them into effect.
- D. Arrangements shall be made by the Contractor whereby its representative may be readily accessible by telephone.
- E. All temporary structures shall be of substantial construction and neat appearance, and shall be painted a uniform gray unless otherwise directed by the Commissioner.
- F. **CONTRACTOR'S SIGN** - The Contractor shall post and keep posted, on the outside of its field office, office or exterior fence or wall at site of work, a legible sign giving full name of the company, address of the company and telephone number(s) of responsible representative(s) of the firm who can be reached in event of an emergency at any time.



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- G. **ADVERTISING PRIVILEGES** - The City reserves the right to all advertising privileges. The Contractor shall not cause any signs of any kind to be displayed at the site unless specifically required herein or authorized by the Commissioner.

**3.8 DDC FIELD OFFICE:**

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.8 A**

**A. OFFICE SPACE IN EXISTING BUILDING:**

1. The Resident Engineer will arrange for office space for sole use in the building where work is in progress. The Contractor shall provide and install a lockset for the door to secure the equipment in the room. The Contractor shall provide two (2) keys to the Resident Engineer. After completion of the project the Contractor shall replace the original lockset on the door and ensure its proper operation.
2. In addition to equipment specified in Sub-Section 3.8 D, the Contractor shall provide, for exclusive use of the DDC Field Office, the following:
  - a. Two (2) single pedestal desks, 42" x 32"; two (2) swivel chairs with arms and three (3) side chairs without arms to match desk. Two metal (2) lockers, single units, 15" x 18" x 78" overall including 6" legs. Lockers to have flat key locks with two (2) keys each, General Steel products or approved equal. Two (2) full ball bearing suspension four (4) drawer vertical legal filing cabinets with locks, approximately 52"H x 28 1/2"D x 18"W.
  - b. One (1) 9000 B.T.U air conditioner or as directed by Commissioner. Wiring for the air conditioner shall be minimum No. 12 AWG fed from individual circuits in the fuse box.
  - c. One (1) folding conference table, 96" x 30" and ten (10) folding chairs.
  - d. Two (2) metal wastebaskets.
  - e. One (1) fire extinguisher, one (1) quart vaporizing liquid type, brass, wall mounted by Pyrene No. C21 or approved equal.
  - f. One (1) Crystal Springs water cooler with bottled water, Model No. LP14058 or approved equal to be furnished for the duration of the project as required.
3. The Contractor shall provide one (1) telephone, where directed and shall pay all costs for telephone service for calls within the New York City limits for the duration of the project.
4. All furniture and equipment, except computer equipment specified in Sub-Section 3.8 D.3, shall remain the property of the Contractor.
5. Computer Workstation quantities shall be provided as specified in Sub-Section 3.8 B 3-a for DDC Managed Projects, or Sub-Section 3.8 B 3-b for CM Managed projects.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.8 B**

**B. DDC FIELD OFFICE TRAILER:**

1. **GENERAL:** The Contractor shall, for the time frame specified herein, provide and maintain at its own cost and expense a DDC Construction Field Office and all related items as specified herein [hereinafter collectively referred to as the "DDC Field Office"] for the exclusive use of the Resident Engineer. The DDC Field Office shall be located at the Project site and shall be solely dedicated to the Project. Provision of the DDC Field Office shall commence within THIRTY (30) days from Notice to proceed and shall continue through forty-five (45) days after Substantial Completion of the required construction at the Project site. The Contractor shall remove the DDC Field Office forty-five (45) days after Substantial Completion of the required construction, or as otherwise directed in writing by the Commissioner.
2. **TRAILER:** The Contractor shall provide at its own cost and expense a mobile office trailer for use as the DDC Field Office. The Contractor shall install and connect all utility services to the





trailer within thirty (30) days from Notice to Proceed. The trailer shall have equipment in compliance with the minimum requirements hereinafter specified. Any permits and fees required for the installation and use of said trailer shall be borne by the Contractor. The trailer including furniture and equipment therein, except computer equipment specified in Sub-Section 3.8D.3 herein, shall remain the property of the Contractor.

- 3. Trailer shall be an office type trailer of the size specified herein, with exterior stairs at entrance. Trailer construction shall be minimum 2 x 4 wall construction fully insulated with paneled interior walls, pre-finished gypsum board ceilings and vinyl tile floors.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.8.B.3a or  
SUB-SECTION 3.8.B.3b.**

- a. DDC Managed Project Trailer: DDC Field Office Trailer Size, Layout and Computer Workstation:
  - 1) Overall length: 32 Feet  
Overall width: 10 Feet
  - 2) Interior Layout:  
Provide one (1) general office/conference room area and one (1) private office at one end of the trailer. Provide equipment and amenities as specified in Sub-Section 3.8.B herein.
  - 3) Computer Workstation: Provide one (1) complete computer workstation, as specified in Sub-Section 3.8.D herein, in the private office area as directed by the Resident Engineer.
  
- b. CM Managed Project Trailer: DDC Field Office Trailer Size, Layout and Computer Workstation:
  - 1) Overall length: 50 Feet  
Overall width: 10 Feet
  - 2) Interior Layout:  
Provide one (1) large general office/conference room in the center of the trailer and two (2) private offices, one (1) each at either end of the trailer. Provide equipment and amenities as specified in Sub-Section 3.8.B herein.
  - 3) Computer Workstation:  
Provide three (3) complete computer workstations as specified in Sub-Section 3.8.D herein. Provide one (1) each complete computer workstation in each private office and one (1) complete computer workstation at the secretarial position as directed by the Resident Engineer.

- 4. The exterior of the trailer shall be lettered with black block lettering of the following heights with white borders:

CITY OF NEW YORK	2-1/2"
DEPARTMENT OF DESIGN AND CONSTRUCTION	3-3/4"
DIVISION OF PUBLIC BUILDINGS	3-1/2"
DDC FEILD OFFICE	2-1/2"

NOTE: In lieu of painting letters on trailer the Contractor may substitute a sign constructed of a good quality weatherproof material with the same type and size of lettering above.

- 5. All windows and doors shall have aluminum insect screens. Provide wire mesh protective guards at all windows.
- 6. The interior shall be divided by partitions into general and private office areas as specified herein. Provide a washroom located adjacent to the private office and a built-in wardrobe closet opposite the washroom. Provide a built-in desk in the private office(s) with fixed overhead shelf and clearance below for two (2) file cabinets.



7. Provide a built-in drafting or reference table, located in the general office/conference room, at least 60 inches long by 36 inches wide with cabinet below and wall type plan rack at least 42 inches wide.
8. The washroom shall be equipped with a flush toilet, wash basin with two (2) faucets, medicine cabinet, complete with supplies and a toilet roll tissue holder. Plumbing and fixtures shall be approved house type, with each appliance trapped and vented and a single discharge connection. Five (5) gallon capacity automatic electric heater for domestic hot water shall be furnished.
9. HVAC: The trailer shall be equipped with central heating and cooling adequate to maintain a temperature of 72 degrees during the heating season and 75 degrees during the cooling season when the outside temperature is 5 degrees F. winter and 89 degrees F. summer.
10. Lighting shall be provided via ceiling mounted fluorescent lighting fixtures to a minimum level of 50 foot candles in the open and private office(s) along with sufficient lighting in the washroom. Broken and burned out lamps shall be replaced by the Contractor. A minimum of four (4) duplex convenience outlets shall be provided in the open office and two (2) each in the private office(s). These outlets shall be in addition to special outlet requirements for computer stations, copiers, HVAC unit, etc.
11. Electrical service switch and panel shall be adequately sized for the entire trailer load. Provide dedicated circuits for HVAC units, hot water heater, copiers and other equipment as required. All wiring and installation shall conform to the New York City Electrical Code.
12. The following movable equipment shall be furnished:
  - a. Two (2) single pedestal desks, 42" x 32"; two (2) swivel chairs with arms and three (3) side chairs without arms to match desk. Two (2) full ball bearing suspension four (4) drawer vertical legal filing cabinets with locks and two (2) full ball bearing two (2) drawer vertical legal filing cabinets in each private office located below built-in desk.
  - b. One (1) folding conference table, 96" x 30" and ten (10) folding chairs.
  - c. Three (3) metal wastebaskets.
  - d. One (1) fire extinguisher one (1) quart vaporizing liquid type, brass, wall mounted by Pyrene No. C21 or approved equal.
  - e. One (1) Crystal Springs water cooler with bottled water, Model No. LP14058 or approved equal to be furnished for the duration of the Contract as required.
13. TRAILER TEMPORARY SERVICE: Plumbing and electrical work required for the trailer will be furnished and maintained as below.
  - a. PLUMBING WORK: The Contractor shall provide temporary water and drainage service connections to the DDC Field Office trailer for a complete installation. Provide all necessary soil, waste, vent and drainage piping.

Contractor to frost-proof all water pipes to prevent freezing.

    - 1) REPAIRS, MAINTENANCE: The Contractor shall provide repairs for the duration of the project until the trailer is removed from the site.
    - 2) DISPOSITION OF PLUMBING WORK: At the expiration of the time limit set forth in Article 3.8 A.14(c).4 herein, the temporary water and drainage connections and piping to the DDC Field Office trailer shall be removed by the Contractor and shall be plugged at the mains. All piping shall become the property of the Contractor for Plumbing Work and shall be removed from the site, all as directed. All repair work due to these removals shall be the responsibility of the Contractor.
  - b. ELECTRICAL WORK:
    - 1) The Contractor shall furnish, install and maintain a temporary electric feeder to the DDC Field Office trailer immediately after it is placed at the job site.
    - 2) The temporary electrical feeder and service switch/fuse shall be adequately sized based on the trailer load and installed per the New York City Electrical Code and complying with utility requirements.



- 3) Make all arrangements and pay all costs to provide electric service.
- 4) The Contractor shall pay all costs for current consumed and for maintenance of the system in operating condition, including the furnishing of the necessary bulb replacements lamps, etc., for the duration of the project and for a period of forty-five (45) days after the date of Substantial Completion.
- 5) Disposition of Electric Work: At the expiration of the time limit set forth, the temporary feeder, safety switch, etc., shall be removed and disposed of as directed.
- 6) All repair work due to these removals shall be the responsibility of the Contractor.

c. MAINTENANCE

- 1) The Contractor shall provide and pay all costs for regular weekly janitor service and furnish toilet paper, sanitary seat covers, cloth towels and soap and maintain the DDC Field Office in first-class condition, including all repairs, until the trailer is removed from the site.
- 2) Supplies: The Contractor shall be responsible for providing (a) all office supplies, including without limitation, pens, pencils, stationery, filtered drinking water and sanitary supplies, and (b) all supplies in connection with required computers and printers, including without limitation, an adequate supply of blank CD's/DVD's, storage boxes for blank CDs/DVDs, and paper and toner cartridges for the printer.
- 3) Risk of Loss: The entire risk of loss with respect to the DDC Field Office and equipment shall remain solely and completely with the Contractor. The Contractor shall be responsible for the cost of any insurance coverage determined by the Contractor to be necessary for the Field Office.
- 4) At forty-five (45) days after the date of Substantial Completion, or sooner as directed by the Commissioner, the Contractors shall have all services disconnected and capped to the satisfaction of the Commissioner. All repair work due to these removals shall be the responsibility of the Contractor.

d. TELEPHONE SERVICE: The Contractor shall provide and pay all costs for the following telephone services for the DDC Field Office trailer:

- 1) Separate telephone lines for one (1) desk phone in each private office.
- 2) One (1) wall phone (with six (6) foot extension cord) at plan table.
- 3) Separate telephone lines for the fax machine and internet access in each private office. Telephone service shall include voice mail.
- 4) A remote bell located on outside of trailer
- 5) The telephone service shall continue until the trailer is removed from the site.

e. PERMITS: The Contractor shall make the necessary arrangements and obtain all permits and pay all fees required for this work.

- C. RENTED SPACE: The Contractor has the option of providing, at its cost and expense, rented office or store space in lieu of trailer. Said space shall be in the immediate area of the Project and have adequate plumbing, heating and electrical facilities. Space chosen by the Contractor for the DDC Field Office must be approved by the Commissioner before the area is rented. All insurance, maintenance and equipment, including computer workstations specified in Sub-Section 3.8 D in quantities required as specified in Sub-Section 3.8 B 3 for the DDC Field Office trailer, shall also apply to rented spaces.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.8 D**

D. ADDITIONAL EQUIPMENT FOR THE DDC FIELD OFFICE:

1. The Contractor shall provide a high volume copy machine (50 copies per minute) for paper sizes 8½ x 11, 8½ x 14 & 11 x 17. Copier shall remain at job site until the DDC Field office trailer is removed from the site.



2. The Contractor shall furnish a fax machine and a telephone answering machine at commencement of the project for the exclusive use of the DDC Field Office. All materials shall be new, sealed in manufacturer's original packaging and shall have manufacturers' warranties. All items shall remain the property of the City of New York at the completion of the project.
3. **COMPUTER WORKSTATION:** The Contractor shall provide a complete computer workstation as specified herein:
  - a. **Hardware/Software Specification:**
    - 1) **Computer Equipment** - Computers shall be provided for all contracts that have a Total Consecutive Calendar Days for construction duration as set forth in Schedule "A" of 180 CCD's or greater. Contracts of lesser duration shall not require computers.
    - 2) Computers furnished by the Contractor for use by City Personnel, for the duration of the contract, shall be in accordance with Specific Requirements, contained herein, shall remain the property of the City of New York at the completion of the project and shall meet the following minimum requirements:
    - 3) **Personal Computer(s) – Each Workstation Configuration.**
      - a) **Make and Model:** Dell; HP; Gateway; Acer; or, an approved equivalent. (Note: an approved equivalent requires written approval of the Assistant Commissioner of ITS.)
      - b) **Processor:** i5-2400 (6MB Cache, 3.1GHz) or faster computer - Single Processor.
      - c) **System RAM:** Minimum of 4GB (Gigabytes) Dual Channel DDR3 SDRAM at 1333MHz – 2 DIMMSs
      - d) **Hard Disk Drive(s):** 500 GB (Gigabytes) Serial ATA (7200RPM) w/DataBurst Cache, or larger.
      - e) **CD-RW:** Internal CD-RW, 48x Speed or faster.
      - f) **16xDVD+/-RW** DVD Burner (with double layer write capability) 16x Speed or faster
      - g) **I/O Ports:** Must have at least one (1) Serial Port, one (1) Parallel Port, and three (3) USB Ports.
      - h) **Video Display Card:** HD Graphics (VGA, HDMI) with a minimum of 64 MB of RAM.
      - i) **Monitor:** 22" W, 23.0 Inch VIS, Widescreen, VGA/DVI LCD Monitor.
      - j) **Available Exp. Slots:** System as configured above shall have at least two (2) full size PCI Slots available.
      - k) **Network Interface:** Integrated 10/100/1000 Ethernet card.
      - l) **Other Peripherals:** Optical scroll Mouse, 101 Key Keyboard, Mouse Pad and all necessary cables.
      - m) **Software Requirement:** Microsoft Windows 7 Professional SP1, 32 bit; Microsoft Office Professional 2010 or 2013; Microsoft Project 2010; Adobe Acrobat reader; Anti-Virus software package with 2 year updates subscription; and, either Auto Cad LT or Microsoft



Visio Standard Edition, as directed by the Resident Engineer.

- 4) DDC Field Office Specs: DDC Field Offices requiring computers shall be provided with the following:
  - a) One (1) broad-band internet service account. Wideband Internet connectivity at a minimum throughput of 15 Mbps download and 5 Mbps upload is required at each field office location with 1-5 staffers. For larger field offices see table below for minimum required upload speeds. Telephone service should be bundled together with Internet connectivity. Because of throughput requirements Verizon FIOS is the preferred connectivity provider where available.

Office Personnel #	Upload Speeds (Minimum)
1 – 5	5 Mbps
6 – 10	10 Mbps
11 – 15	15 Mbps
16 – 20 ...	20 Mbps

This account will be active for the life of the project. The e-mail name for the account shall be the DDC Field Office/project Id (e.g. FLD K HWK666 McGuinness@earthlink.com).

- b) One (1) 600 DPI HP Laser Jet Printer (twelve (12) pages per minute or faster) with one (1) Extra Paper (Legal Size)
  - c) All necessary cabling for equipment specified herein.
  - d) Storage Boxes for Blank CD's
  - e) Printer Table
  - f) UPS/Surge Suppressor combo
- 5) All computers required for use in the Engineer's Field Office shall be delivered, installed, and setup in the Field Office by the Contractor.
  - 6) All Computer Hardware shall come with a three (3) year warranty for on-site repair or replacement. Additionally, and notwithstanding any terms of the warranty to the contrary, the Contractor is responsible for rectifying all computer problems or equipment failures within one (1) business day.
  - 7) An adequate supply of blank CDs/DVDs, and paper and toner cartridges for the printer shall be provided by the Contractor, and shall be replenished by the Contractor as required by the Resident Engineer.
  - 8) It is the Contractor's responsibility to ensure that electrical service and phone connections are also available at all times; that is, the Field Office Computer(s) is to be powered and turned on twenty-four (24) hours each day.
  - 9) Broadband connectivity is preferred at each field office location. Please take into consideration that an extra phone line dedicated to the modem must be ordered as part of the contract unless Internet broadband connectivity, via Cable or DSL, is available at the planned field office location. Any questions regarding this policy should be directed to the Assistant Commissioner of Information Technology Services at 718-391-1761.
  - 10) Ownership: The equipment specified above shall, unless otherwise directed by the Commissioner, be the sole property of the City of New York upon delivery to the DDC Field Office. The Contractor shall prepare and maintain an accurate inventory of all equipment which it purchases for the DDC Field Office. Such inventory shall be provided to the City of New York. Upon completion of the



required services, as directed by the Commissioner, the Contractor shall turn such equipment over to the City of New York.

**E. HEAD PROTECTION (HARD HATS):**

1. The Contractor shall provide a minimum of 10 standard protective helmets for the exclusive use of Department of Design and Construction personnel and their visitors. Helmets shall be turned over to the Resident Engineer and kept in the DDC Field Office.
2. Upon completion of the project, the helmets shall become the property of the Contractor.

**3.9 MATERIAL SHEDS:**

- A. Material sheds used by the Contractor for the storage of its materials shall be kept at locations which will not interfere at any time with the progress of any part of the work or with visibility of traffic control devices.
- B. Store combustible materials apart from the facility.

**3.10 TEMPORARY ENCLOSURES:**

- A. Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weather tight enclosure for building exterior.
- B. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.

**3.11 TEMPORARY PARTITIONS:**

- A. Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate occupied tenant areas from fumes and noise.
  1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire-retardant plywood on construction operations side.
  2. Construct dustproof partitions with 2 layers of 3-mil (0.07-mm) polyethylene sheet on each side. Cover floor with 2 layers of 3-mil (0.07-mm) polyethylene sheet, extending sheets 18 inches (460 mm) up the sidewalls. Overlap and tape full length of joints. Cover floor with fire-retardant plywood.
    - a. Construct vestibule and airlock at each entrance through temporary partition with not less than 48 inches (1219 mm) between doors. Maintain water-dampened foot mats in vestibule.
  3. Insulate partitions to provide noise protection to occupied areas.
  4. Seal joints and perimeter. Equip partitions with dustproof doors and security locks.
  5. Protect air-handling equipment.
  6. Weather strip openings.
  7. Provide walk-off mats at each entrance through temporary partition.

**3.12 TEMPORARY FIRE PROTECTION:**

- A. Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
- B. Prohibit smoking in all areas.
- C. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.



- D. Develop and supervise an overall fire-prevention and protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
- E. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.13**

**3.13 WORK FENCE ENCLOSURE:**

- A. The Contractor shall furnish, erect and maintain a wood construction or chain-link fence to the extent shown on the drawings or required by the work enclosing the entire project on all sides. All materials used shall be new. Any permit required for the installation and use of said fence and costs shall be borne by the Contractor.
- B. WOOD FENCE shall be 7'-0" high with framing construction of yellow pine, using 4" x 4" approved preservative-treated posts on not more than 6'-0" centers, with three (3) rails of at least 2" x 4" size to which shall be secured minimum 1/2 inch thick exterior grade plywood. Posts shall be firmly fixed in the ground at least 30" and thoroughly braced. Top edge of fence shall be trimmed with a rabbeted edge mould. Provide on the street traffic sides of fence, observation openings as directed.
  - 1. GATES - Provide an adequate number of double gates, complete with hardware, located as approved by the Resident Engineer. Double gates shall have a total clear opening of 14'-0" with two (2) 7'-0" hinged swinging sections. Hanging posts shall be 6" x 6" and shall extend high enough to receive and be provided with tension or sag rods for the swinging sections.
  - 2. PAINTING - The fence and gates shall be entirely painted on the street and public sides with one (1) coat of exterior primer and one (1) top coat of exterior grade acrylic-latex emulsion paint. Black stenciled signs reading "POST NO BILLS" shall be painted on fence with three (3) inch high letters on 25 foot spacing for the entire length of fence on street traffic sides. Signs shall be stenciled five (5) feet above the sidewalk.
- C. CHAIN-LINK FENCING shall be minimum 2-inch thick, galvanized steel, chain-link fabric fencing; 8 feet high with galvanized steel pipe posts; minimum 2-3/8-inch OD line posts and 2-7/8-inch OD corner and pull posts, with 1-5/8-inch OD top and bottom rails. Fence shall be accurately aligned and plumb, adequately braced and complete with gates, locks and hardware as required. Under no condition shall fencing be attached or anchored to existing construction or trees.
- D.
  - 1. It shall be the obligation of the Contractor to remove all posters, advertising signs, and markings, etc., immediately.
  - 2. Should the fencing be required to be relocated during the course of the Contract, it shall be done by the Contractor at no additional cost to the City.
  - 3. Where sidewalks are used for "drive over" purposes for Contractor vehicles, a suitable wood mat or pad shall be provided for protection of sidewalks and curbs.
  - 4. Where required, make provision for fire hydrants, lampposts, etc.
  - 5. REMOVAL - When directed by the Resident Engineer, the fence shall be removed.

**3.14 RODENT AND INSECT CONTROL:**

- A. DESCRIPTION: The Contractor shall provide all labor, materials, plant and equipment, and incidentals required to survey and monitor rodent activity and to control any infestation or outbreak of rodents, rats, mice, water beetles, roaches and fleas within the project area. Special attention should be paid to the following conditions or areas:



1. Wet areas within the project area, including all temporary structures.
2. All exterior and interior temporary toilet structures within the project area.
3. All Field Offices and shanties within the project area of all subcontractors and DDC.
4. Wherever there is evidence of food waste and/or discarded food or drink containers, in quantity, that would cause breeding of rodents or the insects herein specified.
5. Any other portion of the premises requiring such special attention.

**B. MATERIALS:**

1. All materials shall be approved by the New York State Department of Environmental Conservation and comply with the New York City Health Code, OSHA and the laws, ordinances and regulations of State and Federal agencies pertaining to such chemical and/or materials.

**C. PERSONNEL:**

1. All pest control personnel must be supervised by an exterminator licensed in categories 7A and 8.

**D. METHODS:**

1. Application and dosage of all materials shall be done in strict compliance with the manufacturer's recommendations.
2. Any unsanitary conditions, such as uncollected garbage or debris, resulting from all Contractor's activities, which will provide food and shelter to the resident rodent population shall be corrected by the Contractor immediately after notification of such condition by the Resident Engineer.

**E. RODENT CONTROL WORK:**

1. In wetlands, woodlands and areas adjacent to a stream, special precautions must be taken to protect water quality and to ensure the safety of other wildlife. To prevent poisoned bait from entering streams, no poisoned bait shall be used in areas within seventy-five (75) feet of all stream banks. Live traps must be used in these seventy-five (75) foot buffer zone areas and within wetland and woodland areas.
2. In areas outside the seventy-five (75) foot zone of protection adjacent to streams, and in areas outside wetlands and woodlands, tamper proof bait stations with poisoned bait shall be placed during the period of construction and any consumed or decomposed bait shall be replenished as directed.
3. At least one month prior to initiation of the construction work, and periodically thereafter, live traps and/or rodenticide bait in tamper proof bait stations, as directed above, shall be placed at locations that are inaccessible to pets, human beings, children and other non-target species, particularly wildlife (for example-birds) in the project area.
4. The Contractor shall be responsible for collecting and disposing of all trapped and poisoned rodents found in live traps and tamper proof bait stations. The Contractor shall also be responsible for posting and maintaining signs announcing the baiting of each particular location.  
The Contractor shall be responsible for the immediate collection and disposal of any visible rodent remains found on streets or sidewalks within the project area.
5. It is anticipated that public complaints will be addressed to the Commissioner. The Contractor, where directed by the Commissioner, shall take appropriate actions, like baiting, trapping, proofing, etc., to remedy the source of complaint within the next six (6) hours of normal working time which is defined herein for the purposes of this section as 7 A.M. to 6 P.M. on Mondays through Saturdays.
6. Emergency service during the regular workday hours (Monday through Friday) shall be rendered within 24 hours, if requested by the Commissioner, at no additional cost to the City.





F. EDUCATION & NOTICES:

1. The Contractor shall post notices on all Construction Bulletin Boards advising workers, employees, and residents to call the Engineer's Field Office to report any infestation or outbreak of rodents, rats, mice, water beetles, roaches and fleas within the project area. The Contractor shall provide and distribute literature pertaining to IPM techniques of rodent control to affected businesses and superintendents of nearby residential buildings to ensure their participation in maintaining their establishments free of unsanitary conditions, harborage removal and rodent proofing.
2. Prior to application of any chemicals, the Contractor shall furnish to the Commissioner copies or sample labels for each pesticide, antidote information, and Material Data Safety Sheets (MSDS) for each chemical used.

G. RECORDS

1. The Contractor shall keep a record of all rodent and waterbug infestation surveys conducted by him/her and make available, upon request, to the Commissioner. The findings of each survey shall include, but not be limited to, recommended Integrated Pest Management (IPM) techniques, like baiting, trapping, proofing, etc., proposed for rodent and waterbug pest control.
2. The Contractor shall maintain records of all locations baited along with the type and quantity of rodenticide and insecticide bait used.

**3.15 PLANT PEST CONTROL REQUIREMENTS and TREE PROTECTION REQUIREMENTS:**

- A. Plant Pest Control Requirements: The Contractor and its subcontractors, including the Certified Arborist described below, shall comply with all Federal and New York State laws and regulations concerning Asian Longhorned Beetle (ALB) management, including protocols for ALB eradication and containment promulgated by the New York State Department of Agriculture and Markets (NYSDAM). The Contractor is referred to: (1) Part 139 of Title 1 NYCRR, Agriculture and Markets Law, Sections 18, 164 and 167, as amended, and (2) State Administrative Procedure Act, Section 202, as amended.
1. All tree work performed within the quarantine areas must be performed by New York State Department of Agriculture and Markets (NYSDAM) certified entities. Transportation of all host material, living, dead, cut or fallen, inclusive of nursery stock, logs, green lumber, stumps, roots, branches and debris of a half inch or more in diameter from the quarantine areas is prohibited unless the Contractor or its sub-contractor performing tree work has entered into a compliance agreement with NYSDAM. The terms of said compliance agreement shall be strictly complied with. Any host material so removed shall be delivered to a facility approved by NYSDAM. For the purpose of this contract host material shall be ALL species of trees.
  2. Any host material that is infested with the Asian Longhorned Beetle must be immediately reported to NYSDAM for inspection and subsequent removal by either State or City contracts, at no cost to the Contractor.
  3. Prior to commencement of tree work, the Contractor shall submit to the Commissioner a copy of a valid Asian Longhorned Beetle compliance agreement entered into with NYSDAM and the Contractor or its sub-contractor performing tree work. If any host material is transported from the quarantine area the Contractor shall immediately provide the Commissioner with a copy of the New York State 'Statement of Origin and Disposition' and a copy of the receipt issued by the NYSDAM approved facility to which the host materials are transported.
  4. Quarantine areas, for the purpose of this contract shall be defined as all five boroughs of the City of New York. In addition, prior to the start of any tree work, the Contractor shall contact the



NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

NYC Department of Parks & Recreation's Director of Landscape Management at (718) 699-6724, to determine the limits of any additional quarantine areas that may be in effect at the time when tree work is to be performed. The quarantine area may be expanded by Federal and State authorities at any time and the Contractor is required to abide by any revisions to the quarantine legislation while working on this contract. For further information please contact: NYSDAM (631) 288-1751.

- B. Tree Protection Requirements: The Contractor shall retain a Certified Arborist, as defined by New York City Department of Parks and Recreation (NYCDPR) regulations, to provide the services described below.
1. Surveys and Reports: The Certified Arborist shall, at the times indicated below, conduct a survey and prepare a plant material assessment report which includes: (1) identification, by species and pertinent measurements, of all plant material located on the project site, or in proximity to the project site, as described below, including all trees, significant shrubs and/or planting masses; (2) identification and plan for the containment of plant pests and pathogens, including the ALB, as described in paragraph A above; (3) evaluation of the general health and condition of any infected plant material.
  2. Frequency of Reports: The Certified Arborist shall conduct a survey and provide a plant material assessment report at two (2) points in time: (1) prior to the commencement of construction work; and (2) at the time of substantial completion. In addition, for projects exceeding 24 months in duration, the Certified Arborist shall conduct a survey and prepare a report at the midpoint of construction. Copies of each plant material assessment report shall be submitted to the Resident Engineer within two (2) weeks of the survey.
  3. Proximity to Project Site: Off-site trees, significant shrubs and/or planting masses shall be considered to be located in proximity to the project site under the circumstances described below.
    - a. The tree trunk, significant shrub, or primary cluster of stems in a planting mass is within 50 (fifty) feet of the project's Contract Limit Lines (CLLs) or Property Lines (PLs).
    - b. Any part of the tree or shrub stands within 50 (fifty) feet of: (a) a path for site access for vehicles and/or construction equipment; or (b) scaffolding to be erected for construction activity, including façade remediation projects.
    - c. The Certified Arborist determines that the critical root zone (CRZ) of an off-site tree, significant shrub, or primary cluster of stems in a planting mass extends into the project site, whether or not that plant material is located within the 50-foot inclusionary perimeter as outlined above.
  4. Tree Protection Plan: The Certified Arborist shall prepare, and the Contractor shall implement, a Tree Protection Plan, for all trees that may be affected by any construction work, excavation or demolition activities, including without limitation, (1) on-site trees, (2) street trees, as defined below, (3) trees under NYCDPR jurisdiction as determined by the Department of Transportation, and (4) all trees that are located in proximity to the project site, as defined above. The Tree Protection Plan shall comply with the NYC DPR rules, regulations and specifications. The Contractor is referred to Chapter 5 of Title 56 of the Official Compilation of the Rules of the City of New York. Copies of the Tree Protection Plan shall be submitted to the Resident Engineer prior to the commencement of construction. Implementation of the Tree Protection Plan for street trees and trees under NYCDPR jurisdiction shall be in addition to any tree protection requirements specified or required for the project site. For the purpose of this article, a "street tree" means the following: (1) a tree that stands in a sidewalk, whether paved or unpaved, between the curb lines or lateral lines of a roadway and the adjacent property lines



of the project site, or (2) a tree that stands in a sidewalk and is located within 50 feet of the intersection of the project's site's property line with the street frontage property line.

- C. No Separate Payment. No separate payment shall be made for compliance with Plant Pest Control Requirements or Tree Protection Requirements. The cost of compliance with Plant Pest Control Requirements and Tree Protection Requirements shall be deemed included in the Contractor's bid for the Project.

### 3.16 PROJECT IDENTIFICATION SIGNAGE:

- A. The Contractor shall provide, install and maintain Project identification and other signs where indicated to inform public and individuals seeking entrance to the Project.
- B. In order to properly convey notice to persons entering upon a City construction site, the Contractor shall furnish and install a sign at the entrance (gates) as follows:

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**NO TRESPASSING**

**AUTHORIZED PERSONNEL ONLY**

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- C. If no construction fence exists at the site, this notice shall be conveyed by incorporating the above language into safety materials (barriers, tape, and signs).
- D. Provide temporary, directional signs for construction personnel and visitors.
- E. Maintain and touch up signs so that they are legible at all times.

### 3.17 PROJECT CONSTRUCTION SIGN AND RENDERING:

- A. **PROJECT SIGN:**
- 1 **Responsibility:** The Contractor shall produce and install one (1) project sign which shall be posted and maintained upon the site of the project at a place and in a position directed by the Commissioner. The Contractor shall protect the sign from damage during the continuance of work under the Contract and shall do all patching of lettering, painting and bracing thereof necessary to maintain the sign in first class condition and in proper position. Prior to fabrication, the Contractor shall submit an 8-1/2" x 11" color match print proof from the sign manufacturer of the completed sign for approval by the Commissioner.
  - 2 **Sign Quality:** The Contractor shall provide all materials required for the production of the sign as specified herein. Workmanship shall be of the best quality, free from defects and shall be produced in a timely manner.
  - 3 **Schedule:** Upon project mobilization, the Contractor shall commence production and installation of the sign.
  - 4 **Removal:** At the completion of all work under the Contract, the Contractor shall remove and dispose of the project sign away from the site.
  - 5 **Sign construction:**
    - a. **Frame:** The frame shall be from quality dressed 2"x2" pine, fire retardant, pressure treated lumber, that surrounds the inside back edge of the sign. The sign shall have one (1) intermediate vertical and two (2) diagonal supports, glued and screwed for rigidity. Frame shall be painted white with two (2) coats of exterior enamel paint, prior to mounting of sign panel.
    - b. **Edging:** U-shaped, 22 gauge aluminum edging, with a white enameled finish to match sign



- background, shall run around entire edging of sign panel and frame. Corners shall be mitered for a tight fit. Channel dimensions shall be 1" inch (overlap to sign panel face) x 1 3/4" (or as required across frame depth) x 1" (back overlap).
- c. Sign Panel: 4' x 8' panel shall be constructed in one (1) piece of 14 gauge (.0785") 6061-T6 aluminum. This panel shall be pre-finished both sides with a glossy white baked-on enamel finish and be flush with edge of 2" x 2" wood frame. Samples must be submitted for approval.
  - d. Fastening: Fasten sign panel to wood frame using cadmium plated no. 8 sheet metal screws at 1/2" below edge of panel and 8" on center. The U-shaped aluminum channel shall be applied over the wood frame edge and fastened with cadmium plated no. 8 sheet metal screws at 12" on center around the entire perimeter.
- 6 Sign Graphics:
- a. A digital file of the project sign will be provided to the Contractor by the Commissioner's representative for printing. The Commissioner's representative shall insert the project name and names and titles of personnel (3 or more) and any other required information associated with the project. All signs may include a second panel for a project rendering as described in Sub-Section 3.17.B herein.
  - b. The digital file shall be reproduced at the Sign Panel size of 4' x 8' on 3M High Performance Vinyl or approved equal. The 3M High Performance Vinyl or equivalent shall be guaranteed for nine (9) years. Guarantee must cover fading, peeling, chipping or cracking. The sign manufacturer is required to maintain all specified Pantone Matching System (PMS) type and other composition elements represented in the digital file of the project sign.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.17 B**

**B. PROJECT RENDERING:**

1. Responsibility: In addition to the Project Sign, the Contractor shall furnish and install one (1) sign showing a rendering of the project. A digital file of the project rendering will be provided to the Contractor by the Commissioner's representative. From an approved image file provided by DDC, the Project Rendering is to be sized, printed, and mounted in an identical manner as described in Sub-Section 3.17.A above for the Project Sign. A color match print proof from the sign manufacturer of the Rendering Sign printed from the supplied file is to be submitted to DDC for approval before fabrication. The Rendering Sign is to be posted at the same height as the Project Sign. Where possible, the Rendering Sign shall be mounted with a perfect match of the short sides of the rectangle so that the Rendering Sign and the Project Sign together will create one long rectangle.
2. Removal: At the completion of all work under the Contract, the Contractor shall remove and dispose of the project rendering away from the site.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.18**

**3.18 SECURITY GUARDS/FIRE GUARDS ON SITE:**

**A. SECURITY GUARDS (WATCHMEN):**

1. The Contractor shall provide competent Security Guard Service on the site, beginning on the date on which the Contractor commences actual construction work, or on such earlier date on which there is activity at the site related to the work, including without limitation, delivery of



materials or construction set-up. The Contractor shall continue to provide such Security Guard Service until the date on which it completes all required work at the site, including all punch list work, as certified in writing by the Resident Engineer, or earlier if so directed in writing by the Commissioner. Throughout the specified time period, there shall be no less than one (1) Security Guard on duty every day, including Saturdays, Sunday and Holidays, 24 hours a day, except between the hours of 8:00 A.M. and 4:00 P.M. on any day which is a regular working day for a majority of the trade subcontractors. This exception during the working day shall not apply after the finishing painting of the plaster work is commenced; thereafter, not less than one (1) Security Guard shall be on duty continuously, 24 hours a day.

2. Every Security Guard shall be required to hold a "Certificate of Fitness" issued by the Fire Department. Every Security Guard shall, during his/her tour of duty, perform the duties of Fire Guard in addition to his/her security obligations.
  3. Should the Commissioner find that any Security Guard is unsatisfactory; such guard shall be replaced by the Contractor upon the written demand of the Commissioner.
  4. Each Security Guard furnished by the Contractor shall be instructed by the Contractor to include in his/her duties the entire construction site including the Field Office, temporary structures, and equipment, materials, etc.
  5. Should the Contractor or any other subcontractor consider the security requirements outlined above inadequate, the Contractor shall provide such additional security as it thinks necessary, after obtaining the written consent of the Commissioner. The additional cost of such approved increased protection will be paid by the Contractor.
  6. Nothing contained in this Sub-Section shall diminish in any way the responsibility of the Contractor and each subcontractor for its own work, materials, tools, equipment, nor for any of the other risks and obligations outlined hereinbefore in this Article.
- B. COSTS - The Contractor shall employ Security Guards/Fire Guards throughout the specified time period, except as otherwise modified by the detailed Specifications and as approved by the Commissioner, for the purpose of safeguarding and protecting the site. All costs for Security Guards/Fire Guards shall be borne by the Contractor.
- C. RESPONSIBILITY - The Contractor and its subcontractors will be responsible for safeguarding and protecting their own work, materials, tools and equipment.

### 3.19 SAFETY:

- A. The Contractor, in compliance with requirements of Section 01 35 26, SAFETY REQUIREMENTS PROCEDURES, shall provide and maintain all necessary temporary closures, guard rails, and barricades to adequately protect all workers and the public from possible injury. Any removal of these items, during the progress of the work, shall be replaced by the Contractor at no additional cost to the City.

END OF SECTION 01 50 00



NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

Division 01 – DDC STANDARD GENERAL CONDITION  
SINGLE CONTRACT PROJECTS  
Issue Date - June 01, 2013

No Text

TEMPORARY FACILITIES, SERVICES AND CONTROLS  
01 50 00 -28



**SECTION 01 54 11  
TEMPORARY ELEVATORS AND HOISTS**

**PART I - GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

**1.2 SUMMARY:**

- A. This section includes the following:
1. Temporary Use, Operation and Maintenance of Elevators during Construction
    - a. For New Buildings up to 15 Stories
    - b. For New Buildings over 15 Stories
    - c. For Existing Buildings
  2. Temporary Construction Hoists and Hoist ways (For Material and Personnel)

**1.3 RELATED SECTIONS:** include without limitation the following:

- A. Section 01 10 00 SUMMARY  
B. Section 01 42 00 REFERENCES  
C. Section 01 50 00 TEMPORARY FACILITIES AND CONTROLS  
D. Section 01 54 23 TEMPORARY SCAFFOLDS AND SWING STAGING  
E. Section 01 77 00 CLOSE OUT PROCEDURES

**PART II - PRODUCTS (Not Used)**

**PART III - EXECUTION**

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.1**

**3.1 TEMPORARY USE, OPERATION AND MAINTENANCE OF ELEVATORS DURING CONSTRUCTION FOR NEW BUILDINGS UP TO AND INCLUDING 15 STORIES:**

- A. **INSTALLATION:** The Contractor shall install, complete, operate, and maintain in good working order, as indicated herein, one (1) selected main elevator for the transport of employees of the Contractor and/or its subcontractors, and representatives of the DDC and other Governmental Agencies having jurisdiction of work at the project. The Contractor shall furnish, install, and maintain such elevator in good working order, including all necessary hoisting ropes, governor cables, traveling conductor cables, operating devices, temporary hand reset target annunciators, temporary signal devices, and all other permanent or temporary parts. The installation, operation and maintenance of the temporary elevator and all equipment and/or parts utilized in connection therewith shall be in accordance with the rules and regulations of all agencies and/or entities having jurisdiction over elevators in temporary use.
- B. **RESPONSIBILITY:** The Contractor shall be responsible for any injury to persons or damage to property arising out of the temporary elevator and all equipment and/or parts utilized in connection therewith.



- C. **COSTS:** The Contractor shall be responsible for all costs in connection with the temporary elevator, including without limitation: (1) installing and operating the temporary elevator, (2) maintaining the temporary elevator in clean, proper operating condition, including the cost of lubricants and/or parts for such maintenance, (3) performing all work in pits, shaft ways and machine rooms necessary for the operation of the temporary elevator, (4) replacing the temporary elevator or any equipment or parts utilized in connection therewith, if required, due to damage, destruction or excessive wear or corrosion, except for the replacement of hoisting ropes as set forth below, (5) performing all required electrical work in connection with the temporary elevator, (6) providing all electric power required to operate the temporary elevator, (7) providing all necessary conduit and wiring connections for the proper operation and signaling of the temporary elevator, and (8) providing all labor for the operation and maintenance of the temporary elevator, including on an overtime basis if necessary. The total Contract Price shall include all costs in connection with the temporary elevator, including without limitation, the costs specified herein.
- D. **COMMENCEMENT OF SERVICE:** The Contractor shall begin to provide temporary elevator service using the selected main passenger elevator no later than eight (8) weeks (40 working days) after the machine room roof slab, or that portion of it surrounding the elevator shaft, has been placed. No later than three (3) weeks (15 working days) after the machine room roof slab, or that portion of it surrounding the elevator shaft, has been placed the following work shall have been completed:
1. The shaft shall have been completely enclosed by either the permanent or a temporary enclosure meeting the requirements of the law.
  2. The machine room shall have been made completely watertight either by permanent or temporary construction. Beams or other devices, either permanent or temporary shall be provided which will enable the safe and practicable hoisting of the elevator machinery for installation.
  3. There shall have been installed on all floors at the shaft way entrances to the elevator, solid substantial frames and either sliding or swing doors with substantial hardware and door locks and any necessary approved wire mesh barricades for adjacent shaft ways.
  4. There shall have been furnished and installed solid substantial enclosures at front, back, sides and top of car platform enclosure, with emergency exit at top of car, excepting that the portion of the front at the elevator entrance shall have been provided with a substantial temporary door or gate.
- E. **ELECTRICAL INSTALLATION:** The Contractor, not later than 20 calendar days after the machine room roof slab or that portion of its surrounding the elevator has been placed, shall have furnished and installed temporary or permanent power and light feeders as required for the elevator used for temporary service and shall have connected such feeders to the terminals on the starter panels or controllers in the machine room to the low voltage transformers and car light outlets in the center of shaft way and for the car control and signal traveling cables. The Contractor shall make all these required connections as soon as the equipment is declared ready for such connections by the Resident Engineer.
- F. **REMOVAL:** When elevators for permanent use have been installed and are in condition for service, and when directed by the Commissioner, the Contractor shall remove the temporary enclosures and all temporary elevator equipment and promptly proceed with the installation of the permanent equipment as required under the Contract.
- G. **INSPECTION:** Before temporary elevator equipment is removed, a joint inspection of the equipment shall be made by the Contractor and the Commissioner to determine the condition of this equipment upon the discontinuation of its temporary use. If this inspection deems it necessary, the Contractor shall furnish and install new governor and compensating ropes, new traveling cables and new controller parts, etc. The car and counterweight safeties shall be thoroughly cleaned of all dirt and all foreign matter, then properly lubricated and placed in good operating condition to the satisfaction of the Commissioner. If it is determined and ordered by the Commissioner that new hoist ropes are required, such ropes shall be installed and payment therefore will be made in accordance with Article 26 of the Contract.





- H. **REPLACEMENT:** The Contractor shall furnish and install new equipment or parts for any equipment or parts of the temporary elevator installation that have been damaged, destroyed, or that indicate excessive wear or corrosion, excepting the replacement of hoisting ropes. All shaft ways, pits, motor rooms and sheave spaces used for temporary operation of elevators shall be thoroughly cleaned. Where lubricated rails are used they shall be washed down. If roller guides are used, all rust, dirt, etc., must be moved from the rails. The full cost of parts replacement, cleaning, etc., shall be borne by the Contractor except for the replacement of hoisting ropes.
- I. **LIMITATIONS ON USE:** The temporary elevator shall not be used during its operation for the hoisting of materials or the removal of rubbish, but shall be limited only to the transportation of employees of the Contractor and/or its subcontractors, and representatives of DDC and other Governmental Agencies having jurisdiction of work at the project. However, the Resident Engineer may grant special permission at specified times to the Contractor and/or its subcontractors to hoist materials, which in the Resident Engineer's opinion will not overload or damage the elevator installation, but only after such times as all plastering has been completed from the second floor up. In the event of any damage to the temporary elevator, the Contractor shall notify the Resident Engineer within 24 hours after such damage has occurred. As indicated above, the Contractor shall be responsible for the replacement of any equipment or parts of the temporary elevator that have been damaged.
- J. **LIQUIDATED DAMAGES:** The Contractor will be charged at the rate of \$100 per day for each day it fails to provide the temporary elevator service described in this section beginning with the 41<sup>st</sup> working day after the machine room roof slab, or that portion of it surrounding the elevator shaft, has been placed and stripped. This charge will be deducted from any amount due and owing to the Contractor.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.2**

**3.2 TEMPORARY USE, OPERATION AND MAINTENANCE OF ELEVATORS DURING CONSTRUCTION FOR NEW BUILDING OVER 15 STORIES:**

- A. **INSTALLATION:** The Contractor shall install, complete, operate, and maintain in good working order, as indicated herein, two (2) selected main elevators for the transport of employees of the Contractor and/or its subcontractors, and representatives of the DDC and other Governmental Agencies having jurisdiction of work at the project. The Contractor shall furnish, install, and maintain such elevators in good working order, including all necessary hoisting ropes, governor cables, traveling conductor cables, operating devices, temporary hand reset target annunciators, temporary signal devices, and all other permanent or temporary parts. The installation, operation and maintenance of the temporary elevators and all equipment and/or parts utilized in connection therewith shall be in accordance with the rules and regulations of all agencies and/or entities having jurisdiction over elevators in temporary use. The two (2) elevators shall not be operated simultaneously.
- B. **RESPONSIBILITY:** The Contractor shall be responsible for any injury to persons or damage to property arising out of the temporary elevators and all equipment and/or parts utilized in connection therewith.
- C. **COSTS:** The Contractor shall be responsible for all costs in connection with the temporary elevators, including without limitation: (1) installing and operating the temporary elevators, (2) maintaining the temporary elevators in clean, proper operating condition, including the cost of lubricants and/or parts for such maintenance, (3) performing all work in pits, shaft ways and machine rooms necessary for the operation of the temporary elevators, (4) replacing the temporary elevators or any equipment or parts utilized in connection therewith, if required due to damage, destruction or excessive wear or corrosion, except for the replacement of hoisting ropes as set forth below, (5) performing all required electrical work in connection with the temporary elevators, (6) providing all electric power required to operate the temporary elevators, (7) providing all necessary conduit and wiring connections for the proper operation and signaling of the temporary elevators, and (8) providing all labor for the operation and maintenance of the temporary elevators, including on an overtime basis if necessary. The total Contract Price shall



include all costs in connection with the temporary elevators, including without limitation, the costs specified herein.

- D. **LOW RISE ELEVATOR:** The Contractor shall begin to provide temporary elevator service using one (1) selected main passenger elevator no later than six (6) weeks (30 working days) after the 12th Floor slab, or that portion of it surrounding the elevator shaft, has been placed and stripped. No later than one (1) week, five (5) working days, after the 12th Floor slab, or that portion of it surrounding the elevator shaft, has been placed and stripped the following work shall have been completed:
1. The shaft shall have been completely enclosed up to the 12th Floor by either the permanent or a temporary enclosure meeting the requirements of the law.
  2. A temporary machine room enclosure shall have been provided at the 11th Floor and shall have been made completely watertight either by permanent or temporary construction. Beams or other devices, either permanent or temporary, shall be provided which will enable the safe and practicable hoisting of the elevator machinery for installation.
  3. There shall have been installed on all floors up to and including the 9th Floor at the shaft entrances to the elevator, solid substantial wood frames and either sliding or swing doors with substantial hardware and door locks, also any necessary approved wire mesh barricades for adjacent shaft ways.
  4. There shall have been furnished and installed solid substantial enclosures at front, back, sides and top of car platform enclosure, with an emergency exit at top of car, excepting that the portion of the front at the elevator entrance shall have been provided with a substantial temporary door or gate.
- E. **ELECTRICAL INSTALLATION:** The Contractor not later than 10 calendar days after the 12th Floor slab or that portion of it surrounding the elevator, has been poured and stripped, shall have furnished and installed temporary or permanent power and light feeders as required for the elevator used for temporary service and shall have connected such feeders to the terminals on the starter panels or controllers in the temporary machine room, to the low voltage transformers and car light outlets in the center of the shaftway and for the car control and signal traveling cables. The Contractor shall make all these required connections as soon as the Equipment is declared ready for such connections by the Resident Engineer.
- F. **HIGH RISE ELEVATOR:** The Contractor shall begin to provide temporary elevator service to all floors, using a selected main passenger elevator, no later than eight (8) weeks (40 working days) after the machine room roof slab, or that portion of it surrounding the elevator shaft, has been placed. No later than three (3) weeks (15 working days) after the machine room roof slab, or that portion of it surrounding the elevator shaft, has been placed, the following work shall have been completed:
1. The shaft shall have been completely enclosed by either the permanent or temporary enclosure, meeting the requirements of the law.
  2. The machine room shall have been made completely watertight either by permanent or temporary construction. Beams or other devices, either permanent or temporary shall be provided which will enable the safe and practicable hoisting of the elevator machinery for installation.
  3. There shall have been installed on all floors at the shaft way entrances to the elevator, solid substantial frames and either sliding or swing doors with substantial hardware and door locks, also any necessary approved wire mesh barricades for adjacent shaft ways.
  4. There shall have been furnished and installed, solid substantial enclosures at front, back, sides and top of car platform enclosure, with an emergency exit at top of car, excepting that the portion of the front at the elevator entrance shall have been provided with a substantial temporary door or gate.
- G. **ELECTRICAL INSTALLATION:** The Contractor, not later than 20 calendar days after the machine room slab or that portion of it surrounding the elevator shaft has been placed, shall have furnished and installed temporary or permanent power and light feeders as required for the high rise elevator to be used for



- temporary service and shall have connected such feeders to the terminals on the motor-generator starter panels or controllers in the machine room, to the signal circuits low voltage transformers for the annunciators and car light outlets in the center of shaft way. The Contractor shall make all these required connections as soon as the equipment is declared ready for such connections by the Resident Engineer.
- H. When the high rise elevator is completed and ready for temporary operation, the low rise temporary elevator shall be shut down.
- I. **REMOVAL:** When one (1) or more elevators for permanent use have been installed and are in condition for service, and when directed by the Commissioner, the Contractor shall remove the temporary enclosures and all temporary elevator equipment, and promptly proceed with the installation of the permanent equipment as required under the Contract.
- J. **INSPECTION:** Before temporary elevator equipment is removed, a joint inspection of the equipment shall be made by the Contractor and the Commissioner to determine the condition of this equipment upon the discontinuation of its temporary use. If this inspection determines it necessary, the Contractor shall furnish and install new governor and compensating ropes, new traveling cables, new controller parts, etc. The car and counterweight safeties shall be thoroughly cleaned of all dirt and all foreign matter, then properly lubricated and placed in good operating condition to the satisfaction of the Commissioner. If it is determined and ordered by the Commissioner that new hoist ropes are required, such ropes shall be installed and payment therefore will be made in accordance with Article 26 of the Contract.
- K. **REPLACEMENT:** The Contractor shall furnish and install new equipment or parts for any equipment or parts of the temporary elevator installations that have been damaged, destroyed, or that indicate excessive wear or corrosion, excepting the replacement of hoisting ropes. All shaft ways, pits, motor rooms and sheaves spaces used for temporary operation of elevators shall be thoroughly cleaned down. Where lubricated rails are used they shall be washed down, if roller guides are used, all rust, dirt, etc., must be removed from the rails. The full cost of parts replacement cleaning, etc., shall be borne by the Contractor except for the replacement of hoisting ropes.
- L. **LIMITATIONS ON USE:** The temporary elevators shall not be used during their operation for the hoisting of materials or the removal of rubbish, but shall be limited only to the transportation of employees of the Contractor and/or its subcontractors, and representatives of DDC and other Governmental Agencies having jurisdiction of work at the project. However, the Resident Engineer may grant special permission at specified times to the Contractor and/or its subcontractors to hoist materials, which in the Resident Engineer's opinion will not overload or damage the elevator installation, but only after such times as all plastering has been completed from the second floor up. In the event of any damage to the temporary elevator, the Contractor shall notify the Resident Engineer within 24 hours after such damage has occurred. As indicated above, the Contractor shall be responsible for the replacement of any equipment or parts of the temporary elevator that have been damaged.
- M. **LIQUIDATED DAMAGES:** The Contractor will be charged at the rate of \$100 per day for each day it fails to provide the temporary elevator service described in this Section beginning with the 31st working day after the 12th Floor slab, or that portion of the 12th Floor slab surrounding the elevator shaft, has been placed and stripped. This charge will be deducted from any amount due and owing to the Contractor.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.3**

**3.3 TEMPORARY USE, OPERATION AND MAINTENANCE OF ELEVATORS DURING CONSTRUCTION FOR EXISTING BUILDINGS:**

- A. The Contractor may use, at the Commissioner's discretion, one (1) selected elevator in the building for temporary operation by the Contractor for the transportation of employees of the Contractor and/or its subcontractors, and representatives of DDC and other Governmental Agencies having jurisdiction over the work at the Project. The operation of the temporary elevator and all equipment and/or parts utilized in



connection therewith shall be in accordance with the rules and regulations of all agencies and/or entities having jurisdiction over elevators in temporary use.

- B. **RESPONSIBILITY:** The Contractor shall be responsible for any injury to persons or damage to property arising out of the temporary elevator and all equipment and/or parts utilized in connection therewith.
- C. **REPLACEMENT:** The Contractor shall furnish and install new equipment or parts for any equipment or parts of the elevator for temporary operation that have been damaged, destroyed, or that indicate excessive wear or corrosion, excepting the replacement of hoisting ropes. All shaft ways, pits, motor rooms and shaft spaces used for temporary operation of elevators shall be thoroughly cleaned down. Where lubricated rails are used they shall be washed down, if roller guides are used, all rust, dirt, etc., must be moved from the rails. The full cost of parts replacement, cleaning, etc., shall be borne by the Contractor except for the replacement of hoisting ropes. If it is determined and ordered by the Commissioner that new hoist ropes are required, such ropes shall be installed and payment therefore will be made in accordance with Article 26 of the Contract.
- D. **LIMITATIONS ON USE:** The temporary elevator shall not be used during its operation for the hoisting of materials or the removal of rubbish, but shall be limited only to the transportation of employees of the Contractor and/or its subcontractors, and representatives of DDC and other Governmental Agencies having jurisdiction of work at the project. However, the Resident Engineer may grant special permission at specified times to the Contractor and/or its subcontractors to hoist materials, which in the Resident Engineer's opinion will not overload or damage the elevator installation. In the event of any damage to the temporary elevator, the Contractor shall notify the Resident Engineer within 24 hours after such damage has occurred. As indicated above, the Contractor shall be responsible for the replacement of any equipment or parts of the temporary elevator that have been damaged.
- E. **LIQUIDATED DAMAGES:** The Contractor will be charged at the rate of \$100 per day for each day it fails to provide elevator services described in this section beginning with 15 consecutive calendar days from Notice to Proceed. This charge will be deducted from any amount due and owing to the Contractor.

#### **3.4 TEMPORARY HOISTS AND HOISTWAYS (FOR MATERIAL AND PERSONNEL):**

- A. **RESPONSIBILITY:** The Contractor shall provide adequate numbers of material hoists for the most expeditious performance of all parts of the work including the work of all its subcontractors.
- B. **LOCATIONS:** No hoists shall be constructed at such locations as will interfere with, or affect the construction of, floor arches, or the work of subcontractors. The hoists may be located at the exterior sides of the structure or in the courtyard and extend upward adjacent to the line of window openings. The hoists shall be located a sufficient distance from the exterior walls and be so protected as to prevent any of the permanent work from being damaged, stained or marred.
- C. **ELEVATOR SHAFT:** Wherever possible, one or more of the permanent elevator shafts may be used as temporary hoist ways, providing such use complies with the requirements of the Building Code of the City of New York and has been approved by the Commissioner, and providing further it entails no interference with the progress of the work.
- D. **PROTECTION FOR INTERIOR HOISTS:** All interior material hoist ways shall be enclosed on each floor and shall be adequately protected with appropriate safety guards. In no event shall the protection be less than that required by law.

END OF SECTION 01 54 11



**SECTION 01 54 23**  
**TEMPORARY SCAFFOLDING AND PLATFORMS**

**PART I – GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].
- B. Section 01 35 26: Safety Requirements Procedures.
- C. The Contractor shall comply with the requirements of "*The City of New York Department of Design and Construction Safety Requirements*". This document is included in the Information for Bidders.

**1.2 SUMMARY:**

- A. This Section includes administrative and general procedural requirements for Temporary Scaffolding and Platforms, including:
  - 1. Conformance
  - 2. Responsibility
  - 3. Jobsite Documentation and Submittals
  - 4. Inspections
- B. This Section governs ALL scaffold used on DDC project sites including, but not limited to, Suspended Scaffold, Supported Scaffold and Sidewalk Sheds.

**1.3 CONFORMANCE:**

- A. Unless otherwise indicated, the Contractor is responsible for providing, erecting, installing and maintaining all temporary scaffolding and platforms which shall comply with requirements of Chapter 33 (Safeguards During Construction or Demolition) of the NYC Building Code, NYC Local Law 52 of 2005, OSHA Construction Standard 1926 Subpart L, and furnishing the items and personnel set forth in this section.

**1.4 RESPONSIBILITY:**

- A. Jobsite Safety Coordinator: The Contractor shall designate and employ a Jobsite Safety Coordinator, who shall be a competent person, who shall have a daily presence on the project site during scaffold use. This designee must possess and maintain a valid New York City Department of Buildings supported scaffold certificate of completion. An alternate shall also be designated, in the event that the Jobsite Safety Coordinator is absent. The Jobsite Safety Coordinator shall:
  - 1. Verify completeness of documentation and submittals (as described below).
  - 2. Verify that inspections are performed, including pull tests (see below), reports are filed and reported deficiencies are corrected.
  - 3. Monitor trades using scaffold.
  - 4. Limit access to scaffold areas that are tagged for non-use.
  - 5. Inform trades of scaffold load limitations.
  - 6. Monitor loading of decks.
  - 7. Verify that any ties that are temporarily removed are properly restored in the same shift.
  - 8. Verify that outriggers and planks that are moved are properly set up and secured.
  - 9. Verify that all scaffold decks in use have proper access/egress.
  - 10. Verify that all open sides of decks in excess of 14 inches have proper guardrails and toe-boards.



11. Notify appropriate parties, including but not limited to the Resident Engineer, site safety coordinator / monitor, site safety consultant, scaffold users, contractor and the scaffold engineer, of misuses, non-conformances, hazards and accidents.
  12. Keep a log of significant actions and events connected with the scaffolding.
- B. The Contractor shall be responsible for erecting, maintaining and dismantling the scaffolding and/or sidewalk shed in conformance with requirements of the New York City Building Code, OSHA and the Contract documents, including the specifications. The Contractor shall also be guided by generally accepted standards of scaffold industry practice as promulgated by the Scaffold Industry Association.
- C. The Contractor shall require the subcontractor responsible for erecting the scaffolding to engage a Scaffold Engineer, licensed as a professional engineer by the State of New York. The Scaffold Engineer shall be responsible to ensure the following: (1) that the installation design is in compliance with requirements of the New York City Building Code and OSHA, (2) that the design comports with the capabilities of the components and the characteristics of the site, (3) that scaffold loads on the host building, including netting, have been properly considered, and (4) that the design documents provide accurate information for erectors and users.
- D. Scaffold users are trade contractors assigned to work on the scaffold. Training certificates from a New York City Department of Buildings approved training provider are mandatory. These users have the duty to become familiar with the New York City Building Code and OSHA requirements germane to users, to obey the instructions of the Jobsite Safety Coordinator and to inform the Jobsite Safety Coordinator of known hazards, non-conformances or violations.

#### 1.5 JOBSITE DOCUMENTATION AND SUBMITTALS:

The Contractor shall prepare, obtain and submit the following to the Resident Engineer:

- A. NYC Department of Buildings permit(s) for scaffold and sidewalk sheds (as applicable) including filing applications signed and sealed by a Professional Engineer licensed in the State of New York;
- B. Site logistics plan / site safety plan;
- C. Installation drawing(s), design and product data to be provided for all scaffold(s) and shed(s) must include, at a minimum:
  1. Plan(s);
  2. Elevation(s);
  3. Duty load designation; "standard" (150 psf live load) or "heavy duty" (300 psf live load).
  4. Details including base support, anchors and ties;
  5. Notes and specifications including load limits, number of planked levels, tie spacing, netting, and sequence of installation and removal.
  6. Anchorage into sound material.
  7. Load limits based on pull tests;
  8. Specifications for pull test(s), method, proof load and the number of trials;
  9. Elevations, levels or heights, where anchorage is made into masonry;
  10. Specifications for frames, planks, screw jacks, anchors, and any other ancillary hardware;
  11. Samples for anchors, ties and netting;
  12. Sequence of operations for erection and demolition;
  13. Location plan, heights, widths, "jumps" over doorways and driveways;
  14. Specify size, maximum span and maximum spacing of headers and stringers;
  15. Specify legs, girts, braces, nailing and connections;
  16. All sidewalk sheds shall be designed, engineered, signed and sealed by a Professional Engineer licensed in the State of New York;
    - a. Generic (not job specific) engineering drawings are satisfactory for standard sheds and arrangements.



- b. Special engineering is required for custom sheds, site-specific problems or non-standard arrangements.

#### 1.6 INSPECTIONS:

- A. Signed inspection reports shall be issued for each inspection and pull-test below, and shall be logged and maintained on site by the Jobsite Safety Coordinator for the duration of the project.
- B. Pull testing shall be required during design, and during or post erection, where anchorage is made into masonry. The Scaffold Engineer shall specify the test method, proof load and the number of trials.
- C. Sidewalk sheds shall be inspected after initial installation, major modification, or damage and thence every three months. Inspections shall be by a Scaffold Engineer for custom sheds and by a Competent Person employed by the Contractor for standard sheds.
- D. Scaffolds shall be inspected by the Scaffold Engineer during erection, post-erection and prior to use and thence every three months. The Scaffold Engineer shall repeat inspections after major alteration/modification, damage.
- E. A Qualified Person assigned by the Contractor shall inspect the progress of erection and dismantling, and the condition and integrity of the sidewalk sheds after high winds, major storms and at least once per month during usage.
- F. A Qualified Person assigned by the Contractor shall inspect the progress of erection and dismantling at least weekly, and the condition and integrity of the scaffold after high winds, major storms and at least once per month during usage.
- G. Scaffolds and Sidewalk Sheds shall be inspected daily by the Jobsite Safety Coordinator or alternate prior to use by scaffold users. The inspection results must be recorded in the maintenance log, and be available on-site at all times.
- H. At the completion of the project, submit all inspection documents as Miscellaneous Record Documents in accordance with Section 01 78 39, CONTRACT RECORD DOCUMENTS.

#### 1.7 LADDERS AND STAIRS:

- A. The Contractor shall provide and maintain ladders or temporary stairs extending from the street to the first story, and to and from every floor and roof level of the project.

#### 1.8 ACCESS AND EXITS:

- A. The ladders or temporary stairs shall be of acceptable size, number and location, so that proper and convenient access may be had by those required to proceed to and from all parts of the project.

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 54 23**



NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

Division 01 – DDC STANDARD GENERAL CONDITION  
SINGLE CONTRACT PROJECTS  
Issue Date - June 01, 2013

No Text





**SECTION 01 73 00**  
**EXECUTION**

**PART I – GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

**1.2 SUMMARY:**

- A. This Section includes general procedural requirements governing execution of the Work including without limitation the following:
1. Delivery of Materials
  2. Contractor's Superintendent
  3. Surveys
  4. Borings
  5. Examination
  6. Environmental Assessment
  7. Preparation
  8. Deferred Construction
  9. Installation
  10. Permits
  11. Transportation
  12. Sleeves and Hangers
  13. Sleeve and Hanger Drawings
  14. Cutting and Patching
  15. Location of Partitions
  16. Furniture and Equipment
  17. Removal of Rubbish and Surplus Material
  18. Cleaning
  19. Security And Protection of Work Site
  20. Maintenance of Site and Adjoining Property
  21. Maintenance of Project Site
  22. Safety Precautions for Control Circuits
  23. Obstructions in Drainage Lines

**1.3 RELATED SECTIONS:** Include without limitation the following:

- |    |                  |  |
|----|------------------|--|
| A. | Section 01 10 00 | SUMMARY                                  |
| B. | Section 01 31 00 | PROJECT MANAGEMENT AND COORDINATION      |
| C. | Section 01 33 00 | SUBMITTAL PROCEDURES                     |
| D. | Section 01 74 19 | CONSTRUCTION WASTE MANAGEMENT & DISPOSAL |
| E. | Section 01 77 00 | CLOSEOUT PROCEDURES                      |
| F. | Section 01 78 39 | CONTRACT RECORD DOCUMENTS                |



#### 1.4 DEFINITIONS:

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

#### 1.5 QUALITY ASSURANCE:

- A. Land Surveyor Qualifications: A professional land surveyor who is licensed in the State of New York and who is experienced in providing land-surveying services of the kind indicated.

#### PART II – PRODUCTS (Not Used)

#### PART III – EXECUTION

##### 3.1 DELIVERY OF MATERIALS:

- A. Material Orders: The Contractor shall furnish to the Commissioner a copy of each material order, indicating date of order and quantity of material, and shall also notify the Commissioner when materials have been delivered to the site and in what quantities.
- B. Ample Quantities: The Contractor shall deliver materials in ample quantities to insure the most prompt and uninterrupted progress of the work so as to complete the work within the Contract time.
- C. Containers: The manufacturer's containers shall be delivered with unbroken seals and shall bear proper labels.
- D. Deliveries: The Contractor shall coordinate deliveries in order to avoid delaying or impeding the progress of the work.
- E. Handling: The Contractor shall provide equipment and personnel to handle products by methods to prevent soiling or damage.
  - 1. Promptly inspect shipments to assure products comply with requirements, quantities are correct, and products are undamaged.
  - 2. Promptly return damaged shipments or incorrect orders to manufacturer.
  - 3. For materials or equipment to be reused or salvaged, use special care in removal, storage and reinstallation to insure proper function in completed work.
- F. Storage: Store products in accordance with provisions of Article 3.1, and periodically inspect to assure that stored products are undamaged and are maintained under required conditions.
- G. Stacking: All materials shall be properly stacked in convenient places adjacent to the site, or where directed, and protected in a satisfactory manner. Stacked materials shall be so arranged as to not interfere with visibility of traffic control devices.
- H. Overloading: If authority is given to store materials in any part of the project area, they shall be so stored as to cause no overloading.



- I. No Interference: If it becomes necessary to remove and restack materials to avoid impeding the progress of any part of the work or interfering with the work to be done by any trade subcontractor, the Contractor shall remove and restack such materials at no additional cost to the City.

### 3.2 CONTRACTOR'S CONSTRUCTION SUPERINTENDENT:

- A. Contractor's Construction Superintendent: The Contractor shall devote its time and personal attention to the work and shall employ and retain at the project site, from the commencement until the entire completion of the work, a Contractor's Construction Superintendent. The Contractor's Construction Superintendent shall be registered with the New York City Department of Buildings in compliance with the Construction Superintendent Rule of the City of New York and shall be competent and capable of maintaining proper supervision and care of the work and shall be acceptable to the Commissioner. The Construction Superintendent shall, in the absence of the Contractor, and irrespective of any superintendent or foreman employed by any subcontractor, shall see that the instructions of the Commissioner are carried out.
- B. Replacement: The Contractor's Construction Superintendent on the job shall not be changed or removed without the consent of the Commissioner.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.3**

### 3.3 SURVEYS:

- A. Line and Grade: The City will establish a baseline and bench mark near the site of the work for use of the Contractor in connection with the performance of the work.
- B. Responsibility: The Contractor shall establish all other lines and elevations required for its work and shall be solely responsible for the accuracy thereof.
- C. Safeguard All Points: The Contractor shall safeguard all points, stakes, grade marks and bench marks made or established by the Contractor on the work, shall re-establish same if disturbed and bear the entire expense of rectifying the work improperly installed due to not maintaining, not protecting or removing without authorization such established points, stakes, or marks.
- D. City Monuments and Markers: No work shall be performed near City monuments or marks so as to disturb them until the said monuments or marks have been referenced or reset or otherwise disposed of by the relevant Agency or party who installed them.
- E. Foundations: The Contractor shall furnish certification from a licensed Surveyor that all portions of the foundation work are located in accordance with the Contract Drawings and at the elevations required thereby. This certification shall show the actual locations and the actual elevations of all the work in relation to the locations and elevations shown on the Contract Drawings, including but not restricted to the following:
  1. The locations and elevations of all piles, if any.
  2. Elevations of tops of all spread footings, tops of pile caps, and tops of all foundation walls, elevator pit walls and ramp walls.
  3. Location of all footing centers and pier centers including those for exterior wall columns.
  4. Location of all foundation walls including wall columns, elevator pit walls and ramp walls.
- F. Wall Lines: After the first courses of masonry or stone have been laid, the Contractor shall establish the permanent lines of exterior walls. The Contractor shall furnish promptly, certification from a licensed Surveyor, in the form of signed original drawings showing the exact location of such wall lines, of all portions of all structures. Except at its own risk, the Contractor shall not proceed further with the erection of walls until the Surveyor's certification has been submitted and verified for correct location of wall lines.



- G. **Surveyor:** The Surveyor selected for any of the purposes mentioned in Paragraph E and Paragraph F above, and Paragraph I below, shall be a land Surveyor licensed in the State of New York and shall be subject to the approval of the Commissioner. The Surveyor shall not be a regular employee of the Contractor, nor shall the Surveyor have any interest in the Contract. The Surveyor shall not be employed by the Contractor in laying out any work, it being intended that the Surveyor's certification shall represent an independent and disinterested verification of such layout. The Surveyor shall report to the Department of Design and Construction's Resident Engineer each time upon arrival to and departure from the site and review with the Resident Engineer the data required for the project.
- H. **Final Certification:** Final certification shall be submitted upon completion of the work or upon completion of any subdivision of the work as directed by the Commissioner. Any exceptions or deviations from the drawings shall be noted on the final certificate and there shall be included any maps, plates, notes, pertinent documents and data necessary, in the opinion of the Commissioner, to constitute a full and complete report.
- I. **Final Survey:** The Contractor shall submit to DDC for submission to the Department of Buildings a final Survey by the licensed Surveyor showing the location of the new Structure, before completion of the Structure. This Survey shall show the location of the first tier of beams or of the first floor; the finish grades of the open spaces on the plot; the established curb level and the location of all other Structures on the plan, together with the location and boundaries of the lot or plot upon which the Structure is constructed, curb cuts, all yard dimensions, etc.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4**

**3.4 BORINGS:**

- A. The work of this Sub-Section shall be the responsibility of the Contractor unless otherwise indicated.
- B. **Reference Drawings:** The Boring Drawings as listed on the title sheet are for information to the bidder and are to be used under the conditions as follows:
  - 1. **Boring Logs:** shown on the Boring Drawings, record information obtained under engineering supervision in the course of exploration carried out by or under the direction of forces of the Department of Design and Construction at the site.
  - 2. **Soils and Rock Samples:** All inferences are drawn from the indications observed as made by engineering and scientific personnel. All such inferences and all records of the work including soil samples and rock cores, if any, are available to bidders for inspection.
  - 3. **Certification of Samples:** The City certifies that the work was carried out as stated, and that the soil samples and rock cores, if any were referred to, were actually taken from the site at the times, places and in the manner indicated. The samples are available for inspection in the Department of Design and Construction Subsurface Exploration Section.
  - 4. **Bidder's Responsibility:** The bidder, however, is responsible for any conclusions to be drawn from the work. If the bidder accepts those of the City, it must do so at its own risk. If the bidder prefers not to assume such risk, the bidder is under the obligation of employing its own experts to analyze the available information, and must be responsible for any consequences of acting on their conclusions.
  - 5. **Continuity Not Guarantee:** The City does not guarantee continuity of conditions shown at actual boring locations over the entire site. Where possible, borings are located to avoid all obstructions and previous construction which can be found by inspection of the surface and the bidder is required to estimate the influence of such features from its own inspection of the site.



### 3.5 EXAMINATION:

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
  - 1. Before construction, verify the location and points of connection of utility services.
- B. Existing Utilities: The existence and location of underground utilities and other construction indicated as existing are not guaranteed. Before beginning site work, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
  - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
  - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with the subcontractor responsible for installation or application present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
  - 1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
  - 2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
  - 3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  - 4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

### 3.6 ENVIRONMENTAL ASSESSMENTS:

- A. City Responsibilities: An Environmental Assessment and survey is performed by the NYC DDC and its findings are included in the Contract Documents. In accordance with the NYC Administrative Code Title 15 Chapter 1 an asbestos survey is required to be performed by an Asbestos Investigator certified by the NYC Department of Environmental Protection (DEP) to identify the presence of asbestos containing material (ACM) prior to any alteration, renovation or demolition activity. The findings of such survey are required for the submission of approvals and permits issued by the NYC Department of Buildings (DOB). When the findings indicate that asbestos containing material is present and will be disturbed during the alteration, renovation or demolition activity then abatement design specifications will be incorporated into the contract documents. The Contractor shall comply with all federal, state and local asbestos regulations affecting the work for this Contract.
- B. Contractor Responsibility: The Contractor shall comply with all federal, state and local environmental regulations, including without limitation USEPA and OSHA regulations which require the Contractor to assess if lead based paint will be disturbed during the work in order to protect his/her workers and the building occupants from migration of lead dust into the air. The Contractor shall comply with all federal, state and local environmental waste disposal regulation which may be required during the work. The Contractor is required to hire licensed abatement and disposal companies for the requisite work.

### 3.7 PREPARATION:

- A. Field Measurements: The Contractor shall verify all dimensions and conditions on the job so that all work will properly join the existing work.
- B. The Contractor, before commencing work, shall examine all adjoining work on which its work is in any way dependent on good workmanship in accordance to the intent of the Specifications and the Contract

Drawings. The Contractor shall report to the Commissioner any condition that will prevent it from performing work that conforms to the required standard.

- C. Existing Utility Information: Furnish information to the Commissioner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- D. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

### 3.8 DEFERRED CONSTRUCTION:

- A. Where necessity for deferred construction is certified by the Commissioner, in order to permit the installation of any item or items of equipment required to be furnished and installed concurrent with the time allowed for doing and completing the work of the Contract, the Contractor shall defer construction work limited to adequate areas as approved by the Commissioner.
- B. The Contractor shall confer with the affected trade subcontractors and ascertain arrangements, time and facilities necessary to be made by the Contractor in order to execute the provisions specified herein.

### 3.9 INSTALLATION:

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  - 1. Make vertical work plumb and make horizontal work level.
  - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  - 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work and work of trade subcontractors to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
  - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by the Design Consultant.
  - 2. Allow for building movement, including thermal expansion and contraction.
  - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.



- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

### 3.10 PERMITS:

- A. The Contractor shall comply with all local, state and federal laws, rules and regulations affecting the Work of this Project, including, without limitation, (1) obtaining all necessary permits for the performance of the Work prior to commencement thereof, and (2) complying with all requirements for the disposal of demolition and/or construction debris, waste, etc., including disposal in City landfills. The Contractor shall be responsible for all costs in connection with such regulatory compliance, unless otherwise specified in the Contract.

### 3.11 TRANSPORTATION:

- A. Availability: It shall be the duty of the Contractor to determine the availability of transportation facilities and dockage for the use of its employees, equipment and material and the conditions under which such use will be permitted.
- B. Costs: If transportation facilities and dockage are available and are permitted to be used by the governmental agency having jurisdiction, the Contractor shall pay all necessary costs and expenses, and abide by all rules and regulations promulgated in connection therewith.
- C. Vehicles: With respect to the use of vehicles on highways and bridges, the Contractor's attention is directed to the limitations set forth in the Rules of the City of New York, Title 34, Chapter 4, Section 4-15.
- D. Continued Use: It is understood that the Commissioner makes no warranty as to the continued use by the Contractor of such facilities.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.12**

### 3.12 SLEEVES AND HANGERS:

- A. Coordinate with Progress Schedule: The Contractor shall promptly furnish and install conduits, outlets, piping sleeves, boxes, inserts and all other materials and equipment that is to be built into the work in conformity with the requirements of the project.
- B. Cooperation of Subcontractors: All subcontractors shall fully cooperate with each other in connection with the performance of the above work as "cutting in" new work is neither contemplated nor will it be tolerated.
- C. Timeliness: In the event that timely delivery of sleeves and other materials cannot be made, and to avoid delay, the Contractor may arrange to have boxes or other forms set at the locations where the piping or other material is to pass through or into the slabs, walls or other work. Upon the subsequent installation of the sleeves or other material, the Contractor shall fill around them with materials as required by the Contract. The necessary expenditures incurred for the boxing out and filling in shall be borne by the Contractor.
- D. Inserts: The Contractor is to install strip inserts four (4) feet on center and perpendicular to beams in ceiling slabs of boiler, machine and mechanical equipment rooms. Inserts are to be installed for strippable concrete slabs only.



NEW YORK CITY DEPARTMENT OF  
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**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.13**

**3.13 SLEEVE AND PENETRATION DRAWINGS:**

- A. As soon as practicable after the commencement of work and when the order in which concrete for the first slabs, walls, etc. to be poured is determined, the Contractor shall submit to the Resident Engineer a sketch indicating the location and size of all penetrations for sleeves, ducts, etc. which will be required to accommodate the mechanical trades, in order to determine if such penetrations will materially weaken the project's structure. The sketch shall be stamped and returned if approved and/or comments will be transmitted. The Contractor shall continue to submit sketches as the pouring schedule and the concrete work progresses and, until approvals for the penetration sketches have been given. The Contractor shall not predicate its layout work on unapproved sketches.

**3.14 CUTTING AND PATCHING:**

- A. Responsibility: The Contractor shall do all cutting, patching and restoration required by its work, unless otherwise particularly specified in the Specifications.
- B. Restore Work: The Contractor shall restore any work damaged during the performance of the work.
- C. Competent Workers: All restoration work shall be done to the satisfaction of the Commissioner by competent workers skilled in the trade required by such restoration. If, in the judgment of the Commissioner, workers engaged in restoration work are incompetent, they shall be replaced immediately by competent workers.
- D. Structural Elements: Do not cut and patch structural elements without the prior approval, in writing, of the Resident Engineer.
- E. Operational Elements: Do not cut and patch operating elements and related components.
- F. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Commissioner's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- G. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.
- H. Removals: The Contractor must remove from the premises all demolished materials of every nature or description resulting from cutting, patching and restoration work, in accordance with the requirements hereinafter stipulated under Sub-Section 3.17 herein and as further required in Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.15**

**3.15 LOCATION OF PARTITIONS:**

- A. Within three (3) weeks after the concrete slabs have been poured on each floor level, the Contractor shall immediately locate accurately all of the partitions, including the door openings, on the floor slabs in a manner approved by the Resident Engineer.



**3.16 FURNITURE AND EQUIPMENT:**

- A. Responsibility: The Contractor is responsible for moving all loose furniture and/or equipment in all areas where the location of such furniture and/or equipment interferes with the proper performance of its work.
- B. Protection: All such furniture and/or equipment must be adequately protected with dust cloths and returned to their original locations when directed to do so by the Resident Engineer.

**3.17 REMOVAL OF RUBBISH AND SURPLUS MATERIALS:**

- A. Of the waste that is generated during demolition, as many of the waste materials as economically feasible, and as stated here, shall be reused, salvaged, or recycled. Waste disposal in landfills shall be minimized. Comply with requirements of Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
- B. Rubbish: Rubbish shall not be thrown from the windows or other parts of the project. Mason's rubbish, dirt and other dust-producing material shall be wetted down periodically.
- C. Location: The Contractor shall clean Project site and work area daily and sweep up and deposit, at a location designated on each floor, all of its rubbish, debris and waste materials, as it accumulates and when directed by the Resident Engineer. Wood crating shall be broken up, neatly bundled, tied and stacked ready for removal and be deposited at a location designated on each floor.
  - 1. Comply with requirements in NYC Fire Department for removal of combustible waste materials and debris.
  - 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 degrees F (27 degrees C).
  - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- D. Laborers: The Contractor shall be responsible for the removal of all rubbish, etc., from the site. The Contractor shall remove from the designated locations all piles of rubbish, debris, waste material and wood crating as they accumulate and when directed by the Resident Engineer, and shall remove them from the site. The Contractor shall employ and keep engaged for this purpose an adequate number of laborers.
- E. Surplus Materials: The Contractor shall remove from the site all surplus materials when there is no further use for same.
- F. Tools And Materials: At the conclusion of the work, all erection plant, tools, temporary structures and materials belonging to the Contractor shall be promptly removed.
- G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

**3.18 CLEANING:**

- A. The Contractor shall thoroughly clean all equipment and materials furnished and installed and shall deliver such materials and equipment undamaged in a clean and new appearing condition up to date of Final Acceptance.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- D. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.



- E. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration up to date of Final Acceptance.
- F. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration up to date of Final Acceptance.

**3.19 SECURITY AND PROTECTION OF WORK SITE:**

- A. Provide protection of installed work, including appropriate protective coverings and maintain conditions that ensure installed Work is without damage or deterioration up to date of Final Acceptance..
- B. Comply with manufacturer's written instructions for temperature and relative humidity.
- C. Secure and protect work and work site against damage, loss, injury, theft and/or vandalism.
- D. Maintain daily sign-in sheets of workers and visitors and make the sheets available to the Commissioner

**3.20 MAINTENANCE OF SITE AND ADJOINING PROPERTY:**

- A. The Contractor shall take over and maintain the Project site, after order to start work.
- B. The Contractor shall be responsible for the safety of the adjoining property, including sidewalks, paving, fences, sewers, water, gas, electric and other mains, pipes and conduits etc. until the date of Final Acceptance. The Contractor shall, at its own expense, except as otherwise specified, protect same and maintain them in at least as good a condition as that in which the Contractor finds them.
- C. All pavements, sidewalks, roads and approaches to fire hydrants shall be kept clear at all times, maintained and repaired to serviceable condition with materials to match existing.
- D. Provide and keep in good repair all bridging and decking necessary to maintain vehicular and pedestrian traffic.
- E. The Contractor shall also remove all snow and ice as it accumulates on the sidewalks within the Contract Limits Lines.

**3.21 MAINTENANCE OF PROJECT SITE:**

- A. The Contractor shall take over and maintain all project areas, after order to start work.
- B. Until the date of Final Acceptance, the Contractor shall be responsible for the safety of all project areas, including water, gas, electric and other mains and pipes and conduits and shall at the Contractor's own expense, except as otherwise specified, protect same and maintain them in at least as good condition as that in which the Contractor finds them.
- C. All pavements, sidewalks, roads and approaches to fire hydrants shall be kept clear at all times, maintained, and if damaged, repaired to serviceable conditions with materials to match existing.
- D. The Contractor shall keep the space for the Resident Engineer in a clean condition.

**3.22 SAFETY PRECAUTIONS FOR CONTROL CIRCUITS:**

- A. Control circuits, the failure of which will cause a hazard to life and property, shall comply with the New York City 2011 Electrical Code requirements.

**3.23 OBSTRUCTIONS IN DRAINAGE LINES:**

- A. The Contractor shall be responsible for all obstructions occurring in all drainage lines, fittings and fixtures after the installations and cleaning of these drainage lines, fittings and fixtures as certified by the Resident Engineer. Roof drains shall be kept clear of any and all debris. Any stoppage shall be repaired immediately at the expense of the Contractor.

END OF SECTION 01 73 00



**SECTION 01 74 19**  
**CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL**

**PART I – GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

**1.2 SUMMARY:**

- A. This section includes administrative and procedural requirements for the management and disposal of construction waste and includes the following requirements:
1. Waste Management Goals
  2. Waste Management Plan
  3. Progress Reports
  4. Progress Meetings
  5. Management Plan Implementation
- B. This Section includes:
1. Definitions
  2. Waste Management Performance Requirements
  3. Reference Resources
  4. Submittals
  5. Quality Assurance
  6. Waste Plan Implementation
  7. Additional Demolition and Salvage Requirements
  8. Disposal

**1.3 RELATED SECTIONS:** Include without limitation the following:

- |    |                  |  |
|----|------------------|--|
| A. | Section 01 10 00 | SUMMARY  |
| B. | Section 01 31 00 | PROJECT MANAGEMENT AND COORDINATION                |
| C. | Section 01 32 00 | CONSTRUCTION PROGRESS DOCUMENTATION                |
| D. | Section 01 73 00 | EXECUTION  |
| E. | Section 01 77 00 | CLOSEOUT PROCEDURES                                |
| F. | Section 01 78 39 | CONSTRUCTION RECORD DOCUMENTS                      |
| G. | Section 01 81 13 | SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS |

**1.4 DEFINITIONS:**

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.
- C. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk or the like.



- D. Construction and Demolition Waste: Solid wastes typically including building materials, trash debris and rubble resulting from remodeling, repair and demolition operations. Hazardous materials and land clearing waste are not included.
- E. Diversion from Landfill: To remove, or have removed, from the site for recycling, reuse or salvage, material that might otherwise be sent to a landfill.
- F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product.
- G. Recycle (recycling): To sort, separate, process, treat or reconstitute solid waste and other discarded materials for the purpose of redirecting such materials into the manufacture of useful products. Recycling does not include burning, incinerating or thermally destroying waste.
- H. Return: To give back reusable items or unused products to vendors.
- I. Reuse: To reuse excess or discarded construction material in some manner on the Project site.
- J. Salvage: To remove a waste material from the Project site for resale or reuse.
- K. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable and reusable material.
- L. Waste Management Plan: A project-related plan for the collection, transportation and disposal of waste generated at the construction site. The purpose of the plan is to ultimately reduce the amount of material becoming landfill.

#### 1.5 WASTE MANAGEMENT PERFORMANCE REQUIREMENTS:

- A. The City of New York has established that this project shall generate the least amount of waste possible and that processes that ensure the generation of as little waste as possible due to error, inaccurate planning, breakage, mishandling, contamination, or other factors shall be employed.
- B. Of the waste that is generated during demolition, as many of the waste materials as economically feasible, and as stated here, shall be reused, salvaged, or recycled. Waste disposal in landfills shall be minimized.

<b>REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 1.5 C</b>
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- C. LEED CERTIFICATION: The City of New York will seek LEED (Leadership in Energy and Environmental Design) certification for this Project as indicated in the Addendum to the General Conditions from the U.S. Green Building Council. The documentation required here will be used for this purpose. LEED awards points for a variety of sustainable design measures on a project, one of which is the reuse and recycling of project waste.
- D. DIVERSION REQUIREMENTS. A minimum of 75% of total Project demolition waste (by weight) shall be diverted from landfill. The following waste categories are likely candidates to be included in the diversion plan as applicable for this project:
  - 1. Concrete
  - 2. Bricks
  - 3. Concrete masonry units (CMU)
  - 4. Asphalt
  - 5. Metals (e.g. banding, stud trim, ceiling grid, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized, stainless steel, aluminum, copper, zinc, brass, bronze)



6. Clean dimensional wood
  7. Carpet and pad
  8. Drywall
  9. Ceiling tiles
  10. Cardboard, paper, and packaging
  11. Reuse items indicated on the Drawings and/or elsewhere in the Specification
- E. All fluorescent lamps, HID lamps and mercury-containing thermostats removed from the site shall be recycled.
- F. Recycling on the job, subject to the Commissioner's approval, is encouraged on the site itself, such as the crushing and reuse of removed sound concrete and stone. Include these categories in the Waste Management Plan.

#### 1.6 REFERENCES, RESOURCES:

- A. DDC encourages its contractors to seek information from websites and experts in salvage or recycling in order to minimize disposal costs. There are numerous opportunities to sell, salvage, or to donate materials and accrue tax benefits (which would accrue to the contractor); also there are outlets that will pick up, and in some cases buy recyclable materials. Examples of information resources are as follows:
1. DDC's Sustainable Design web site:  
[http://www.nyc.gov/html/ddc/html/design/sustainable\\_home.shtml](http://www.nyc.gov/html/ddc/html/design/sustainable_home.shtml) This includes a manual on Construction and Demolition Waste Reduction and Recycling, a Sample Waste Management Plan and sample C&D Waste Management log. A standard Construction and Demolition Waste Management Log form is included at the end of this section.
  2. Web Resources  
(Information only; no warranty or endorsement is implied.)  
[www.wastematch.org](http://www.wastematch.org) Site of New York Waste Match, a materials exchange database and service  
[www.bignyc.org](http://www.bignyc.org) Site of Build It Green NYC, a non-profit outlet for salvaged and surplus building materials  
[www.usgbc.org](http://www.usgbc.org) Site of the United States Green Building Council, with a description of the LEED certification process and requirements for C&D waste recycling  
[www.epa.gov/epawaste/index.htm](http://www.epa.gov/epawaste/index.htm) Site of the U.S. Environmental Protection Agency that discusses construction and demolition waste issues, and links to other resources.

#### 1.7 SUBMITTALS:

- A. The Contractor shall be responsible for the development and implementation of a Waste Management Plan for the Project. The Contractor's subcontractors shall assist in the development of that Plan, and collect and deposit their waste and recyclable materials in accordance with the approved Plan.
- B. DRAFT WASTE MANAGEMENT PLAN. Within fifteen (15) days after receipt of 'Notice to Proceed', or prior to any waste removal, whichever occurs sooner, the Contractor shall submit to the Commissioner a Draft Waste Management Plan. Include separate sections for demolition and construction waste. The Plan shall demonstrate how the performance goals will be met, and contain the following:



1. List of materials targeted for reuse, salvage, or recycling, and names, addresses, and phone numbers of receiving facilities/companies that will be purchasing or accepting each material.
  2. Description of onsite and/or offsite sorting methods for all materials to be removed from site.
  3. If mixed construction and demolition waste is to be sorted off-site, provide a letter from the processor stating the average percentage of mixed construction and demolition waste they recycle.
  4. Landfill information: Names of landfills where non-recyclable/reusable/salvageable waste will be disposed, and list of applicable tipping fees.
  5. Materials handling procedures: A description of the means by which any recyclable, salvaged, or reused materials will be protected from contamination, and collected in a manner that will meet the requirements for acceptance by the designated recycling processors.
  6. Transportation: A description of the means of transportation and destination for recycled materials.
  7. Meetings: Description of regular meetings to be held to address waste management.
  8. Sample spreadsheet and description of how the implementation of the plan will be documented on a monthly basis.
- C. FINAL WASTE MANAGEMENT PLAN. Within fifteen (15) days of Commissioner's approval of the Draft Plan, the Contractor shall submit a Final Waste Management Plan.
- D. PROGRESS REPORTS. The Contractor shall submit monthly a Waste Management Progress Report, containing the following information:
1. Project title, name of company completing report, and dates of period covered by the report
  2. Report on the disposal of all jobsite waste. A DDC C&D Waste Management Log form is available on the DDC Sustainable Design website and included at the end of this section. For each shipment of material removed from the site, provide the following:
    - a. Date and ticket number of removal
    - b. Identity of material hauler
    - c. Material Category
    - d. Total quantity of waste, in tones/cubic yards, by type
    - e. Quantity of waste salvaged, recycled and/or reused, by type
    - f. Total quantity of waste diverted from landfill (recycled, salvaged, reused) as a percentage of total waste
    - g. Recipient of each material type
  3. Provide monthly and cumulative project totals of waste, quantity diverted, and percentage diverted.
  4. Note that the unit of measure may be either tons or cubic yards, but must be consistent for all shipments and all materials throughout the project. Reports with inconsistent or mixed units will not be reviewed and will be returned for re-submission.
  5. Include legible copies of on-site logs, weight tickets and receipts. Receipts shall be from charitable organizations, recycling and/or disposal site operators who can legally accept the materials for the purpose of reuse, recycling or disposal. Contractor shall save such original documents for the life of the project plus seven (7) years.
- E. LEED Submittal: For LEED designated projects submit LEED Letter Template for the applicable credit, signed by the Contractor, tabulating total waste material, quantities diverted and means by which it is diverted, and statement that requirements for the credit have been met.
- F. Refrigerant Recovery. Submit Qualification data for Refrigerant recovery technician and statement of refrigerant recovery, signed by the refrigerant recovery technician responsible for recovering refrigerant



stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

**1.8 QUALITY ASSURANCE:**

- A. The Contractor shall designate a Waste Management Coordinator, to ensure compliance with this section. Coordinator shall be present at Project site full time for the duration of the project.
- B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- C. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. Waste management plans, documentation and implementation shall be discussed at the following meetings:
  - 1. Pre-demolition kick-off meeting
  - 2. Pre-construction kick-off meeting
  - 3. Regular job-site meetings
  - 4. Contractor toolbox meetings

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION**

**3.1 WASTE PLAN IMPLEMENTATION:**

- A. The Contractor shall implement the Waste Management Plan, coordinate the Plan with all affected trades, and designate one individual as the Construction Waste Management Representative, who will be responsible for communicating the progress of the Plan with the Commissioner on a regular basis, and for assembling the required LEED documentation.
- B. The Contractor shall be responsible for the provision of containers and the removal of all waste, non-returned surplus materials, and rubbish from the site in accordance with the approved Waste Management Plan. The Contractor shall oversee and document the results of the Plan. Monies received for salvaged materials shall remain with the Contractor, except the monies for those items specifically identified elsewhere in the specifications, or indicated on the drawings as belonging to others.
- C. Responsibilities of Subcontractors: Each subcontractor shall be responsible for collecting its waste, non-returned surplus materials, and rubbish, in accordance with the Waste Management Plan.
- D. Distribution. The Contractor shall distribute copies of the Waste Management Plan to each Subcontractor, Resident Engineer, Construction Manager, and Commissioner.
- E. Training. The Contractor shall provide on-site instruction of proper waste management procedures to be used by all parties in appropriate stages of the Project.
- F. Procedures. Conduct waste management operations to ensure minimum interference with site vegetation, roads, streets, walks and other adjacent occupied and used facilities.
  - 1. Collect co-mingled waste and/or separate all recyclable waste in accordance with the Plan. Specific areas on the Project site are to be designated, and appropriate containers and bins clearly marked with acceptable and unacceptable materials.
  - 2. Inspect containers and bins for contamination and remove contaminated materials if found.



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3. Comply with the General Conditions for controlling dust and dirt, environmental protection, and noise control.

### 3.2 ADDITIONAL DEMOLITION AND SALVAGE REQUIREMENTS:

- A. Demolition and salvage of additional items indicated in other sections of the Project Specifications require special attention as part of the overall 75 % diversion from landfill. Specific requirements for special attention are designated in other sections of the Project Specifications.

### 3.3 DISPOSAL:

- A. General. Except for items or material to be salvaged, recycled or otherwise reused, remove waste material from the Project site and legally dispose of them in a manner acceptable to authorities having jurisdiction.
  1. Except as otherwise specified, do not allow waste materials that are to be disposed of to accumulate on site.
  2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning. Do not burn waste materials
- C. Disposal. Transport waste materials off Project Site and legally dispose of them.

END OF SECTION 01 74 19





**CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT LOG**

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Project Name: \_\_\_\_\_ For Month: \_\_\_\_\_  
 Contractor: \_\_\_\_\_  
 Prepared by: \_\_\_\_\_

Project I.D.: \_\_\_\_\_

Haul Date	Ticket #	Hauling Company	*Material Category <sup>2</sup>	Material Quantity (tons or cubic yards) <sup>1</sup>			*Material Recipient
				*Total Weight	Excluded Material <sup>3</sup>	*Diverted Material <sup>4</sup>	
<b>Monthly Totals</b>				<b>*Total</b>		<b>*Diverted</b>	<b>*Landfilled</b>
<b>% Diverted this Month*</b>							

Cumulative Totals \_\_\_\_\_

% Diverted to Date \_\_\_\_\_

- Notes:
1. Volume (cubic yards) may be used instead of weight if used for ALL amounts and ALL materials.
  2. Includes concrete; bricks; concrete masonry units (CMU); asphalt; metals; clean dimensional wood; carpet and pad; drywall; ceiling tiles; cardboard, paper, and packaging; and any other reuse items indicated on the Drawings and/or elsewhere in the Specification.
  3. Excluded material includes soil or land clearing debris.
  4. Diverted material includes recycled and reused material diverted from landfill. Recycled material is reprocessed into new products. Reused material is reclaimed, salvaged or otherwise used in its original form, either on-site or off-site.

\* These items must be listed in order to receive LEED credit.



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# CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT LOG

No Text



**SECTION 01 77 00**  
**CLOSEOUT PROCEDURES**

**PART I – GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

**1.2 SUMMARY:**

- A. This Section includes administrative and general procedural requirements for Closeout Procedures, including without limitation the following:
1. Definitions
  2. Substantial Completion
  3. Final Acceptance
  4. Warranties
  5. Final Cleaning
  6. Repair of the Work
- B. LEED: Refer to the Addendum to identify whether this project is designed to comply with a Certification Level according to the U.S. Green Building Council's Leadership in Energy & Environmental Design (LEED) Rating System, as specified in Section 01 81 13, "SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS."
- C. COMMISSIONING: Refer to the Addendum to identify whether this project will be commissioned by an independent third party under separate contract with the City of New York. Commissioning shall be in accordance with ASHRAE and USGBC LEED- NC procedures, as described in Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS. The Contractor shall cooperate with the commissioning agent and provide whatever assistance is required.

**1.3 RELATED SECTIONS:** include without limitation the following:

- A. Section 01 10 00 SUMMARY  
B. Section 01 33 00 SUBMITTAL PROCEDURES  
C. Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT & DISPOSAL  
D. Section 01 78 39 CONTRACT RECORD DOCUMENTS  
E. Section 01 79 00 DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION

**1.4 DEFINITIONS:**

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or



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combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

- C. **Substantial Completion:** shall mean the written determination by the Commissioner that the Work required under the Contract is substantially, but not entirely, complete.
- D. **Final Acceptance:** shall mean final written acceptance of all the Work by the Commissioner, a copy of which shall be sent to the Contractor.

#### 1.5 SUBSTANTIAL COMPLETION:

- A. **Preliminary Procedures:** Before requesting inspection to determine the date of Substantial Completion, the Contractor shall complete and supply all items required by the contract specifications, General Conditions, Addendum to the General Conditions, change orders or other directives from the Commissioner's representatives. The required items will include all contract requirements for substantial completion, including but not limited to items related to releases, regulatory approvals, warranties and guarantees, record documents, testing, demonstration and orientation, final clean up and repairs, and all specific checklist of items by the Resident Engineer. (See Attachment "A" at the end of this section for sample requirements for Substantial Completion).
- B. Prepare and submit a list to the Resident Engineer of incomplete items, the value of incomplete construction, and reasons the work is not complete.
- C. **Inspection:** The Contractor shall submit to the Resident Engineer a written request for inspection for Substantial Completion. Within ten (10) days of receipt of the request, the Resident Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. The Resident Engineer may request the services, as required, of the Design Consultant, Client Agency Representative and/or other entities having involvement with the Work to assist in the inspection of the Work. If the Resident Engineer makes a determination that the work is substantially complete and approves the Final Punch List and the date for Final Acceptance, he/she will so advise the Commissioner and recommend issuance of the Certificate of Substantial Completion. If the Resident Engineer determines that the work is not substantially complete, he/she will notify the Contractor of those items that must be completed or corrected before the Certificate of Substantial Completion will be issued.
  - 1 Re-inspection: Contractor shall request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
  - 2 Results of completed inspection will form the basis of requirements for Final Acceptance.

#### 1.6 FINAL ACCEPTANCE:

- A. **Preliminary Procedures:** Before requesting final inspection for Final Acceptance of the Work, the Contractor shall complete the following. (Note that the following are to be completed, submitted as appropriate, and approved by the Commissioner, as applicable, prior to the final inspection and are not to be submitted for approval or otherwise at the final inspection unless specifically indicated). List exceptions in the request.
  - 1. Verify that all required submittals have been provided to the Commissioner including but not limited to the following:
    - a. Manufacturer's cleaning instructions
    - b. Posted instructions
    - c. As-built Record Documents (Drawings, specifications, and product data) as described in Section 01 78 39, CONTRACT RECORD DOCUMENTS, incorporating any changes required by the Commissioner as a result of the review of the submission prior to the pre-final inspection.
    - d. Operation and Maintenance Manuals, including Preventive Maintenance, Special Tools, Repair Requirements, Parts List, Spare Parts List, and Operating Instructions.



- e. Completion of required Demonstration and Orientation, as applicable, of designated personnel in operation and maintenance of systems, sub-systems and equipment.
  - f. Applicable LEED Building submittals as described in Section 01 81 13, SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS.
  - g. Construction progress photographs as described in Section 01 32 33, PHOTOGRAPHIC DOCUMENTATION.
2. Submit a certified copy of the final approved Punch List of items to be completed or corrected. The certified copy of the Punch List shall state that each item has been completed or otherwise resolved for acceptance, and shall be endorsed and dated by the Contractor.
  3. Submit pest-control final inspection report and survey as required in Section 01 50 00, TEMPORARY FACILITIES AND CONTROLS.
  4. Submit record documents and similar final record information.
  5. Deliver tools, spare parts, extra stock and similar items.
  6. Complete final clean-up requirements including touch-up painting of marred surfaces.
  7. Submit final meter readings for utilities, as applicable, a measured record of stored fuel, and similar data as of the date when the City took possession of and assumed responsibility for corresponding elements of the work.
- B. Final Inspection: The Contractor shall submit to the Resident Engineer a written request for inspection for Final Acceptance of the Work. Within ten (10) days of receipt of the request, the Resident Engineer will either proceed with inspection or notify the Contractor of unfulfilled requirements. The Resident Engineer may request the services, as required, of the Design Consultant, Client Agency Representative and/or other entities having involvement with the Work to assist in the inspection of the Work. If the Resident Engineer finds that all items on the Final Approved Punch List are complete and no further work remains to be done, he/she will so advise the Commissioner and recommend the issuance of the determination of Final Acceptance. If the Resident Engineer determines that the work is not complete, he/she will notify the Contractor of those items that must be completed or corrected before the determination of Final Acceptance will be issued.
- C. Final Acceptance: The Work will be accepted as final and complete as of the date of the Resident Engineer's inspection if, upon such inspection, the Resident Engineer finds that all items on the Punch List are complete and no further Work remains to be done. The Commissioner will then issue a written determination of Final Acceptance.

#### 1.7 WARRANTIES:

- A. The items of materials and/or equipment for which manufacturer warranties are required are listed in Schedule B of the Addendum. For each item of material and/or equipment listed in Schedule B, the Contractor shall obtain a written warranty from the manufacturer. Such warranty shall provide that the material or equipment is free from defects for the period set forth in Schedule B and will be replaced or repaired within such specified period. The contractor shall deliver all required warranties to the Commissioner.
- B. Unless indicated otherwise Warranties are to take effect on the date of Substantial Completion.
- C. Submittal Time: Submit written Warranties on request of the Commissioner for designated portions of the Work where commencement of Warranties other than date of Substantial Completion is indicated.
- D. Partial Occupancy: Submit properly executed Warranties to the Commissioner within 15 days of completion of designated portions of the Work that are completed and occupied or used by the City.
- E. Organize the Warranty documents into an orderly sequence based on the Project Specification Divisions and Section Numbers.



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1. Bind Warranties in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
  2. Identify each binder on the front and spine with the typed or printed title "WARRANTIES;" name and location of Project; Capitol Budget Project Number (FMS ID); and Contractor's and applicable subcontractor's name and address.
  3. Provide heavy paper dividers with plastic-covered tabs for each separate Warranty. Mark tab to identify the product or installation.
  4. Provide a typed description of each product or installation being warranted, including the name of the product, and the name, address, and telephone number of the Installer.
- F. When warranted materials and/or equipment require operation and maintenance manuals, provide additional copies of each required Warranty in each required manual. Refer to Section 01 78 39, CONTRACT RECORD DOCUMENTS, for requirements of Operation and Maintenance Manuals.

## PART II – PRODUCTS

### 2.1 MATERIALS:

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

## PART III – EXECUTION

### 3.1 FINAL CLEANING:

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
1. Complete the following cleaning operations, as applicable, before requesting inspection for Final Acceptance of the Work for entire Project or for a portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - e. Remove snow and ice to provide safe access to building.
    - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
    - h. Sweep concrete floors broom clean in unoccupied spaces.
    - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.



- j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
  - k. Remove labels that are not permanent.
  - l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
    - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
  - m. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
  - n. Replace parts subject to unusual operating conditions.
  - o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
  - p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
  - q. Clean ducts, blowers, and coils if units were operated without filters during construction.
  - r. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
  - s. Leave Project clean and ready for occupancy.
  - t. Construction Waste Disposal: Comply with waste disposal requirements in Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
- C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests, as required in Section 01 50 00, TEMPORARY FACILITIES, SERVICES AND CONTROLS. Prepare and submit a Pest Control report to the Commissioner.
- D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on City's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

### 3.2 REPAIR OF THE WORK:

- A. Subject to the terms of the Contract the Contractor shall complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Contractor shall repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
  - 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
  - 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.
    - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.



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3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

**END OF SECTION 01 77 00**



**SECTION 01 77 00**

**ATTACHMENT 'A'**

**The following list is a general sample of Substantial Completion requirements, including but not limited to:**

1. Prepare and submit a list to the Resident Engineer, of incomplete items, the value of incomplete construction, and reasons the work is not complete.
2. Obtain and submit any necessary releases enabling the City unrestricted use of the project and access to services and utilities.
3. Regulatory Approvals: Submit all required documentation from applicable Governing Authorities, including, but not limited to, Department of Buildings (DoB); Department of Transportation (DoT); Department of Environmental Protection (DEP); Fire Department (FDNY); etc. Documentation to include, but not limited to, the following:
  - a. Building Permits, Applications and Sign-offs.
  - b. Permits and Sign-off for construction fences; sidewalk bridges; scaffolds, cranes and derricks; utilities; etc.
  - c. Certificates of Inspections and Sign-offs.
  - d. Required Certificates and Use Permits.
  - e. Certificate of Occupancy (C.O.), Temporary Certificate of Occupancy (T.C.O.) or Letter of Completion as applicable.
4. Submit specific warranties required by the specifications, final certifications, and similar documents.
5. Prepare and submit Record Documents as described in Section 01 78 39, **CONTRACT RECORD DOCUMENTS**, including but not limited to; approved documentation from Governing Authorities; as-built record drawings and specifications; product data; operation and maintenance manuals; Final Completion construction photographs; damage or settlement surveys; final property surveys; and similar final record information. The Resident Engineer will review the submission and provide appropriate comments. If comments are significant the initial submission will be returned to the Contractor for correction and re-submission incorporating the comments prior to the Final Inspection.
6. Record Waste Management Progress Report: Submit C&D Waste Management logs, with legible copies of weight tickets and receipts required in accordance with Section 01 74 19, **CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL**.
7. If applicable submit LEED Letter Template in accordance with the requirements of Section 01 81 13, **SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS**.
8. Schedule applicable Demonstration and Orientation required in other Sections of the Project Specifications and as described in Section 01 79 00, **DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION**.
9. Deliver tools, spare parts, extra materials, and similar items to location designated by Resident Engineer. Label with manufacturer's name and model number where applicable.
10. Make final changeover of permanent locks and deliver keys to the Resident Engineer. Advise Commissioner of changeover in security provisions.
11. Complete startup testing of systems as applicable.
12. Submit approved test/adjust/balance records.
13. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements as directed by the Resident Engineer.
14. If applicable complete Commissioning requirements as defined in Section 01 91 13, **GENERAL COMMISSIONING REQUIREMENTS**.
15. Complete final cleaning requirements, including touchup painting.
16. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.



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CLOSEOUT PROCEDURES  
01 77 00 -8



**SECTION 01 78 39**  
**CONTRACT RECORD DOCUMENTS**

**PART I – GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

**1.2 SUMMARY:**

- A. This Section includes administrative and general procedural requirements for Contract Record Documents, including:
1. As-built Contract Record Drawings.
  2. As-built marked-up copies of Record Specifications, addenda and Change Orders.
  3. As-built marked-up Product Data
  4. Record Samples
  5. Construction Record Photographs
  6. Operating and Maintenance Manuals
  7. Final Site Survey
  8. Guarantees and Warranties
  9. Waste Disposal Documentation
  10. LEED Materials and Matrix
  11. Miscellaneous Record Submittals
- B. The Department of Design and Construction, at the start of construction (kick-off meeting), will furnish to the Contractor at no cost a complete set of Contract Drawings Mylars (reproducible) pertaining to the work to be performed under the Contract. It is the responsibility of the Contractor to modify the Contract Drawings to indicate all changes and corrections, if any, occurring in the work as actually installed. The Contractor is required to furnish all other Mylar (reproducible) drawings, if necessary, such as Addenda Drawings and Supplementary Drawings as may be necessary to indicate all work in detail as actually completed. All professional seals must be blocked out. Title box complete with project title and Design Consultants' names will remain.
- C. Maintenance of Documents and Samples: The Contractor shall maintain, during the progress of the work, an accurate record of the work as actually installed, on Contract Record Drawings, on Mylar (reproducible), in ink. Store record documents and samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition. Make documents and samples available at all times for the Resident Engineer's inspections.

The Contractor's attention is particularly directed to the necessity of keeping accurate records of all subsurface and concealed work, so that the Contract Record Drawings contain this information in exact detail and location. Contract Record Drawings shall also show all connections, valves, gates, switches, cut-outs and similar operating equipment.

For projects designated to achieve a LEED rating the Contractor shall receive a copy of the project's LEED scorecard for the purpose of monitoring compliance with the target objectives and to facilitate coordination with the LEED Consultant. The Contractor shall receive periodic updates of this scorecard,



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and is required to submit the final version of the Scorecard at Substantial Completion with other project Record Documents.

**1.3 RELATED SECTIONS: include without limitation the following:**

- A. Section 01 10 00 SUMMARY
- B. Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
- C. Section 01 32 33 PHOTOGRAPHIC DOCUMENTATION
- D. Section 01 33 00 SUBMITTAL PROCEDURES
- E. Section 01 77 00 PROJECT CLOSEOUT PROCEDURES

**1.4 DEFINITIONS:**

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

**1.5 SUBMITTALS:**

- A. As-Built Contract Record Drawings: Comply with the following:
  1. Progress Submission: As directed by the Resident Engineer, submit progress As-Built Contract Record Drawings at the 50% Construction Completion stage.
  2. Final Submission: Before substantial completion payment, the Contractor shall furnish to the Commissioner one (1) complete set of marked-up Mylar (reproducible) As-Built Contract Record Drawings, in ink indicating all of the work and locations as actually installed, plus one (1) set of paper prints which will be furnished to the sponsoring agency by DDC.
  3. As-Built Contract Record Drawings shall be of the same size as that of the Contract Drawings, with a one (1) inch margin on three (3) sides and a two (2) inch margin on the left side for binding.
  4. Each As-Built Contract Record Drawing shall bear the legend "AS-BUILT CONTRACT RECORD DRAWING" in heavy block lettering, one half (1/2) inch high, and contain the following data:

**AS-BUILT CONTRACT RECORD DRAWING**

Contractor's Name \_\_\_\_\_  
 Contractor's Address \_\_\_\_\_  
 Subcontractor's Name (where applicable) \_\_\_\_\_  
 Subcontractor's Address \_\_\_\_\_  
 Made by: \_\_\_\_\_ Date \_\_\_\_\_  
 Checked by: \_\_\_\_\_ Date \_\_\_\_\_

Commissioner's Representatives  
 (Resident Engineer) DDC  
 (Plumbing Inspector) DDC  
 (Heating & Ventilating Inspector) DDC  
 (Electrical Inspector) DDC



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5. Record Drawing Title Sheet: The Contractor shall prepare a title sheet, the same size as the Contract Record Drawings, which shall contain the following:
  - a. Heading:  
The City of New York  
Department of Design and Construction  
Division of Public Buildings
  - b. Capital Budget Project Number (FMS ID)
  - c. Name and Location of Project
  - d. Contractor's Name and Address
  - e. Subcontractor's Name and Address (where applicable)
  - f. Record of changes (a caption description of work affected, and the date and number of Change Order or other authorization)
  - g. List of Record Drawings
- B. Record Specifications, Addenda and Change Order: Submit to the Commissioner two (2) copies each of marked-up Record Specifications, Addenda and Change Orders.
- C. Record Product Data: Submit to the Commissioner two (2) sets of Record Product Data.
- D. Record Construction Photographs: Submit to the Commissioner final as-built construction photographs and negatives of the completed work as described in Section 01 32 33, PHOTOGRAPHIC DOCUMENTATION.
- E. Operating and Maintenance Manuals:
  1. Submit three (3) copies each of preliminary manuals to the Resident Engineer for review and approval. The Contractor shall make such corrections, changes and/or additions to the manual until deemed satisfactory by the Resident Engineer. Deliver three (3) copies of the final approved manuals to the Resident Engineer for distribution.
  2. Commissioning: Comply with the requirements of Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS, as well as the requirements set forth in sections of the Project Specifications, for projects designated for Commissioning. Submit four (4) copies each of data designated to be included in the Commissioning Operation and Maintenance Manual to the Resident Engineer. The Resident Engineer will forward such data to the Commissioning Authority/Agent (CxA) for review and comment. The Contractor shall make such corrections, changes and/or additions to the data until deemed satisfactory and deliver four (4) copies of the final data to the Resident Engineer for use by the Commissioning Authority/Agent (CxA) to prepare the Commissioning Operation and Maintenance Manual.
    - a. Non-Commissioning Data: All remaining data not designated for Commissioning and required as part of Maintenance and Operation Manual shall be prepared and assembled in accordance with the requirements of this section for Operating and Maintenance Manuals.
- F. Final Site Survey: Submit Final Site Survey as described in Section 01 73 00, EXECUTION, in quantities requested by the Commissioner, signed and sealed by a Land Surveyor licensed in the State of New York.
- G. Guarantees and Warranties.
- H. Waste Disposal Documents and Miscellaneous Record Documents.



## PART II – PRODUCTS

### 2.1 CONTRACT RECORD DRAWINGS:

- A. Record Prints: The Contractor shall maintain one set of blue- or black-line white prints as applicable of the Contract Drawings and Shop Drawings. If applicable, the Record Contract Drawings and Shop Drawings shall incorporate the arrangement of the work based on the accepted Master Coordination Drawing(s) as described in Section 01 33 00, SUBMITTAL PROCEDURES.
1. Preparation: The Contractor shall mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
    - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    - b. Accurately record information in an understandable drawing technique.
    - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
  2. Change Orders: All changes from Contract Drawings shall be distinctly encircled and identified by Change Order number correlating to changes listed on the "Title Sheet." The Contractor shall show within the encircled areas the work as actually installed.
- B. Content: Types of items requiring marking include, but are not limited to, the following:
- 1 Dimensional changes to Drawings.
  - 2 Revisions to details shown on Drawings.
  - 3 Depths of foundations below first floor.
  - 4 Locations and depths of underground utilities.
  - 5 Revisions to routing of piping and conduits.
  - 6 Revisions to electrical circuitry.
  - 7 Actual equipment locations.
  - 8 Duct size and routing.
  - 9 Locations of concealed internal utilities.
  - 10 Changes made by Change Order
  - 11 Changes made following Commissioner's written orders.
  - 12 Details not on the original Contract Drawings.
  - 13 Field records for variable and concealed conditions.
  - 14 Record information on the Work that is shown only schematically.
- C. Progress Record Mylar's (reproducible): As directed by the Resident Engineer at 50% construction completion, review marked-up Record Prints with the Resident Engineer and the Design Consultant. When directed by the Resident Engineer transfer progress mark-ups to a full set of Mylar's (reproducible) and submit one blue line or black line record copy to the Resident Engineer. The marked-up Mylar's (reproducible) shall be retained by the contractor for completion of mark-up and final submission.
- D. Final Contract Record Mylar's (reproducible): Immediately before final inspection for Certificate of Substantial Completion, review marked-up Record Prints with the Resident Engineer and the Design Consultant. When authorized, complete mark-up of a full set of corrected Mylar's (reproducible) of the Contract Drawings.
1. Incorporate changes and additional information previously marked on Record Prints. Erase, redraw, and add details and notations where applicable.
  2. Refer instances of uncertainty to Resident Engineer for resolution.
  3. Print the As-Built Contract Drawings and Shop Drawings for use as Record Transparencies as described in Sub-Section 1.5.

## 2.2 RECORD SPECIFICATIONS, ADDENDA AND CHANGE ORDERS:

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
  3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made
  4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
  5. Note related Change Orders and Record Drawings where applicable.
  6. Upon completion of mark-up, submit two (2) complete copies of the marked-up Record Specifications to the Commissioner.

## 2.3 RECORD PRODUCT DATA:

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
  3. If possible, a Change Order proposal should include resubmitting updated Product Data. This eliminates the need to mark up the previous submittal.
  4. Note related Change Orders and Record Drawings where applicable.
  5. Upon completion of mark-up submit to the Commissioner two (2) sets of the marked-up Record Product Data.
  6. Where Record Product Data is required as part of Maintenance Manuals, submit marked-up Product Data as an insert in the manual instead of submittal as record Product Data.

## 2.4 RECORD SAMPLE SUBMITTAL:

- A. Prior to the date of Substantial Completion, the Contractor shall meet with the Resident Engineer at the site to determine which of the Samples maintained during the construction period shall be transmitted to the Commissioner for record purposes.
- B. Comply with the Resident Engineer's instructions for packaging, identification marking and delivery to DDC. Dispose of other samples as specified for disposal of surplus and waste material.

## 2.5 OPERATING AND MAINTENANCE MANUALS:

- A. The Contractor shall provide preliminary and final versions of Operating and Maintenance Manuals required for those systems, equipment and materials listed in other Sections of the Project Specifications.
- B. Format: Prepare and assemble Operation and Maintenance Manuals in heavy-duty, 3-ring, hardback loose leaf binders in the form of an instructional manual. All binders for each discipline shall be the same color. When multiple binders are used, correlate data into related consistent groupings. Binder front shall contain permanently attached labels displaying the following:



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1. Heading:  
The City of New York  
Department of Design and Construction  
Division of Public Buildings
  2. Capital Budget Project Number (FMS ID)
  3. Name and Location of Project
  4. Contractor's Name and Address
  5. Subcontractor's Name and Address (where applicable)
  6. Dates of the work covered by the contents of the Project Manual.
  7. Binder spine shall display Project Number (FMS ID) and date of completion.
- C. Organization: Include a section in the directory for each of the following:
1. List of documents
  2. List of systems
  3. List of equipment
  4. Table of contents
- D. Arrange content by systems under Specification Section numbers and sequence of Table of Contents of the Project manual. Provide tabbed flyleaf for each separate product, equipment and/or system/subsystem with typed description of product and major component parts of equipment.
- E. Safety warnings or cautions shall be visibly highlighted within each maintenance procedure. Use of such highlights shall be limited to only critical items and shall not be used in an excessive manner which would reduce their effectiveness.
- F. For each product or system, list names, addresses and telephone numbers of Subcontractors and Suppliers, including local source of supplies and replacement parts. Vendors and Supplier listings are to include names, addresses and telephone numbers, including nearest field service telephone numbers.
- G. Where contents of the manual include any manufacturer's catalog pages, clearly indicate the precise items and options included in the installation and delete all manufacturers' data regarding products not included in the installation.
- H. All material within manuals shall be new. Copies used for prior submittals or used in construction shall not be used.
- I. Submit preliminary and final manual editions to the Commissioner according to the approved progress schedule.
- J. Manuals shall present all technical material to the greatest extent possible, with respect to text, tabular matter and illustrations. Illustrations shall preferably consist of line drawings. All applicable drawings shall be included. If available, color photograph prints may be included.
- K. Preliminary manual editions shall be as technically complete as the final manual edition. All illustrations shall be in final forms.
- L. Final manual editions shall be technically accurate and complete and shall represent all "as-built" systems, pieces of equipment, or materials, which have been accepted by the Commissioner. All illustrations, text and tabular material shall be in final form. All shop drawings shall be included as specified in individual Specification Sections.
- M. Building products, applied materials, and finishes: Include product data, with catalog number, size, composition, and color texture designations. Where applicable, provide information for re-ordering custom manufactured products.
- N. Instructions for care and maintenance: Include manufacturers' recommendations for cleaning agents and methods, and recommended schedule for cleaning and maintenance.





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- O. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical compositions, and details of installation. Provide recommendations for inspections, maintenance, and repair.
- P. Additional Requirements: Specified in individual Specification Sections.

**2.6 DEMONSTRATION AND ORIENTATION DVD:**

- A. Non-Commissioned Projects: The Contractor shall submit final version of applicable Demonstration and Orientation DVD recordings in compliance with Section 01 79 00, DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION.

**2.7 GUARANTEES AND WARRANTIES:**

- A. SCHEDULE B – Requirements for guarantees and warranties for the Project are set forth in Schedule B, which is included as part of the Addendum.
- B. FORM – For all guarantee requirements set forth in Schedule B, the Contractor shall provide a written guaranty, in the form set forth herein.
- C. Submit fully executed and signed manufacturers' Warranties as listed in the Project Specifications and outlined in Schedule B of the Addendum. Refer to Section 01 77 00, CLOSEOUT PROCEDURES for submittal requirements.



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**GUARANTY**

DDC PROJECT # \_\_\_\_\_

PROJECT DESCRIPTION \_\_\_\_\_

CONTRACT # \_\_\_\_\_

SPECIFICATION SECTION # AND TITLE \_\_\_\_\_

GUARANTY TO BE IN EFFECT FROM \_\_\_\_\_  
TO \_\_\_\_\_

The Contractor hereby guarantees that the work specified under the above section of the aforesaid Contract will be free from defects of material and/or workmanship, for the period indicated above.

The Contractor also guarantees that it will promptly repair, restore, rebuild or replace whichever may be deemed necessary by the City, any or all defective material or workmanship of the aforementioned section, that may appear within the guaranty period and any finished work to which damage may occur because of such defects, to the satisfaction of the City and without any cost or expense to the City.

The Contractor hereby agrees to pay to the City the cost of the repairs or replacements should the City make the same because of the failure of the Contractor to do so.

Contractor: \_\_\_\_\_

By: \_\_\_\_\_  
Signature of Partner or Corporate Officer

Print Name: \_\_\_\_\_

Subscribed and sworn to before me this  
day of \_\_\_\_\_, year \_\_\_\_\_

\_\_\_\_\_  
Notary Public



**2.8 WASTE DISPOSAL DOCUMENTATION:**

- A. Certify and deliver to the Commissioner all documentation including reports, receipts, certificates, records etc. for the collection, handling, storage, classification, testing, transportation, recycling and/or disposal of all Non-Hazardous Construction Waste as required by Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL, and Hazardous Waste as required by other Project Specification Sections. Certify compliance with all applicable governing laws, codes, rules and regulations.

**2.9 MISCELLANEOUS RECORD DOCUMENTS:**

- A. Refer to other Project Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Prior to Final Acceptance, complete miscellaneous records and place in good order, properly identified and bound or otherwise organized to allow for use and reference.
- B. Submit three (3) copies of each document to the Commissioner or as otherwise directed by the Commissioner.

**PART III – EXECUTION**

**3.1 RECORDING AND MAINTENANCE:**

- A. Recording: Maintain one copy of each submittal during the construction period for Contract Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Contract Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to the Contract Record Documents for the Resident Engineer's reference during normal working hours.

**END OF SECTION 01 79 39**



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**SECTION 01 79 00**  
**DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION**

**REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 79 00**

**PART I – GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

**1.2 SUMMARY:**

- A. This Section includes administrative and procedural requirements, when set forth in sections of the Project Specifications, for instructing facility's personnel, including the following:
1. Demonstration of operation of systems, subsystems, and equipment.
  2. Owner's Pre-Acceptance Orientation in operation and maintenance of systems, subsystems, and equipment.
  3. Demonstration and Orientation videotapes. (Non-Commissioned Projects)
- B. The Contractor shall provide the services of equipment manufacturers orientation specialists experienced in the type of equipment to be demonstrated.
- C. Separate Orientation sessions shall be conducted for mechanical operations and maintenance personnel and for electronic and electrical maintenance personnel.
- D. Commissioning: Refer to the Addendum to identify whether this project is to be Commissioned. For Commissioned projects the Contractor shall provide Demonstration and Orientation as described in this section and cooperate with the Commissioning Authority/Agent (CxA) to implement Commissioning requirements as described in Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS.

**1.3 RELATED SECTIONS: include without limitation the following:**

- A. Section 01 10 00 SUMMARY
- B. Section 01 33 00 SUBMITTAL PROCEDURES
- C. Section 01 77 00 CLOSEOUT PROCEDURES
- D. Section 01 78 39 CONTRACT RECORD DOCUMENTS
- E. Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS
- F. Specific requirements for demonstration and orientation indicated in other sections of the Project Specifications

**1.4 DEFINITIONS:**

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.



- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

#### 1.5 SUBMITTALS:

- A. Instruction Program: Submit three (3) copies of outline of instructional program for demonstration and orientation, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each orientation module to the Commissioner for approval no less than thirty (30) days prior to the date the proposed orientation is to take place. Include learning objectives and outline for each orientation module.
1. At completion of orientation, submit three (3) complete orientation manual(s) and three (3) applicable DVD recording(s) to the Commissioner for the facility's and City's use.
- B. Qualification Data: For facilitator, instructor and Videographer.
- C. Attendance Record: For each orientation module, submit list of participants and length of instruction time.
- D. Evaluations: For each participant and for each orientation module, submit results and documentation of performance-based test.
- E. Submit all final orientation material to the Resident Engineer a minimum of fourteen (14) days prior to the scheduled orientation.
- F. Demonstration and Orientation Recordings:
1. Non-Commissioned Projects:
    - a. The Contractor shall submit to the Commissioner three (3) copies of Demonstration and Orientation DVD (Digital Video Disk) recordings within seven (7) days of end of each orientation module.
    - b. Identification: On each copy, provide an applied label with the following information:
      - 1) Project Contract I.D. Number
      - 2) Project Contract Name
      - 3) Name of Contractor
      - 4) Name of Subcontractor as applicable
      - 5) Name of Design Consultant
      - 6) Name of Construction Manager as applicable
      - 7) Date recorded.
      - 8) Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
      - 9) Table of Contents including list of systems covered.
    - c. Transcript: Prepared on 8-1/2-by-11-inch paper, hole-punched and bound in heavy-duty, 3-ring, vinyl-covered binders. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as the corresponding DVD recording. Include name of Project and date of recording on each page.
  2. Commissioned Projects:
    - a. Demonstration and Orientation DVD recordings for Commissioned projects will be recorded by the Commissioning Authority/Agent (CxA) under separate contract with the City of New



York. The Contractor performing Demonstration and Orientation shall cooperate with the CxA in the recording of each Demonstration and Orientation module.

#### 1.6 QUALITY ASSURANCE:

- A. Facilitator Qualifications: A firm or individual experienced in orientation or educating maintenance personnel in an orientation program similar in content and extent to that indicated for this Project.
- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 01 40 00, QUALITY REQUIREMENTS, experienced in operation and maintenance procedures and orientation.
- C. Videographer Qualifications: A professional Videographer who has experience with orientation and construction projects.
- D. Pre-instruction Conference: Schedule with the Resident Engineer a conference at Project site to comply with requirements in Section 01 31 00, PROJECT MANAGEMENT AND COORDINATION. Review methods and procedures related to demonstration and orientation including, but not limited to, the following:
  - 1. Inspect and discuss locations and other facilities required for instruction.
  - 2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
  - 3. Review required content of instruction.
  - 4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

#### 1.7 COORDINATION:

- A. Coordinate instruction schedule with the Resident Engineer and facility's operations. Adjust schedule as required to minimize disrupting facility's operations.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of orientation modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by the Commissioner.

### PART II – PRODUCTS

#### 2.1 INSTRUCTION PROGRAM:

- A. Program Structure: Develop an instruction program that includes individual orientation modules for each system and equipment not part of a system, as specified and required by individual Specification Sections.
- B. Orientation Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following:
  - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
    - a. System, subsystem, and equipment descriptions.
    - b. Performance and design criteria if Contractor is delegated design responsibility.
    - c. Operating standards.



- d. Regulatory requirements.
  - e. Equipment function including auxiliary equipment and systems.
  - f. Operating characteristics.
  - g. Limiting conditions.
  - h. Performance curves.
2. Documentation: Review the following items in detail:
    - a. Emergency manuals.
    - b. Operations manuals.
    - c. Maintenance manuals.
    - d. Project Record Documents.
    - e. Identification systems.
    - f. Warranties
  3. Emergencies: Include the following, as applicable:
    - a. Instructions on meaning of warnings, trouble indications, and error messages.
    - b. Instructions on stopping.
    - c. Shutdown instructions for each type of emergency.
    - d. Operating instructions for conditions outside of normal operating limits.
    - e. Sequences for electric or electronic systems.
    - f. Special operating instructions and procedures.
  4. Operations: Include the following, as applicable:
    - a. Startup procedures.
    - b. Equipment or system break-in procedures.
    - c. Routine and normal operating instructions.
    - d. Regulation and control procedures.
    - e. Control sequences.
    - f. Safety procedures.
    - g. Instructions on stopping.
    - h. Normal shutdown instructions.
    - i. Operating procedures for emergencies.
    - j. Operating procedures for system, subsystem, or equipment failure.
    - k. Seasonal and weekend operating instructions.
    - l. Required sequences for electric or electronic systems.
    - m. Special operating instructions and procedures.
  5. Adjustments: Include the following:
    - a. Alignments.
    - b. Checking adjustments.
    - c. Noise and vibration adjustments.
    - d. Economy and efficiency adjustments.
  6. Troubleshooting: Include the following:
    - a. Diagnostic instructions.
    - b. Test and inspection procedures.
  7. Maintenance: Include the following:
    - a. Inspection procedures.
    - b. Types of cleaning agents to be used and methods of cleaning.
    - c. List of cleaning agents and methods of cleaning detrimental to product.
    - d. Procedures for routine cleaning





- e. Procedures for preventive maintenance.
  - f. Procedures for routine maintenance.
  - g. Instruction on use of special tools.
  - h. Housekeeping practices
8. Repairs: Include the following:
- a. Diagnosis instructions.
  - b. Repair instructions.
  - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  - d. Instructions for identifying parts and components.
  - e. Review of spare parts needed for operation and maintenance.

### **PART III – EXECUTION**

#### **3.1 INSTRUCTION:**

- A. **Facilitator:** Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and the Resident Engineer for the number of participants, instruction times, and location.
- B. The Contractor shall engage qualified instructors to instruct facility's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
- C. **Scheduling:** Schedule instruction with the Resident Engineer at mutually agreed times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
  - 1. Schedule orientation with the Resident Engineer with at least fourteen (14) days' advance notice.
- D. **Evaluation:** At conclusion of each orientation module, assess and document each participant's mastery of module(s) by use of an oral a written or a demonstration performance-based test.
- E. **Cleanup:** Collect and remove used and leftover educational materials from project site. Remove instructional equipment. Restore systems and equipment to condition existing before initial orientation use.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.2.A or  
SUB-SECTION 3.2.B**

#### **3.2 DEMONSTRATION AND ORIENTATION RECORDINGS:**

- A. **Non-Commissioned projects:**
  - 1. The Contractor shall engage a qualified commercial Videographer to record demonstration and orientation sessions. Record each orientation module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
  - 2. At beginning of each orientation module, record each chart containing learning objective and lesson outline.
  - 3. All recordings must be close captioned.
  - 4. **Recording Format:** Provide high-quality DVD (Digital Video Disk) format.



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5. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to show area of demonstration and orientation. Display continuous running time.
6. Narration: Describe scenes on the recording by audio narration by microphone while recording or by dubbing audio narration off-site after. Include description of items being viewed. Describe vantage point, indicating location, direction (by compass point), and elevation or story of construction.
7. Transcript: Provide a typewritten transcript of the narration. Display images and running time captured from opposite the corresponding narration segment.

B. Commissioned Projects:

1. The Commissioning Authority/Agent (CxA) under separate contract with the City of New York will be responsible for DVD recording of Demonstration and Orientation sessions as described in Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS.

END OF SECTION 01 79 00



**SECTION 01 81 13**  
**SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS**

**REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 81 13**

**PART I – GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

**1.2 SUMMARY:**

**A. LEED BUILDING - GENERAL REQUIREMENTS:**

The City of New York is committed to implementing good environmental practices and procedures which include achieving a LEED™ Green Building rating. Specific project requirements related to this goal are listed in the applicable paragraphs of this section of the General Conditions. The Contractor shall ensure that these requirements as defined in the sections below and in related sections of the Contract Documents, are implemented to the fullest extent. Substitutions, or other changes to the work proposed by the Contractor or their Subcontractors, shall not be allowed if such changes compromise the stated LEED BUILDING criteria.

**B. This Section includes:**

1. Definitions
2. LEED Provisions
3. LEED Building Submittals
4. LEED Building Submittal Requirements
5. LEED Action Plan

**1.3 RELATED SECTIONS:** Include without limitation the following:

- |    |                     |  |
|----|---------------------|--|
| A. | Section 01 74 19    | CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL   |
| B. | Section 01 81 13.13 | VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES,<br>SEALANTS, PAINTS AND COATINGS |
| C. | Section 01 81 19    | INDOOR AIR QUALITY REQUIREMENTS FOR LEED BUILDINGS                                     |
| D. | Section 01 91 13    | GENERAL COMMISSIONING REQUIREMENTS   |

**1.4 DEFINITIONS:**

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Agrifiber Products: Products derived from recovered agricultural waste fiber from sources such as cereal straw, sugarcane bagasse, sunflower husk, walnut shells, coconut husks, and agricultural prunings, processed and mixed with resins to produce panels with characteristics similar to composite wood.



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- C. Composite Wood: Products composed of wood or plant particles or fibers bonded by a synthetic resin or binder to produce panels such as plywood, particleboard, and medium density fiberboard (MDF). Does not include hardboard, structural panels, glued laminated timber, prefabricated wood I-joists, or finger-jointed lumber.
- D. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.
- E. Forest Stewardship Council (FSC) Certified Wood: Wood-based materials and products certified in accordance with the Forest Stewardship Council's principles and criteria.
- F. LEED: The Leadership in Energy & Environmental Design rating system developed by the United States Green Building Council.
- G. Rapidly Renewable Materials: Materials made from agricultural products that are typically harvested within a ten-year or shorter cycle. Rapidly renewable materials include products made from bamboo, cotton, flax, jute, straw, sunflower seed hulls, vegetable oils, or wool.
- H. Regionally Manufactured Materials: Materials that are manufactured within a radius of 500 miles from the Project location. Manufacturing refers to the final assembly of components into the building product that is installed at the Project site.
- I. Regionally Extracted, Harvested, or Recovered Materials: Materials which are extracted, harvested, or recovered and manufactured within a radius of 500 miles from the Project site.
- J. Recycled Content: The percentage by weight of constituents that have been recovered or otherwise diverted from the solid waste stream, either during the manufacturing process (pre-consumer), or after consumer use (post-consumer).
  - 1. Spills and scraps from the original manufacturing process that are combined with other constituents after a minimal amount of reprocessing for use in further production of the same product are not recycled materials.
  - 2. Discarded materials from one manufacturing process that are used as constituents in another manufacturing process except mechanical and electrical components are pre-consumer recycled materials.
  - 3. "Pre-consumer" may also be referred to as "post-industrial".
- K. Solar Reflectance Index (SRI): A measure of a material's ability to reflect solar heat, as shown by a small temperature rise. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is equal to 0, and a standard white (reflectance 0.80, emittance of 0.90) is equal to 100.
- L. Volatile Organic Compound (VOC): Any compound of carbon (excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate) which vaporizes (becomes a gas) and participates in atmospheric photochemical reactions, as specified in Part 51.00 of Chapter 40 of the U.S. Code of Federal Regulations, at normal room temperatures. For the purposes of this specification, formaldehyde and acetaldehyde are considered to be VOCs.



### 1.5 LEED PROVISIONS:

- A. Refer to the Addendum for the LEED rating to be achieved for this project. The provisions to achieve this LEED rating are integrated within the project construction documents and specifications. The Contractor is specifically directed to the "LEED BUILDING Performance Criteria" and "LEED BUILDING Submittals" sections within the contract specification. Additional LEED requirements are met through aspects of the project design, including material and equipment selections, which may not be specifically identified as LEED BUILDING requirements. Compliance with the requirements needed to obtain LEED prerequisites and credits will be used as one criterion to evaluate substitution requests.

### 1.6 LEED BUILDING SUBMITTALS:

- A. Scope: LEED BUILDING submittals are required for all installed materials included in General Construction work. LEED BUILDING Submittals are only required for field-applied adhesives, sealants, paints and coatings included in Plumbing, Mechanical and Electrical work. Submit all required LEED BUILDING submittals in accordance with Section 01 33 00, SUBMITTAL PROCEDURES.
- B. Applicability: The extent of the LEED BUILDING Submittals varies depending on the specification section. Applicable LEED BUILDING Submittals are listed under the "LEED BUILDING Submittals" heading in each specification section. The detailed requirements for the LEED BUILDING Submittals are defined in Item C below.
- C. Detailed Requirements: Sub-Sections 1.6 C.1 through 1.6 C.3 below defines the information and documents to be provided for each type of LEED BUILDING Submittal as identified in the LEED Submittal Requirements of each specification section:
1. ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM (EBMCF)[GHI]: Information to be supplied for this form (blank sample copy attached at end of this Section to be modified as appropriate to the project) shall include some or all of the following items, as identified in the LEED Submittal Requirements of each specification section:
    - a. Cost breakdowns for the materials included in the contractor or sub-contractor's scope of work. Cost reporting shall include itemized material costs (excluding the contractor's labor, equipment, overhead and profit).
    - b. The percentages (by weight) of post-consumer and/or post-industrial recycled content in the supplied product(s).
      1. For each product with recycled content, also indicate the total recycled content value ( $1/2 \times \text{pre-consumer percentage} \times \text{product value} + 1 \times \text{post-consumer percentage} \times \text{product value} = \text{total recycled content value}$ ).
      2. See additional requirements for concrete below.
    - c. Identification (Yes/No) of materials manufactured within 500 miles of the project site AND containing raw materials harvested or extracted within 500 miles of the project site.
      - 1) Indicate the percentage by weight, relative to the total weight of the product that meets these criteria.
      - 2) Indicate the point of harvest/extraction/recovery of regional raw materials, the point of final assembly of regional manufactured products, and the distance from each point to the project site.
    - d. Volatile Organic Compound (VOC) content of all field-applied adhesives, sealants, paints, and coatings, listed in grams/liter or lbs./gallon, less water.
      - 1) For detailed requirements refer to Section 01 81 13.13 VOC LIMITS FOR ADHESIVES, SEALANTS, PAINTS AND COATINGS.
    - e. The amount of "Forest Stewardship Council (FSC) Certified" wood products if used in the Project.
      - 1) Record only new FSC-certified wood products. Do not record reclaimed, salvaged, or recycled FSC-certified wood products.



- 2) Reclaimed, salvaged, or recycled FSC-certified wood may be recorded as post-consumer recycled content.
  - f. The amount of Rapidly Renewable materials if used in the Project.
    - 1) Indicate the type of rapidly renewable material used, and the percentage by weight, relative to the total weight of the product, that consists of rapidly renewable material.
  - g. The percentage (by weight), relative to the total weight of cementitious materials, of supplementary cementitious materials or pozzolans such as fly ash used in each concrete mix used in the Project.
    - 1) For each concrete mix, provide a complete breakdown of all components, by weight and by cost.
  - h. Identification (Yes/No) of composite wood or agrifiber products used in the project that are free of added urea-added formaldehyde resins.
  - i. Identification (Yes/No) of flooring products used in the project that have Carpet and Rug Institute (CRI) Green Label or Green Label Plus certification, or Resilient Floor Covering Institute FloorScore certification.
    - 1) Untreated solid wood flooring, and mineral-based flooring products such as tile, masonry, terrazzo, and cut stone that have no organic-based coatings or sealants, are excluded from this requirement.
  - j. The EBMCF shall record the above information only for those materials or products permanently installed in the project. The EBMCF shall record VOC content, composite and agrifiber products, and CRI or FloorScore ratings only for those materials or products permanently installed within the weather barrier of the LEED building.
2. **EBMCF BACK-UP DOCUMENTATION:** These documents are used to validate the information provided on the EBMCF (except cost data). For each material listed on the EBMCF, provide documentation to certify the material's LEED BUILDING attributes, as applicable:
- a. **RECYCLED CONTENT:** Provide published product literature or letter of certification on the manufacturer's letterhead certifying the amounts of post-consumer and/or post-industrial content.
  - b. **REGIONAL MANUFACTURING AND REGIONAL RAW MATERIALS (WITHIN 500 MILES):** Provide published product literature or letter of certification on the manufacturer's letterhead indicating the city/state where the manufacturing plant is located, where each of the raw materials in the product were extracted, harvested or recovered and the distance in miles from the project site.
    - 1) If only some of the raw materials for a particular product or assembly originate within 500 miles of the project site, provide the percentage (by weight) that these materials comprise in the complete product.
  - c. **VOC CONTENT:** Provide Material Safety Data Sheets (MSDS) certifying the Volatile Organic Compound (VOC) content of the adhesive, sealant, paint, or coating products. VOC content is to be reported in grams/liter or lbs./gallon, less water. If the MSDS does not show the product's VOC content, this information must be provided through other published product literature from the manufacturer, or stated in a letter of certification from the product manufacturer on the manufacturer's letterhead.
  - d. **RAPIDLY RENEWABLE MATERIALS:** If used in the project, provide published literature or letter of certification on the manufacturer's letterhead certifying the percentage of each product that is rapidly renewable (by weight).
3. **PRODUCT CUT SHEETS:** Provide product cut sheets with the Contractor's or sub-contractor's stamp, confirming that the submitted products are the products installed in the Project.
4. **CRI GREEN LABEL PLUS CERTIFICATION:** For carpets and carpet cushions, provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying that the products comply with the "Green Label Plus" IAQ testing program of the Carpet and Rug Institute of Dalton, GA.



5. **CERTIFICATION OF COMPOSITE WOOD OR AGRIFIBER RESINS:** For all composite wood, engineered wood and agrifiber products (including plywood, particleboard, and medium density fiberboard), provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying that the products do not contain added urea-formaldehyde resins.
6. **CERTIFICATION OF COMPOSITE WOOD OR AGRIFIBER LAMINATING ADHESIVES:** For all laminating adhesives used with composite wood, engineered wood and agrifiber products (e.g., adhesives used to laminate wood veneers to an engineered wood substrate), provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying that the adhesive products do not contain urea-formaldehyde.
7. **FSC-CERTIFIED WOOD:**
  - a. If used in the project, provide chain of custody documents and copies of invoices regarding wood products, including whether or not such wood product is FSC-certified.
  - b. If used in the project, for assemblies, provide the percentage (by cost and by weight) of the assembly that is FSC-certified wood.
  - c. If used in the project, for assemblies, provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying the percentage that is FSC-certified wood.
8. **GREEN SEAL COMPLIANCE:** Provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying that the following product types comply with the VOC limits and chemical component restrictions developed by the Green Seal organization of Washington, DC:
  - a. Interior Architectural Paints and Coatings: refer to Green Seal standard GS-11 (1<sup>st</sup> edition, May 1993)
  - b. Anti-corrosive and Anti-rust paints: refer to Green Seal standard GC-03 (2<sup>nd</sup> Edition, January 1997)
  - c. Aerosol Adhesives: refer to Green Seal standard GS-36 (1<sup>st</sup> edition, October 2000)
9. **HIGH ALBEDO PAVING AND WALKWAY MATERIALS:** For paving and walkway materials made from concrete or brick provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying a minimum Solar Reflectance Index (SRI) value of 29. SRI values shall be calculated according to ASTM E 1980. Reflectance shall be measured according to ASTM E 903, ASTM E 1918, or ASTM C 1549. Emittance shall be measured according to ASTM E 408 or ASTM C 1371.
10. **HIGH ALBEDO ROOFING MATERIALS:** For exposed roofing membranes, pavers, and ballast products, provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying the following minimum Solar Reflectance Index (SRI) values:
  - a. 78 for low-sloped roofing applications (slope  $\leq$  2:12)
  - b. 29 for steep-sloped roofing applications (slope  $>$  2:12)

SRI values shall be calculated according to ASTM E 1980. Reflectance shall be measured according to ASTM E 903, ASTM E 1918, or ASTM C 1549. Emittance shall be measured according to ASTM E 408 or ASTM C 1371.

Vegetated roof surfaces are exempt from the SRI criteria.
11. **LOW MERCURY LAMPS:** For all fluorescent, compact fluorescent, and HID lamps installed in the project, provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying:
  - a. The mercury content or content range per lamp in milligrams or picograms;
  - b. The design light output per lamp (light at 40% of a lamp's useful life) in lumens; and
  - c. The rated average life of the lamp in hours.



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In addition, provide the total number of each lamp type installed in the project.

12. **FLOORSCORE CERTIFICATION:** For all hard surface flooring, including vinyl, linoleum, laminate flooring, wood flooring, ceramic flooring, rubber flooring, and wall base, provide published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying that the products comply with the current FloorScore standard requirements.
13. **CONCRETE:** Provide concrete mix design for each mix, designated by a distinct identifying code or number and signed by a Professional Engineer licensed in the state in which the concrete manufacturer or supplier is located.
14. **INTERIOR LIGHTING FIXTURES:** For each lighting fixture type installed within the building's weather barrier, provide manufacturer's cut sheets indicating the following:
  - a. Fixture power in watts.
  - b. Initial lamp lumens.
  - c. Photometric distribution data.
  - d. Dimming capability, in range of percentages.
15. **EXTERIOR LIGHTING FIXTURES:** For each lighting fixture type installed on site, provide manufacturer's cut sheets indicating the following:
  - a. Fixture power in watts.
  - b. Initial lamp lumens.
  - c. Photometric distribution data.
  - d. Range of field adjustability, if any.
  - e. Warranty of suitability for exterior use.
16. **ALTERNATIVE TRANSPORTATION:** Provide manufacturer's cut sheets and/or shop drawings for the following items installed on site:
  - a. Bike racks, including total number of bicycle slots provided.
  - b. Signage indicating parking spaces reserved for electric or low-emitting vehicles and for carpools/vanpools, including total number of signs.
17. **WATER CONSERVING FIXTURES:** For all water consuming plumbing fixtures and fittings, provide manufacturer's cut sheets showing maximum flow rates and/or flush rates.
18. **ENERGY SAVING APPLIANCES:** Provide manufacturer's cut sheets and published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying the product's rating under the U.S. EPA/DOE Energy Star program, for all of the following:
  - a. Appliances (i.e., refrigerators, dishwashers, microwave ovens, televisions, clothes washers, clothes dryers, chilled water dispensers).
  - b. Office equipment (i.e., copy machines, fax machines, plotters/printers, scanners, binding and publishing equipment).
  - c. Electronics (i.e., servers, desktop computers, computer monitor displays, laptop computers, network equipment).
  - d. Commercial food service equipment
19. **GLAZING:** For glazing in any windows, doors, storefront and window wall systems, curtainwall systems, skylights, and partitions, provide manufacturer's cut sheets indicating the following:
  - a. Glazed area.
  - b. Visible light transmittance.
  - c. Solar heat gain coefficient.
  - d. Fenestration assembly u-factor.
20. **VENTILATION:** Provide manufacturer's cut sheets for the following:
  - a. Carbon dioxide monitoring systems, if any, installed to measure outside air delivery.
  - b. Air filters: for detailed requirements refer to Section 01 81 19 INDOOR AIR QUALITY REQUIREMENTS.
21. **REFRIGERATION:** For all refrigeration equipment, provide manufacturer's cut sheets indicating the following:
  - a. Equipment type.





- b. Equipment life. Default values specified by the 2007 ASHRAE Applications Handbook will be used unless otherwise demonstrated by the manufacturer's guarantee and an equivalent long-term service contract.
- c. Refrigerant type.
- d. Refrigerant charge in pounds of refrigerant per ton of gross cooling capacity.
- e. Tested refrigerant leakage rate, in percent per year. A default rate of 2% will be used unless otherwise demonstrated by test data.
- f. Tested end-of-life refrigerant loss, in percent. A default rate of 10% will be used unless otherwise demonstrated by test data.

#### 1.7 LEED BUILDING SUBMITTAL REQUIREMENTS:

- A. The LEED BUILDING submittal information shall be assembled into one package per specification section(s) (or per subcontractor), and submitted in accordance with Section 01 33 00, SUBMITTAL PROCEDURES. Incomplete or inaccurate LEED BUILDING submittals may be used as the basis for rejecting the submittals of products or assemblies.

#### 1.8 LEED ACTION PLANS:

- A. Construction Waste Management Plan- Refer to Section 01 74 19, Construction Waste Management and Disposal for detailed submittal requirements.
- B. Construction IAQ Management Plan- Refer to Section 01 81 19, Indoor Air Quality Requirements for LEED Buildings, for detailed submittal requirements.
- C. Erosion and Sedimentation Control Plan:
  - 1. The Plan shall be in accordance with the New York State Department of Environmental Conservation (NYSDEC) or the 2003 EPA Construction General Permit, whichever is more stringent.
  - 2. The Plan shall be submitted in accordance with Section 01 33 00, SUBMITTAL PROCEDURES.
  - 3. Detailed requirements: ESC Plan
    - a. Include the Stormwater Pollution Prevention Plan, if required.
    - b. Identify the party responsible for Plan monitoring and documentation. The party must be regularly on site.
    - c. Describe all site work that will be implemented on the project.
    - d. Provide site plan with location of ESC measures, including, but not limited to, stormwater quantity controls, stormwater quality controls, stabilized construction entrances, washdown areas, and inlet/catch basin protection.
    - e. Describe the inspection and maintenance of the ESC measures. Provide a construction schedule indicating weekly site review.
    - f. Describe reporting and documentation measures.
  - 4. Detailed requirements: ESC Measures
  - 5. Submittal requirements: ESC Tracking Log
    - a. Note date of major rain events, describe damage, describe any repairs or maintenance performed, and note responsible party.
    - b. Note date and findings of weekly site review, describe any repairs or maintenance performed, and note responsible party.
    - c. Submit monthly.
  - 6. Implementation
    - a. The Contractor shall implement the ESC Plan, coordinate the Plan with all affected trades, and designate one individual as the Erosion and Sedimentation Control Representative, who



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will be responsible for communicating the progress of the Plan with the Commissioner on a regular basis, and for assembling the required LEED documentation.

- b. The Contractor shall be responsible for the provision, maintenance, and repair of all ESC measures.
- c. Demonstration. The Contractor shall provide on-site instruction of proper construction practices required to prevent erosion and sedimentation.
- d. Meetings. Urgent or ongoing ESC issues shall be discussed at weekly on-site job meetings.

#### 1.9 QUALITY ASSURANCE:

- A. The Contractor shall implement all LEED Action Plans, coordinate the Plans and LEED Building Submittals with all affected trades, and designate one individual as the Sustainable Construction Representative at no additional cost to the City of New York, who will be responsible for communicating the progress of LEED activities with the Commissioner on a regular basis, and for assembling the required LEED documentation.
- B. Responsibilities of Contractor's Subcontractors: The Contractor shall be responsible for his/her subcontractors complying with the LEED Action Plans and for providing required LEED documentation as required for the project.
- C. Distribution and Compilation: The Contractor shall be responsible for distributing the EBMCF and any other forms or templates required for the subcontractors to record LEED documentation. The Contractor shall also be responsible for collecting and compiling EBMCF information into packages as described in Section 01 33 00 SUBMITTAL PROCEDURES.
- D. Meetings: Sustainable design and construction issues shall be discussed at the following meetings:
  - 1. Demolition kick-off meeting
  - 2. Construction kick-off meeting
  - 3. Construction kick-off meeting for LEED (independent meeting)
  - 4. Weekly job-site progress and coordination meetings
  - 5. Closeout meeting

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 81 13**



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ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM

Date: \_\_\_\_\_
Project Name: \_\_\_\_\_
Project I.D.: \_\_\_\_\_
Project Location: \_\_\_\_\_

Contractor Name: \_\_\_\_\_
Contractor Contact: \_\_\_\_\_
Telephone Number: \_\_\_\_\_

Table with columns: Recycled Content (Pre-Consumer, Post-Consumer, Total %), Regional (Location & Distance to Extraction), Rapidly Renewable (Material, % by wt), VOC content, Flooring (Green Label or FloorScore), Wood (Added urea formaldehyde, FSC Certified). Rows for Product/Manufacturer.

1 Material Cost: As it appears on the manufacturer's or distributor's invoice to the contractor or subcontractor. Does not include labor or equipment costs associated with installation.
2 Pre-Consumer Recycled Content: Industrial/manufacturing waste material (e.g., fly-ash and synthetic gypsum, both waste products from coal burning electricity plants) diverted from landfill and incorporated into a finished product. Scrap raw materials that can be reused in the same manufacturing process from which they are recovered are not considered Pre-Consumer Recycled Content.
3 Post-Consumer Recycled Content: Material or product that has served its intended consumer use (e.g., an empty plastic bottle) and has been diverted from landfill and incorporated into a finished product.
4 Regional: Refers to a material/product that is BOTH extracted AND manufactured within 500 miles of the Project site. Record this information ONLY for materials/products meeting BOTH of these criteria.
5 Extraction: Refers to the location from which the raw resources used in a building product are extracted, harvested, or recovered.
6 Manufacture: Refers to the location of the final assembly of components into a building product that is furnished and installed by the Contractor.
7 Rapidly Renewable: Refers to materials/products derived from agricultural products that are typically harvested within a ten-year or shorter cycle.
8 VOC Content: The quantity of volatile organic compounds contained in adhesives, sealants, paints and architectural coatings. Reported in grams/liter or lbs/gallon, less water.
9 Flooring: For carpet, indicate Carpet and Rug Institute (CRI) Green Label Plus certification. For carpet cushion, indicate CRI Green Label certification. For all flooring except unfinished/unreated wood and mineral-based flooring (tile, masonry, terrazzo, cut stone) without organic-based coatings or sealants, indicate Resilient Floor Covering Institute FloorScore rating. VOC limits for adhesives, sealants, etc. still apply.
10 Added Urea Formaldehyde: Applies to composite wood and aggrifiber products only (plywood, particleboard, MDF, OSB, wheatboard, strawboard). Resins or binders with added urea formaldehyde are prohibited.
11 FSC Certified: Certification from the Forest Stewardship Council. This column is only applicable to wood products.
\* Applies only to materials/products installed within the weather barrier.

Contractor Certification: \_\_\_\_\_ (the Contractor) hereby certify that the material information contained herein is an accurate representation of the material qualifications to be provided by the Contractor as components of the final building construction. Furthermore, I understand that any change in such qualifications during the purchasing period will require prior written approval from the Commissioner.
Signature of Authorized Representative: \_\_\_\_\_ Date: \_\_\_\_\_

No Text



**SECTION 01 81 13.13**  
**VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES, SEALANTS, PAINTS AND COATINGS FOR LEED BUILDINGS**

**REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 81 13.13**

**PART I – GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

**1.2 SUMMARY:**

- A. This Section includes requirements for volatile organic compound (VOC) content in adhesives, sealants, paints and coatings used for the project.
- B. All sections in the Project Specifications with adhesives, sealant or sealant primer applications, paints and coatings shall follow all requirements of this section. In the event of any conflict or inconsistency between this section and the Specifications regarding adhesives, sealant or sealant applications, paints and coatings, the requirements set forth in this Section shall prevail.
- C. This Section includes:
1. General Requirements
  2. References
  3. VOC Requirements for Interior Adhesives
  4. VOC Requirements for Interior Sealants
  5. VOC requirements for Interior Paints
  6. VOC requirements for Interior Coatings
  7. Submittals

**1.3 RELATED SECTIONS:** Include without limitation the following:

- |    |                  |  |
|----|------------------|--|
| A. | Section 01 10 00 | SUMMARY  |
| B. | Section 01 31 00 | PROJECT MANAGEMENT AND COORDINATION                |
| C. | Section 01 32 00 | CONSTRUCTION PROGRESS DOCUMENTATION                |
| D. | Section 01 33 00 | SUBMITTAL PROCEDURES                               |
| E. | Section 01 73 00 | EXECUTION  |
| F. | Section 01 77 00 | CLOSEOUT PROCEDURES                                |
| G. | Section 01 78 39 | CONTRACT RECORD DOCUMENTS                          |
| H. | Section 01 81 13 | SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS |
| I. | Section 01 81 19 | INDOOR AIR QUALITY FOR LEED BUILDINGS              |

**1.4 DEFINITIONS:**

- A. **ADHESIVE:** Any substance used to bond one surface to another by attachment. Includes adhesive primers and adhesive bonding primers.
1. **Aerosol Adhesive:** Any adhesive packaged as an aerosol with a spray mechanism permanently housed in a non-refillable can designed for hand-held application without the need for ancillary equipment.
- B. **CARCINOGEN:** A chemical listed as a known, probable, reasonably anticipated, or possible human



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carcinogen by the International Agency for Research on Cancer (IARC) (Groups 1, 2A, and 2B), the National Toxicology Program (NTP) (Groups 1 and 2), the U.S. Environmental Protection Agency (EPA) Integrated Risk Information System (IRIS) (weight-of-evidence classifications A, B1, B2, and C, carcinogenic, likely to be carcinogenic, and suggestive evidence of carcinogenicity or carcinogen potential), or the Occupational Safety and Health Administration (OSHA).

- C. **CLEAR WOOD FINISH:** Clear/semi-transparent coating applied to wood substrates to provide a transparent or translucent solid film.
  - 1. **Lacquer:** Clear/semi-transparent coating formulated with cellulosic or synthetic resins to dry by evaporation without chemical reaction and provide a solid, protective film.
  - 2. **Sanding Sealer:** A sanding sealer that also meets the definition of a lacquer.
  - 3. **Varnish:** Clear/semi-transparent coating, excluding lacquers and shellacs, formulated to dry by chemical reaction on exposure to air. May contain small amounts of pigment.
- D. **COATING:** Liquid, liquefiable, or mastic composition that is converted to a solid adherent film after application to a substrate as a thin layer; and is used for decorating, protecting, identifying or to serve some functional purpose such as the filling or concealing of surface irregularities or the modification of light and heat radiation characteristics; and is intended for on-site application to interior or exterior surfaces of buildings. Does not include stains, clear finishes, recycled latex paint, specialty (industrial, marine or automotive) coatings or paint sold in aerosol cans.
- E. **FLOOR COATING:** Opaque coating applied to flooring. Excludes industrial maintenance coatings.
- F. **HAZARDOUS AIR POLLUTANT:** Any compound listed by the U.S. EPA in the Clean Air Act Section 112(b)(1) as a hazardous air pollutant.
- G. **MUTAGEN:** A chemical that meets the criteria for category 1, chemicals known to induce heritable mutations or to be regarded as if they induce heritable mutations in the germ cells of humans, under the Harmonized System for the Classification of Chemicals Which Cause Mutations in Germ Cells (United Nations Economic Commission for Europe, Globally Harmonized System of Classification and Labeling of Chemicals).
- H. **OZONE-DEPLETING COMPOUNDS:** A compound with an ozone-depletion potential greater than 0.1 (CFC 11=1) according to the U.S. EPA list of Class I and Class II Ozone-Depleting Substances.
- I. **PAINT:** A pigmented coating. For the purposes of this specification, paint primers are considered to be paints.
  - 1. **Flat Coating or Paint:** Has a gloss of less than 15 (using an 85-degree meter) or less than 5 (using a 60-degree meter).
  - 2. **Non-Flat Coating or Paint:** Has a gloss of greater than or equal to 15 (using an 85-degree meter) or greater than or equal to 5 (using a 60-degree meter).
  - 3. **Non-Flat High-Gloss Coating or Paint:** Has a gloss of greater than or equal to 70 (using a 60-degree meter).
  - 4. **Anti-Corrosive / Rust Preventative Paint:** Coating formulated and recommended for use in preventing the corrosion of ferrous metal substrates.
- J. **PRIMER:** Coating that is formulated and recommended for one or more of the following purposes: to provide a firm bond between the substrate and a subsequent coating; to prevent a subsequent coating from being absorbed into the substrate; to prevent harm to a subsequent coating from materials in the substrate; or to provide a smooth surface for application of a subsequent coating.
- K. **REPRODUCTIVE TOXIN:** A chemical listed as a reproductive toxin (including developmental, female, and male toxins) by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986 (California Code of Regulations, Title 22, Division 2, Subdivision 1, Chapter 3, Sections 1200, et. Seq.).
- L. **SANDING SEALER:** Clear/semi-transparent coating formulated to seal bare wood. Can be abraded to create a smooth surface for subsequent coatings. Does not include sanding sealers that are lacquers (see Clear Wood Finish above).
- M. **SEALANT:** Any material with adhesive properties, formulated primarily to fill, seal, or waterproof gaps or joints



between surfaces. Includes sealant primers and caulks.

- N. SHELLAC: Clear or pigmented coating formulated solely with the resinous secretions of the lac beetle, thinned with alcohol and formulated to dry by evaporation without chemical reaction. Excludes floor applications.
- O. STAIN: Clear semi-transparent/opaque coating formulated to change the color but not conceal the grain pattern or texture of the substrate.
- P. VOLATILE AROMATIC COMPOUND: Any hydrocarbon compound containing one or more 6-carbon benzene rings, and having an initial boiling point less than or equal to 280 degrees Celsius measured at standard conditions of temperature and pressure.
- Q. VOLATILE ORGANIC COMPOUND: Any compound of carbon (excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate) which vaporizes (becomes a gas) and participates in atmospheric photochemical reactions, as specified in Part 51.00 of Chapter 40 of the U.S. Code of Federal Regulations, at normal room temperatures. For the purposes of this specification, formaldehyde and acetaldehyde are considered to be VOCs.
- R. WATERPROOFING SEALER: A coating that prevents the penetration of water into porous substrates.

#### 1.5 GENERAL REQUIREMENTS:

- A. The City of New York is committed to implementing good environmental practices and procedures which include achieving a LEED Green building rating. Specific project requirements related to this goal which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements as defined in the sections below and in related sections of the Contract Documents, are implemented to the fullest extent. Substitutions, or other changes to the work proposed by the Contractor or their Subcontractors, shall not be allowed if such changes compromise the stated environmental goals.

#### 1.6 REFERENCES:

- A. Rule 1168 – “Adhesive and Sealant Applications”, amended 7 January 2005): South Coast Air Quality Management District (SCAQMD), State of California, [www.aqmd.gov](http://www.aqmd.gov)
- B. Rule 1113 - “Architectural Coatings”, amended 9 July 2004: South Coast Air Quality Management District (SCAQMD), State of California, [www.aqmd.gov](http://www.aqmd.gov)
- C. Green Seal Standard GS-11- “Paints”, of Green Seal, Inc., Washington, DC, [www.greenseal.org](http://www.greenseal.org)
- D. Green Seal Standard GC-03- “Anti-Corrosive Paints”, of Green Seal, Inc., Washington, DC, [www.greenseal.org](http://www.greenseal.org)

#### 1.7 VOC REQUIREMENTS FOR INTERIOR ADHESIVES, SEALANTS, PAINTS AND COATINGS:

- A. GENERAL: Unless otherwise specified herein, the VOC content of all interior adhesives, sealants, paints and coatings (herein referred to as “products”) shall not be in excess of **250 grams per liter**.
- B. No product shall contain any ingredients that are carcinogens, mutagens, reproductive toxins, persistent bioaccumulative compounds, hazardous air pollutants, or ozone-depleting compounds. An exception shall be made for titanium dioxide and, for products that are pre-tinted by the manufacturer, carbon black, which shall be less than or equal to 1% by weight of the product.
- C. No product shall contain the following:
  - 1. methylene chloride
  - 2. 1,1,1-trichloroethane
  - 3. benzene



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4. toluene
5. ethylbenzene
6. vinyl chloride
7. naphthalene
8. 1,2-dichlorobenzene
9. di (2-ethylhexyl) phthalate
10. butyl benzyl phthalate
11. di-n-butyl phthalate
12. di-n-octyl phthalate
13. diethyl phthalate
14. dimethyl phthalate
15. isophorone
16. antimony
17. cadmium
18. hexavalent chromium
19. lead
20. mercury
21. formaldehyde
22. methyl ethyl ketone
23. methyl isobutyl ketone
24. acrolein
25. acrylonitrile

D. No product shall contain more than 1.0% by weight of sum total of volatile aromatic compounds.

#### 1.8 VOC REQUIREMENTS FOR INTERIOR ADHESIVES:

- A. The volatile organic compound (VOC) content of adhesives, adhesive bonding primers, or adhesive primers used in this project shall not exceed the limits defined in Rule 1168 – "Adhesive and Sealant Applications" of the South Coast Air Quality Management District (SCAQMD), of the State of California.
- B. The VOC limits defined by SCAQMD are as follows. All VOC limits are defined in grams per liter, less water and less exempt compounds.
- C. For specified building construction related applications, the allowable VOC content is as follows:

1. Architectural Applications:
  - a. Indoor carpet adhesive 50
  - b. Carpet pad adhesive 50
  - c. Wood flooring adhesive 100
  - d. Rubber floor adhesive 60
  - e. Subfloor adhesive 50
  - f. Ceramic tile adhesive 65
  - g. VCT and asphalt tile adhesive 50
  - h. Drywall and panel adhesive 50
  - i. Cove base adhesive 50
  - j. Multipurpose construction adhesive 70
  - k. Structural glazing adhesive 100
2. Specialty Applications:
  - a. PVC welding 510
  - b. CPVC welding 490
  - c. ABS welding 325
  - d. Plastic cement welding 250

VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES,  
SEALANTS, PAINTS & COATINGS FOR LEED BUILDINGS





e.	Adhesive primer for plastic	550
f.	Contact Adhesive	80
g.	Special Purpose Contact Adhesive	250
h.	Structural Wood Member Adhesive	140
i.	Sheet Applied Rubber Lining Operations	850
j.	Top and Trim Adhesive	250
3.	Substrate Specific Applications:	
a.	Metal to metal	30
b.	Plastic foams	50
c.	Porous material (except wood)	50
d.	Wood	30
e.	Fiberglass	80
4.	Aerosol Adhesives:	
a.	General purpose mist spray	65% VOC's by weight
b.	General purpose web spray	55% VOC's by weight
c.	Special purpose aerosol adhesives (all types)	70% VOC's by weight

**1.9 VOC REQUIREMENTS FOR INTERIOR SEALANTS:**

- A. The volatile organic compound (VOC) content of sealants, or sealant primers used in this project shall not exceed the limits defined in Rule 1168 – “Adhesive and Sealant Applications” of the South Coast Air Quality Management District (SCAQMD), of the State of California.
- B. The VOC limits defined by SCAQMD are as follows. All VOC limits are defined in grams per liter, less water and less exempt compounds.
1. Sealants:
 

a.	Architectural	250
b.	Non-membrane roof	300
c.	Roadway	250
d.	Single-ply roof membrane	450
e.	Other	420
  2. Sealant Primer:
 

a.	Architectural – Nonporous	250
b.	Architectural – Porous	775
c.	Other	750

**1.10 VOC REQUIREMENTS FOR INTERIOR PAINTS:**

- A. Paints and Primers: Paints and primers used in non-specialized interior applications (i.e., for wallboard, plaster, wood, metal doors and frames, etc.) shall meet the VOC limitations of the Green Seal Paint Standard GS-11, of Green Seal, Inc., Washington, DC. Product-specific environmental requirements are as follows:
5. Volatile Organic Compounds:
    - a. The VOC concentrations (in grams per liter) of the product shall not exceed those listed below as determined by U. S. Environmental Protection Agency (EPA) Reference Test Method 24.

Interior Paints and Primers:

Non-flat: 150 g/l

Flat: 50 g/l

The calculation of VOC shall exclude water and tinting color added at the point of sale.



- B. Anti-Corrosive and Anti-Rust Paints: Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates shall meet the VOC limitations of the Green Seal Paint Standard GC-03, of Green Seal, Inc., Washington, DC. Product-specific environmental requirements are as follows:

1. Volatile Organic Compounds:
  - a. The VOC concentrations (in grams per liter) of the product shall not exceed those listed below as determined by U. S. Environmental Protection Agency (EPA) Reference Test Method 24.  
Anti-Corrosive and Anti-Rust Paints: 250 g/l

The calculation of VOC shall exclude water and tinting color added at the point of sale.

#### 1.11 VOC REQUIREMENTS FOR INTERIOR COATINGS:

- A. Clear wood finishes, floor coatings, stains, sealers, and shellacs applied to the interior shall meet the VOC limitations defined in Rule 1113, "Architectural Coatings" of SCAQMD, of the State of California. The VOC limits defined by SCAQMD, based on 7/9/04 amendments, are as follows. VOC limits are defined in grams per liter, less water and less exempt compounds.

1. Clear Wood Finishes:
  - a. Varnish 350
  - b. Sanding Sealers 350
  - c. Lacquer 550
2. Shellac:
  - a. Clear 730
  - b. Pigmented 550
3. Stains 250
4. Floor Coatings 100
5. Waterproofing Sealers 250
6. Sanding Sealers 275
7. Other Sealers 200

The calculation of VOC shall exclude water and tinting color added at the point of sale.

#### 1.12 SUBMITTALS:

- A. Submit Material Safety Data Sheets, for all applicable products in accordance with Section 01 33 00, SUBMITTAL PROCEDURES. Applicable products include, but are not limited to adhesives, sealants, carpets, paints and coatings. Material Safety Data Sheets shall indicate the Volatile Organic Compound (VOC) limits of products submitted. (If an MSDS does not include a product's VOC limits, then product data sheets, manufacturer literature, or a letter of certification from the manufacturer can be submitted in addition to the MSDS to indicate the VOC limits).
- B. Submit Environmental Building Materials Certification Form (EBMCF) as referenced in Section 01 81 13 SUSTAINABLE REQUIREMENTS FOR LEED BUILDINGS: For each field-applied adhesive, sealant, paint, and coating product, provide the VOC requirement, as provided in this Specification, for the relevant material category indicated on the documentation noted above.

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 81 13.13**



**SECTION 01 81 19  
INDOOR AIR QUALITY REQUIREMENTS FOR LEED BUILDINGS**

**REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 81 19**

**PART 1 – GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

**1.2 CONSTRUCTION IAQ MANAGEMENT GOALS FOR THE PROJECT:**

- A. The City of New York has determined that this Project shall minimize the detrimental impacts on Indoor Air Quality (IAQ) resulting from construction activities. Factors that contaminate indoor air, such as dust entering HVAC systems and ductwork, improper storage of materials on-site, poor housekeeping, shall be minimized.

**1.3 RELATED SECTIONS:**

- A. All sections of the Specifications related to interior construction, MEP systems, and items affecting indoor air quality.
- B. Section 01 81 13, SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS
- C. Section 01 81 13.13, VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES, SEALANTS, PAINTS AND COATINGS.
- D. Division 9 (of the Specifications): Finishes.

**1.4 DEFINITIONS:**

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.
- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.
- C. Volatile Organic Compounds (VOC's): Chemical compounds common in and emitted by many building products, including solvents in paints, coatings, adhesives and sealants, wood preservatives, composite wood binder, and foam insulations. Not all VOC's are harmful, but many of those contained within building products contribute to the formation of smog and may irritate building occupants by their smell and/or health impact.



- D. Materials that act as "sinks" for VOC contamination: Absorptive materials, typically dry and soft materials (such as textiles, carpeting, acoustical ceiling tiles and gypsum board) that readily absorb VOC's emitted by "source" materials and release them over a prolonged period of time.
- E. Materials that act as "sources" for VOC contamination: Products with high VOC contents that emit VOC's either rapidly during application and curing (typically "wet" products, such as paints, sealants, adhesives, caulks and sealers) or over a prolonged period (typically "dry" products such as flooring coverings with plasticizers and engineered wood with formaldehyde).

#### 1.5 REFERENCES, RESOURCES:

- A. "IAQ Guidelines for Occupied Buildings Under Construction", First Edition, November 1995, The Sheet Metal and Air Conditioner Contractors National Association (SMACNA). (703) 803-2980, [www.smacna.org](http://www.smacna.org).
- B. ANSI/ASHRAE 52.2-1999, "Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size", [www.ashrae.org](http://www.ashrae.org)

#### 1.6 LEED BUILDING GENERAL REQUIREMENTS:

- A. Implement practices and procedures as necessary to meet the project's environmental performance goals as set forth in the specific requirements of this section. Specific project goals that may impact this area of work include: use of recycled-content materials; use of low-emitting materials; construction waste recycling; and the implementation of a construction indoor air quality management plan. Ensure that the requirements related to these goals, as defined in this Section, are implemented to the fullest extent. Substitutions or other changes to the work shall not be allowed if such changes compromise the stated LEED BUILDING Performance Criteria.

#### 1.7 CONSTRUCTION IAQ MANAGEMENT PLAN:

- A. The Contractor shall prepare and implement a Construction IAQ Management Plan in coordination with each subcontractor and submit the IAQ Management Plan to the Commissioner for approval in accordance with Section 01 33 00, SUBMITTAL PROCEDURE. The Construction IAQ Management Plan shall meet the following criteria:
  - 1. Construction activities shall be planned to meet or exceed the minimum requirements of the Sheet Metal and Air Conditioning National Contractors' Association (SMACNA) "IAQ Guidelines for Occupied Buildings Under Construction", Third Edition, 2007.
  - 2. Absorptive materials shall be protected from moisture damage when stored on-site and after installation.
  - 3. If air handlers are to be used during construction, filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 must be used at each return air grill, as determined by ASHRAE 52.2-1999.
  - 4. Filtration media shall be replaced immediately prior to occupancy. Filtration media shall have a Minimum Efficiency Reporting Value (MERV) of 13 as determined by ASHRAE 52.2-1999 if the project is pursuing Indoor Air Quality Credit 5: Indoor Chemical Pollutant Source Control.
  - 5. A "Sequence of Finish Installation Plan" shall be developed, highlighting measures to reduce the absorption of VOCs by materials that act as "sinks".
  - 6. Upon approval of the Plan by the Commissioner, it shall be implemented by the Contractor through the duration of the construction process, and documented in accordance with the Submittal Requirements of Sub-Section 1.8 herein.
- B. Further description of the Construction IAQ Management Plan requirements is as follows:



1. SMACNA Guidelines: Chapter 3 of the referenced "IAQ Guidelines for Occupied Buildings Under Construction", outline IAQ measures in five categories as listed below. The Construction IAQ Management Plan shall be organized in accordance with the SMACNA format, and shall address measures to be implemented in each of the five categories (including subsections). All subsections shall be listed in the Plan; items that are not applicable for this project should be listed as such.
  - a. HVAC Protection
    - 1) Protect air handling and distribution equipment and air supply and return ducting during construction.
    - 2) All ductwork arriving on site will be sealed with plastic sheeting and stored on pallets or dunnage until installed.
    - 3) Cover and protect all exposed air inlets and outlets, openings, grilles, ducts, plenums, etc. to prevent water, moisture, dust and other contaminant intrusion.
    - 4) Apply protection immediately after ducting.
    - 5) Protect ducting runs at the end of day's work.
    - 6) Inspect temporary filtration weekly and replace as required to maintain the proper ventilation rates in the building.
  - b. Source Control
    - 1) Protect stored on-site or installed absorptive or porous materials.
    - 2) Do not use wet or damaged porous materials in the building.
    - 3) Recover, isolate, and ventilate containers housing toxic materials and materials with VOC levels above the limits for interior adhesives, sealants, paints, and coatings described in these Specifications.
    - 4) Exhaust fumes from idling vehicles and gasoline fueled tools through use of funnels or temporary piping.
    - 5) Containers housing toxic materials and materials with VOC levels above the limits for interior adhesives, sealants, paints, and coatings described in these Specifications, shall be closed when not in use.
  - c. Pathway Interruption
    - 1) Depressurize work areas to contain dust and odors.
    - 2) Pressurize occupied spaces to prevent intrusion of dust and odors.
    - 3) Erect barriers to contain construction areas.
    - 4) Relocate pollutant sources.
    - 5) Temporarily seal the building and provide 100% outside air for ventilation.
  - d. Housekeeping
    - 1) Store materials on elevated platforms under cover, in a designated dry, clean location, prior to unpacking for installation.
    - 2) If materials are not stored in an enclosed location, cover tops and sides of material with waterproof sheeting, securely tied.
    - 3) Institute cleaning activities to remove contaminants from the building prior to occupancy. Clean all coils, air filters, and ductwork prior to performing testing, adjusting, and balancing of HVAC systems.
    - 4) Sweep the work area on a daily basis. Use an efficient and effective dust collecting method such as damp cloth, wet mop, or vacuum with particulate filters. Activities which produce high levels of dust shall be cleaned up immediately upon completion.
    - 5) Spills or excess applications of products containing solvents, or with VOC levels above the limits for interior adhesives, sealants, paints, and coatings described in these Specifications, must be removed immediately.
    - 6) Dust all walls prior to application of finishes.
    - 7) Vacuum all stud tracks prior to application of insulation.
    - 8) Materials which become contaminated through direct exposure to moisture from precipitation, plumbing leaks, or condensation shall be replaced by the Contractor.
  - e. Scheduling
    - 1) Phase construction such that absorptive materials are installed only in areas that are



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- weathertight.
- 2) Schedule activities that utilize "sources" of VOC contamination to take place prior to installing high absorbent materials that will act as "sinks" for contaminants.
  - 3) Review of the appropriate components of the Construction IAQ Management Plan shall be a regular action topic at weekly site coordination meetings. Implementation of the Plan shall be documented in the meeting minutes.
2. Protection of Materials from Moisture Damage: As part of the "Housekeeping" section of the Construction IAQ Management Plan, measures to prevent installed materials or material stored on-site from moisture damage shall be described. This section should also describe measures to be taken if moisture damage does occur to absorptive materials during the course of construction.
  3. Replacement of Filtration Media: Under the "HVAC Protection" section of the Construction IAQ Management Plan, a description of the filtration media in all ventilation equipment shall be provided. The description shall include replacement criteria for filtration media during construction, and confirmation of filtration media replacement for all equipment immediately prior to occupancy.
  4. Sequence of Finish Installation for Materials: Where feasible, absorptive materials shall be installed after the installation of materials or finishes which have high short-term emissions of VOC's, formaldehyde, particulates, or other air-borne compounds. Absorptive materials include, but are not limited to: carpets; acoustical ceiling panels; fabric wall coverings; insulations (exposed to the airstream); upholstered furnishings; and other woven, fibrous or porous materials. Materials with high short-term emissions include, but are not limited to: adhesives, sealants and glazing compounds (specifically those with petrochemical vehicles or carriers); paints, wood preservatives and finishes; control and/or expansion joint fillers; hard finishes requiring adhesive installation; gypsum board (with associated finish processes and products); and composite or engineered wood products with formaldehyde binders.
  5. Develop and implement an Indoor Air Quality (IAQ) Management Plan for the pre-occupancy phase as follows:

OPTION 1 — Flush-Out

• After construction ends, prior to occupancy and with all interior finishes installed, perform a building flush-out by supplying a total air volume of 14,000 cu.ft. of outdoor air per sq.ft. of floor area while maintaining an internal temperature of at least 60 degrees F and relative humidity no higher than 60%.

OR

• If occupancy is desired prior to completion of the flush-out, the space may be occupied following delivery of a minimum of 3,500 cu.ft. of outdoor air per sq.ft. of floor area to the space. Once a space is occupied, it shall be ventilated at a minimum rate of 0.30 cfm/sq.ft. of outside air or the design minimum outside air rate determined in EQ Prerequisite 1, whichever is greater. During each day of the flush-out period, ventilation shall begin a minimum of three hours prior to occupancy and continue during occupancy. These conditions shall be maintained until a total of 14,000 cu.ft./sq.ft. of outside air has been delivered to the space.

OR

OPTION 2 — Air Testing

• Conduct baseline IAQ testing, after construction ends and prior to occupancy, using testing protocols consistent with the United States Environmental Protection Agency Compendium of



Methods for the Determination of Air Pollutants in Indoor Air and as additionally detailed in the LEED-NC Reference Guide.

- Demonstrate that the contaminant maximum concentrations listed below are not exceeded.

CONTAMINANT	MAXIMUM CONCENTRATION
Formaldehyde	27 parts per billion
Particulates (PM10)	50 micrograms per cubic meter
Total Volatile Organic Compounds (TVOC)	500 micrograms per cubic meter
* 4-Phenylcyclohexene (4-PCH)	6.5 micrograms per cubic meter
Carbon Monoxide (CO)	9 part per million and no greater than 2 parts per million above outdoor levels
* This test is only required if carpets and fabrics with styrene butadiene rubber (SBR) latex backing material are installed as part of the base building systems.	

- For each sampling point where the maximum concentration limits are exceeded, conduct additional flush-out with outside air and retest the specific parameter(s) exceeded to indicate the requirements are achieved. Repeat procedure until all requirements have been met. When retesting non-complying building areas, take samples from the same locations as in the first test.

- The air sample testing shall be conducted as follows:

- a. All measurements shall be conducted prior to occupancy, but during normal occupied hours and with the building ventilation system starting at the normal daily start time and operated at the minimum outside air flow rate for the occupied mode throughout the duration of the air testing.
  - b. The building shall have all interior finishes installed, including but not limited to millwork, doors, paint, carpet and acoustic tiles. Non-fixed furnishings such as workstations and partitions are encouraged, but not required, to be in place for the testing.
  - c. The number of sampling locations will vary depending upon the size of the building and number of ventilation systems. For each portion of the building served by a separate ventilation system, the number of sampling points shall not be less than one per 25,000 sq.ft., or for each contiguous floor area, whichever is larger, and include areas with the least ventilation and greatest presumed source strength.
  - d. Air samples shall be collected between 3 feet and 6 feet from the floor to represent the breathing zone of occupants, and over a minimum 4-hour period.
6. Implementation and Coordination: Implement the Construction IAQ Management Plan, and coordinate the Plan with all affected trades. Designate one individual as the Construction IAQ Representative at no additional cost to the City of New York, who will be responsible for communicating the progress of the Plan with the Commissioner on a regular basis, and for assembling the required LEED documentation. Include provisions in the Construction IAQ Management Plan for addressing conditions in the field that do not adhere to the Plan, including provisions to implement a stop work order, or to rectify non-compliant conditions.
- a. Distribution: The Contractor shall distribute copies of the Construction IAQ Management Plan in accordance with Section 01 33 00, SUBMITTAL PROCEDURES.
  - b. Instruction: The Contractor shall provide on-site instruction of appropriate site management to all Contractor's Subcontractors.



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- c. Monitoring: The Construction IAQ Representative shall monitor the implementation of the Construction IAQ Management Plan.

**1.8 SUBMITTALS:**

Submit the following LEED-required records and documents in accordance with Section 01 33 00, SUBMITTAL PROCEDURES and Section 01 81 13, SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS.

- A. A copy of the Construction IAQ Management Plan as defined in Sub-Section 1.7 herein.
- B. Product cut-sheets for all filtration media used during construction and installed immediately prior to occupancy, with MERV values highlighted. Cut sheets shall be submitted with the Contractor's or Subcontractor's 'approved' stamp as confirmation that the products are the products installed on the project.
- C. Provide the Commissioner with a minimum of 18 photographs as required under the provision for Special Photographs, in accordance with Section 01 32 33, PHOTOGRAPHIC DOCUMENTATION, comprised of at least six photographs taken on three different occasions during construction. The photographs shall document the implementation of the Construction IAQ Management Plan throughout the course of the project construction. Examples include photographs of ductwork sealing and protection, temporary ventilation measures, and conditions of on-site materials storage (to prevent moisture damage). Photographs shall include integral date stamping, and shall be submitted with brief descriptions of the Construction IAQ Management Plan measure documented, or be referenced to project meeting minutes or similar project documents which reference to the Construction IAQ Management Plan measure documented.
- D. A copy of the project's TAQ Testing report if applicable.

**1.9 QUALITY ASSURANCE:**

- A. The Contractor shall be responsible for preparing and implementing the Construction IAQ Management Plan and shall coordinate and incorporate the work of its subcontractors in the IAQ Management Plan.
- B. Responsibility of Subcontractors: Subcontractors for this project shall be responsible to cooperate with the Contractor in the preparation and implementation of the Construction IAQ Management Plan.

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 81 19**





**SECTION 01 91 13**  
**GENERAL COMMISSIONING REQUIREMENTS**

**REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 91 13**

**PART I – GENERAL**

**1.1 RELATED DOCUMENTS:**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].
- B. OPR and BoD documentation are included by reference for information only.
- C. The Commissioning Plan, prepared by the Commissioning Agent (CxA) under separate contract with the City of New York, contains requirements that apply to this section.

**1.2 SUMMARY:**

- A. This Section includes general requirements that apply to implementation of Commissioning without regard to systems, subsystems, and equipment being commissioned.
- B. This Section includes:
  - 1. Definitions
  - 2. Commissioning Team
  - 3. City's Responsibilities
  - 4. Each Contractor's Responsibilities
  - 5. Commissioning Authority's/Agent's (CxA) Responsibilities
  - 6. Commissioning Documentation
  - 7. Submittals
  - 8. Coordination

**1.3 RELATED SECTIONS:** Include without limitation the following:

- A. "HVAC Commissioning Requirements" indicated in other sections of the project specifications for specific requirements for commissioning HVAC systems.
- B. This project will be commissioned by an independent third party under separate contract with the City of New York. Commissioning shall be in accordance with ASHRAE and USGBC LEED procedures, and specific commissioning requirements of the Project Specifications, whichever is more stringent. The Contractor shall cooperate with the CxA and provide whatever assistance is required.
- C. Related Sections include without limitation the following:
  - 1. Section 01 10 00 SUMMARY
  - 2. Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION
  - 3. Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
  - 4. Section 01 78 39 CONTRACT RECORD DOCUMENTS
  - 5. Section 01 79 00 DEMONSTRATION AND TRAINING
  - 6. Section 01 81 13 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS

**1.4 DEFINITIONS:**

- A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.



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- B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.
- C. Commissioner: The Commissioner of the Department of Design and Construction of the City of New York, his/her successors, or duly authorized representative(s).
- D. BoD: Basis of Design: A document, prepared by the Consultant Architect/Engineer, that records concepts, calculations, decisions, and product selections used to meet the OPR and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.
- E. Commissioning Plan: A document that outlines the organization, schedule, allocation of resources, and documentation requirements of the commissioning process.
- F. CxA: Commissioning Agent (Aka Commissioning Authority) under separate contract with the City of New York to provide Commissioning Services for this project.
- G. OPR: Owner's (City of New York) Project Requirements: A document, prepared by the Consulting Architect/Engineer that details the functional requirements of a project and the expectations of how it will be used and operated. These include Project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information.
- H. Systems, Subsystems, Equipment, and Components: Where these terms are used together or separately, they shall mean "as-built" systems, subsystems, equipment, and components.
- I. TAB: Testing, Adjusting, and Balancing.

#### 1.5 COMMISSIONING TEAM:

- A. Members Appointed by the Contractor and its Subcontractors: Individuals, each having authority to act on behalf of the entity he or she represents, explicitly organized to implement the commissioning process through coordinated actions. The Commissioning Team shall consist of, but not be limited to, representatives of the Contractor, including Project superintendent and subcontractors, installers, suppliers, and specialists deemed appropriate by the CxA.
- B. Members Appointed by the City:
  - 1. Commissioning Authority/Agent (CxA): The designated person, company, or entity under separate contract with the City that plans, schedules, and coordinates the commissioning team to implement the commissioning process.
  - 2. Representatives of the facility user and operation and maintenance personnel.
  - 3. Consultant Architect/Engineer and other concerned entities.

#### 1.6 CITY'S RESPONSIBILITIES:

- A. Provide the OPR documentation to the Commissioning Agent (CxA) for use in developing the commissioning plan; systems manual; operation and maintenance training plan; and testing plans and checklists.
- B. Assign operation and maintenance personnel and schedule them to participate in commissioning team activities.



- C. Provide the BoD documents, prepared by the Consulting Architect/Engineer and approved by the Commissioner, to the Commissioning Agent (CxA) for use in developing the commissioning plan, systems manual, and operation and maintenance training plan.

**1.7 CONTRACTOR'S RESPONSIBILITIES:**

- A. The Contractor shall provide utility services required for the commissioning process.
- B. As a member of the Commissioning Team, the Contractor and subcontractor(s) shall assign representatives with expertise and authority to act on behalf of the Contractor and its subcontractor(s) and schedule them to participate in and perform commissioning team activities including, but not limited to, the following:
  - 1. Participate in scheduled construction-phase coordination and commissioning team meetings.
  - 2. Integrate and coordinate commissioning process activities with the construction schedule.
  - 3. Review and accept commissioning process test procedures provided by the CxA.
  - 4. Review and accept construction checklists provided by the CxA.
  - 5. Perform testing required in the Commissioning Schedule as per the Commissioning Process test procedures provided by the CxA.
  - 6. Complete installation checklists as Work is completed and return to CxA through the Resident Engineer.
  - 7. Cooperate with the CxA for resolution of issues recorded in the Issues Log.
  - 8. Evaluate performance deficiencies identified in test reports and, in collaboration with entity responsible for system and equipment installation, recommend corrective action.
  - 9. Submit As-Built documents, operation and maintenance manuals for systems and subsystems, and equipment in accordance with Section 01 78 39, CONTRACT RECORD DOCUMENTS.
  - 10. Provide orientation sessions for operation and maintenance personnel (sessions will be video recorded by the CxA) in accordance with Section 01 79 00, DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION.

**1.8 COMMISSIONING AGENT'S (CxA) RESPONSIBILITIES:**

- A. Organize and lead the commissioning team.
- B. Prepare a construction-phase commissioning plan. Collaborate through the Resident Engineer with each Contractor and with subcontractors to develop test and inspection procedures. Include design changes and coordinate commissioning activities with the overall Project schedule. Identify commissioning team member responsibilities, by name, firm, and trade specialty, for performance of each commissioning task.
- C. Review and comment in accordance with Section 01 33 00, SUBMITTAL PROCEDURES, on submittals from the Contractor for compliance with the OPR, BoD, Contract Documents, and construction-phase commissioning plan. Review and comment on performance expectations of systems and equipment and interface between systems relating to the OPR and BoD.
- D. Coordinate with the Resident Engineer to convene commissioning team meetings for the purpose of coordination, communication, and conflict resolution; discuss progress of the commissioning processes. Responsibilities include arranging for facilities, preparing agenda and attendance lists, and notifying participants. The Commissioning Agent (CxA) will prepare and distribute minutes to commissioning team members and attendees within three workdays of the commissioning meeting.
- E. At the beginning of the construction phase, coordinate with the Resident Engineer's kick-off meeting schedule to conduct an initial construction-phase coordination meeting for the purpose of reviewing the commissioning activities and establishing tentative schedules for operation and maintenance submittals, operation and maintenance training sessions, TAB Work, and Project completion.



- F. Observe and inspect construction. Report progress and deficiencies to the Commissioner. In addition to compliance with the OPR, BoD, and Contract Documents, inspect systems and equipment installation for adequate accessibility required for component maintenance replacement and repair.
- G. Prepare Project-specific test and inspection procedures and checklists.
- H. Coordinate with the Resident Engineer to schedule, direct, witness, and document tests, inspections, and systems startup.
- I. Compile test data, inspection reports, and certificates and include them in the systems manual and commissioning report.
- J. Certify date of acceptance and startup for each item of equipment for start of warranty periods.
- K. Review and comment on operation and maintenance documentation and systems manual outline for compliance with the OPR, BoD, and Contract Documents. Operation and maintenance documentation requirements are specified in other sections of the project specifications and described in Section 01 78 39, CONTRACT RECORD DOCUMENTS.
- L. Record and edit demonstration and orientation sessions on DVD.
- M. Prepare commissioning reports.
- N. Assemble the final commissioning documentation, including the commissioning report and Systems Manual.

#### 1.9 COMMISSIONING DOCUMENTATION:

The Contractor shall assist the Commissioning Agent (CxA) in the development and compiling of the following Commissioning Documentation:

- A. Index of Commissioning Documents: The Commissioning Agent (CxA) will prepare an index including the storage location of each document.
- B. OPR: A written document prepared by the Consulting Architect/Engineer that details the functional requirements of the Project and expectations of how it will be used and operated. This document includes the Project and design goals, measurable performance criteria, budgets, schedules, success criteria, and supporting information.
- C. BoD Document: A document prepared by the Consulting Architect/Engineer that records concepts, calculations, decisions, and product selections used to meet the OPR and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that explain the designed systems.
- D. Commissioning Plan: A document prepared by the Commissioning Agent (CxA) that outlines the schedule, allocation of resources, and documentation requirements of the commissioning process.
- E. Test Checklists: The Commissioning Agent (CxA) will develop test checklists for each system, subsystem, or equipment including interfaces and interlocks, and include a separate entry, with space for comments, for each item to be tested. The CxA will prepare separate checklists for each mode of operation and provide space to indicate whether the mode under test responded as required. Space will be provided for testing personnel to sign off on each checklist. Specific checklist content requirements are specified in other sections of the project specifications.
- F. Inspection Checklists will be signed by the Contractor, Subcontractor(s), Installer(s), and CxA certifying that systems, subsystems, equipment, and associated controls are ready for testing.
- G. Test and Inspection Reports: The Commissioning Agent (CxA) will record test data, observations, and measurements on test checklists. Photographs, forms, and other means appropriate for the application will be included with data. CxA shall compile test and inspection reports and test and inspection certificates and include them in systems manual and commissioning report.



- H. Corrective Action Documents: The Commissioning Agent (CxA) will document corrective action taken for systems and equipment that fail tests and include required modifications to systems and equipment and revisions to test procedures, if any. The Contractor shall retest systems and equipment requiring corrective action. The CxA will document retest results.
- I. Issues Log: The Commissioning Agent (CxA) will prepare and maintain an issues log that describes design, installation, and performance issues that are at variance with the OPR, BoD, and Contract Documents. The log will identify and track issues as they are encountered, documenting the status of unresolved and resolved issues.
  - 1. Commissioning Report: The Commissioning Agent (CxA) will document results of the commissioning process including unresolved issues and performance of systems, subsystems, and equipment. The commissioning report will indicate whether systems, subsystems, and equipment have been completed and are performing according to the OPR, BoD, and Contract Documents.
- J. Systems Manual: The Commissioning Agent (CxA) will gather required information and compile systems manual as specified in other sections of the project specifications and described in Section 01 78 39, CONTRACT RECORD DOCUMENTS..

#### 1.10 SUBMITTALS:

- A. Commissioning Plan Pre-final Submittal: The Commissioning Agent (CxA) will submit six (6) copies of the pre-final commissioning plan to the Commissioner for review and distribution.
- B. Commissioning Plan Final Submittal: The Commissioning Agent (CxA) will submit six (6) hard copies and electronically formatted information of the final commissioning plan to the Commissioner. The final submittal will address previous review comments.
- C. Test and Inspection Reports: CxA will submit test and inspection reports.
- D. Corrective Action Documents: CxA will submit corrective action documents.

#### 1.11 COORDINATION:

- A. Coordinating Meetings: The Commissioning Agent (CxA) will coordinate with the Resident Engineer's regularly scheduled construction progress meetings to conduct coordination meetings of the commissioning team to review progress on the commissioning plan, to discuss scheduling conflicts, and to discuss upcoming commissioning process activities.
- B. Pre-testing Meetings: The Commissioning Agent (CxA) will coordinate with the Resident Engineer to conduct pretest meetings of the commissioning team to review startup reports, pretest inspection results, testing procedures, testing personnel and instrumentation requirements, and manufacturers' authorized service representative services for each system, subsystem, equipment, and component to be tested.
- C. Testing Coordination: The Commissioning Agent (CxA) will coordinate with the Resident Engineer the sequence of testing activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
  - 1. Coordinate schedule times with the Resident Engineer for tests, inspections, obtaining samples, and similar activities.
- D. Manufacturers' Field Services: The Commissioning Agent (CxA) will coordinate services of manufacturers' field services.

#### PART II – PRODUCTS (Not Used)



## **PART III – EXECUTION**

### **3.1 OPERATION & MAINTENANCE MANUALS**

#### **A. General**

1. The CxA shall review the Operation & Maintenance manuals provided by the Contractor or subcontractors for completeness of the document. The review process shall verify that Operation & Maintenance instructions meet specifications and are included for all commissioned equipment furnished by the Contractor.
2. Published literature shall be specifically oriented to the provided equipment, indicating required operation and maintenance procedures, parts lists, assembly / disassembly diagrams and related information.
3. The Contractor shall incorporate the standard technical literature into system specific formats for this facility as designed and as actually installed. The resulting Operation & Maintenance information shall be system specific, concise, to the point and tailored specifically to this facility. The CxA shall review these documents as necessary for final corrections by the Contractor.

B. The Operation & Maintenance Manual review and coordination efforts shall be completed prior to Owner orientation sessions, as these documents are to be utilized in the training sessions.

#### **C. System Operations Manual**

1. The CxA shall prepare and deliver these documents with inputs from other agencies. The contractors will confirm the proper documents are onsite and readily available. Typically, the manual includes the following:
  - a. Commissioned systems single line diagrams (Mechanical, Electrical, Plumbing, and Building Management System (BMS) subcontractors).
  - b. As built sequences of operations, control drawings and original set points (Design Consultant and BMS subcontractor)
  - c. Operating instructions for integrated building systems (mechanical and BMS subcontractors).
  - d. Recommended schedule of maintenance requirements and frequency (subcontractors).
  - e. Recommended schedule for calibrating sensors and actuators (BMS subcontractor)

### **3.2 DEMONSTRATION AND INSTRUCTION**

- A. The Contractor shall schedule and coordinate instruction sessions for the facility's staff for each commissioned system. Demonstrations shall be held per Contract Documents, along with the appropriate schematics, handouts and visual / audio training aids onsite with equipment.
- B. The equipment vendors shall provide instruction on the specifics of each major equipment item including philosophy, troubleshooting and repair techniques.
- C. For additional prescription pertinent to instruction, refer to other specific divisions for demonstration and instruction requirements.

### **3.3 WARRANTY REVIEW / SEASONAL TESTING**

- A. The CxA will return upon the start of the new season (cooling or heating) after project completion to conduct performance tests that could not be performed due to ambient conditions. The seasonal testing will only be performed if unsuitable loads / conditions were unavailable during the performance testing stages (in other words; the requirement for testing is warranted).
- B. If agreed upon by facility, Seasonal Testing can also be used for the Warranty Review. During which the CxA will interview the occupants, maintenance staff, review the operation of the building, provide recommendations for installation and operational problems and document warranty and operational issues in the issues database.



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**3.4 RECORD DRAWINGS**

- A. The CxA shall review the as built contract documents to verify incorporation of both design changes and as built construction details. Discrepancies noted shall be corrected by the appropriate party.

**END OF SECTION 01 91 13**



NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

Division 01 – DDC STANDARD GENERAL CONDITIONS  
SINGLE CONTRACT PROJECTS  
Issue Date - June 01, 2013

No Text







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**THE CITY OF NEW YORK  
DEPARTMENT OF DESIGN AND CONSTRUCTION  
DIVISION OF PUBLIC BUILDINGS**

30-30 THOMSON AVENUE                      LONG ISLAND CITY, NEW YORK 11101-3045  
TELEPHONE (718) 391-1000                  WEBSITE [www.nyc.gov/buildnyc](http://www.nyc.gov/buildnyc)

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**Contract for Furnishing all Labor and Material Necessary**

---

Contractor

Dated \_\_\_\_\_, 20\_\_\_\_

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Approved as to Form  
Certified as to Legal Authority

---

Acting Corporation Counsel

Dated \_\_\_\_\_, 20\_\_\_\_

---

Entered in the Comptroller's Office

---

First Assistant Bookkeeper

Dated \_\_\_\_\_, 20\_\_\_\_





FMS ID: HH112BLEL



**THE CITY OF NEW YORK  
DEPARTMENT OF DESIGN AND CONSTRUCTION  
DIVISION OF PUBLIC BUILDINGS**

30-30 THOMSON AVENUE                      LONG ISLAND CITY, NEW YORK 11101-3045  
TELEPHONE (718) 391-1000                      WEBSITE [www.nyc.gov/buildnyc](http://www.nyc.gov/buildnyc)

**Contract for Furnishing all Labor and Material Necessary and Required for:**

**CONTRACT NO. 1            GENERAL CONSTRUCTION WORK**

**Bellevue Men's Shelter Elevator  
Rehabilitation**

**LOCATION:                      400 East 30th Street  
BOROUGH:                    Manhattan 10016  
CITY OF NEW YORK**

Five Star Contracting Companies, Inc.  
Contractor

Dated 11/9/2015 , 20  

Approved as to Form  
Certified as to Legal Authority

[Signature]  
Acting Corporation Counsel

Dated March 17 , 2015

Entered in the Comptroller's Office

First Assistant Bookkeeper

Dated \_\_\_\_\_ , 20  

**391**  
**3-17-2015**





PROJECT ID:

HH112BLEL

**THE CITY OF NEW YORK  
DEPARTMENT OF DESIGN AND CONSTRUCTION  
DIVISION OF PUBLIC BUILDINGS**

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**VOLUME 3 OF 3**

**ADDENDUM TO THE GENERAL  
CONDITIONS**

**SPECIFICATIONS**

FOR FURNISHING ALL LABOR AND MATERIALS  
NECESSARY AND REQUIRED FOR:

**Bellevue Men's Shelter Elevator  
Rehabilitation**

LOCATION:  
BOROUGH:  
CITY OF NEW YORK

400 East 30th Street  
Manhattan 10016

CONTRACT NO. 1

GENERAL CONSTRUCTION WORK

Dept of Homeless Services

WSP Group

Date: January 12, 2015



5-115





NEW YORK CITY DEPARTMENT OF  
DESIGN + CONSTRUCTION

THE CITY OF NEW YORK  
DEPARTMENT OF DESIGN AND CONSTRUCTION  
DIVISION OF PUBLIC BUILDINGS

ADDENDUM TO THE GENERAL CONDITIONS  
FOR SINGLE CONTRACT PROJECTS

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The General Conditions are hereby amended in accordance  
with the terms and conditions set forth in this Addendum.

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I. PROJECT DESCRIPTION

FMS #: **HH112BLEL**

PROJECT NAME: ***Bellevue Men's Shelter Elevator Rehabilitation***

PROJECT DESCRIPTION: This Project consists of the rehabilitation and modernization of three passenger elevators located in the building and associated upgrades to bring the elevator system up to local code. The three elevators have been inactive for many years and desperately need to be renovated. In general the scope of work with this project includes:

- Removal of existing equipment and appurtenances associated with the existing elevators.
- Minor relocation of existing building system piping routed through the elevator shafts.
- Elevator cabs will remain, new interior cabs, associated controls and motors will be replaced.
- Hoist way venting and smoke detection to comply with local codes.
- HVAC cooling of the elevator machine rooms and basement electrical room.
- Electrical work to facilitate the installation of upgraded elevator equipment, including fire alarm tie-ins.
- New elevator pit sum pits and pumps tied into existing plumbing systems.
- Architectural rehabilitation to the east penthouse elevator machine room (i.e. façade, cornice, roof, louvers, windows, doors, etc.)
- Structural improvements that relate to the architectural, elevator and HVAC scope of work.

PROJECT LOCATION: **400 East 30<sup>th</sup> Street**  
BOROUGH: **Manhattan**  
CITY OF NEW YORK  
ZIP CODE: **10016**  
COMMUNITY BOARD #: **6**

LANDMARK STATUS:

DESIGNATED LANDMARK STRUCTURE OR SITE: **NO**

*If this is a Designated Landmark Structure or Site, Section 01 3591, Historic Treatment Procedures applies to this project.*

LANDMARK QUALITY STRUCTURE: **YES**

*If this is a Landmark Quality Structure, Section 01 3591, Historic Treatment Procedures applies to this project.*

## II. LEED GREEN BUILDING REQUIREMENTS

*NOT USED*

## III. COMMISSIONING REQUIREMENTS

*NOT USED*

## IV. PROJECT MANAGEMENT

- DDC shall publicly bid and enter into all contracts for the Project. DDC shall manage the Project using its own personnel.
- DDC shall publicly bid and enter into all contracts for the Project. A Construction Management firm (the "CM") hired by DDC shall manage the Project. The Contractor is advised that the CM shall serve as the representative of the Commissioner at the site and shall, subject to review by the Commissioner, be responsible for the inspection, management, coordination and administration of the required construction work, as delineated in the article of the Standard Construction Contract entitled "The Resident Engineer".

## V. CONTRACTS FOR THE PROJECT

The Project consists of a single contract, the Contract for General Construction Work. The Contractor for General Construction Work is responsible for the performance of all required work for the Project as set forth in the Contract Documents (General Conditions, Drawings and Specifications), including all responsibilities and obligations assigned to separate Contractors for the following subdivisions of the work: Plumbing Work, HVAC Work, and Electrical Work. All responsibilities and obligations in the Contract Documents assigned to separate Contractors for such subdivisions of the work are the responsibility of the Contractor for General Construction Work.

## VI. SCHEDULES

The Contractor is advised that Schedules A through F are attached to, and incorporated as part of, this Addendum to the General Conditions. These schedules contain important information that is specific to this Project. The Contractor is advised to carefully review these schedules.



**VII. APPLICABILITY OF SECTIONS/SUB-SECTIONS AND AMENDED SUB-SECTIONS**

<u>Section</u>	<u>Sub-Section</u>	<u>Sub-Section</u>	<u>Applies</u>	<u>Does not Apply</u>	<u>Applies as Amended</u>
01 1000	1.4 (B)	Scope and Intent / LEED		X	
	1.4(C)	Scope and Intent / Commissioning		X	
01 3233		Photographic Documentation	X		
01 3300	1.7 (A-D)	LEED Submittals		X	
01 3503		General Mechanical Requirements	X		
01 3506	3.2 (A-B)	Electrical Conduit System Including Boxes (Pull, Junction and Outlet)	X		
	3.3 (A-E)	Electrical Wiring Devices	X		
	3.4 (A-I)	Electrical Conductors and Terminations	X		
	3.5 (A-B)	Circuit Protective Devices	X		
	3.6 (A-J)	Distribution Centers	X		
	3.7 (A-I)	Motors	X		
	3.8 (A-I)	Motor Control Equipment	X		
01 3591		Historic Treatment Procedures	X		
01 5000	3.2 (A)	Temporary Water Facilities / Temporary Water		X	
	3.2 (B)	Temporary Water Facilities / Temporary Water – Work in Existing Facilities	X		
	3.3 (B)	Temporary Sanitary Facilities / Self-Contained Toilet Units	X		
	3.3 (C)	Temporary Sanitary Facilities / Existing Toilets		X	
	3.4 (B) 1	Temporary Power, Lighting, and Site Lighting / Connection to Utility Lines	X		

<u>Section</u>	<u>Sub-Section</u>	<u>Sub-Section</u>	<u>Applies</u>	<u>Does not Apply</u>	<u>Applies as Amended</u>
01 5000	3.4 (B) 2	Temporary Power, Lighting, and Site Lighting / Connection to Existing Electrical Power Service	X		
	3.4 (B) 3	Temporary Power, Lighting, and Site Lighting / Electrical Generator Power Service		X	
	3.4 (D)	Temporary Power, Lighting, and Site Lighting / Temporary Lighting	X		
	3.4 (E)	Temporary Power, Lighting, and Site Lighting / Site Security Lighting (for New Construction Only)		X	
	3.5 (A-J)	Temporary Heat	X		
	3.8 (A)	DDC Field Office / Office Space in Existing Building	X		
	3.8 (B)	DDC Field Office / DDC Field Office Trailer		X	
	3.8 (B-3a)	DDC Field Office / DDC Managed Field Office Trailer		X	
	3.8 (B-3b)	DDC Field Office / CM Managed Field Office Trailer		X	
	3.8 (D)	DDC Field Office / Additional Equipment for the DDC Field Office	X		
	3.13(A-D)	Work Fence Enclosure	X		
	3.17(B)	Project Rendering		X	
	3.18 (A-C)	Security Guards / Fire Guards on Site	X		
01 5411	3.1 (A-J)	Temporary Use, Operation and Maintenance of Elevators During Construction for New Buildings Up To and Including 15 Stories		X	
	3.2 (A-M)	Temporary Use, Operation and Maintenance of Elevators During Construction for New Buildings Over 15 Stories		X	
	3.3 (A-E)	Temporary Use, Operation and Maintenance of Elevators During Construction for Existing Buildings	X		
01 7300	3.3 (A-I)	Surveys	X		
	3.4 (A-B)	Borings	X		
	3.12 (A-D)	Sleeves and Hangers	X		
	3.13 (A)	Sleeve and Penetration Drawings	X		
	3.15 (A)	Location of Partitions	X		
01 7419	1.5 (C)	Waste Management Performance Requirements / LEED Certification		X	
01 7900		Demonstration and Owner's Pre-Acceptance Orientation	X		
	3.2 (A)	Non-Commissioned Projects	X		
	3.2 (B)	Commissioned Projects		X	
01 8113		Sustainable Design Requirements for LEED Buildings		X	
01 8113.13		VOC Limits for Adhesives, Sealants, Paints and Coatings for LEED Buildings		X	
01 8119		Indoor Air Quality Requirements for LEED Buildings		X	
01 9113		General Commissioning Requirements		X	

## VIII. SPECIAL EXPERIENCE REQUIREMENTS FOR THE PROJECT

- (1) **GENERAL:** The following are set forth below: Special Experience Requirements applicable to the contractor or subcontractor that will perform specific areas of work.
- (2) **REVISION OF SPECIFICATIONS AND DRAWINGS:** In the event the Specifications and/or the Contract Drawings contain any Special Experience Requirement that is not set forth below, such Special Experience Requirement is deemed deleted, except as otherwise expressly provided in Section VIII of this Addendum.
- (3) **SPECIAL EXPERIENCE REQUIREMENTS FOR SPECIFIC AREAS OF WORK:** The special experience requirements set forth below apply to the contractor or subcontractor that will perform specific areas of work. Compliance with such experience requirements will be evaluated after an award of contract. Within two (2) weeks of such award, the contractor will be required to submit the qualifications of the contractor or subcontractor that will perform these specific areas of work. If the contractor intends to perform these specific areas of work with its own forces, it must demonstrate compliance with the special experience requirements. If the contractor intends to subcontract these specific areas of work, the proposed subcontractor(s) must demonstrate compliance with the special experience requirements. Once approved, no substitution will be permitted, unless the qualifications of the proposed replacement have been approved in writing in advance by the City.

Special Experience Requirement #1: The contractor or subcontractor performing the work of this section must, within the last five (5) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least three (3) projects similar in scope and type to the required work, based on architectural style, construction method and materials and age of building for this particular project. One such prior project of the three must have involved a landmarked building, as officially designated by the City, State or federal government.

### General Construction

- Section 075216: Modified Bituminous Membrane Roofing
- Section 085200: Metal Clad Wood Window Restoration

## IX. REVISIONS: SPECIFICATIONS AND CONTRACT DRAWINGS

The Specifications and the Contract Drawings for the Project are revised in accordance with the provisions set forth below.

- (1) Owner: Wherever the term "Owner" is used in the Specifications and/or the Contract Drawings, such term shall mean the City of New York.
- (2) Other Entities: In the event any entity other than the City of New York is referred to or named as the "Owner" in the Specifications and/or the Contract Drawings, the name of such other entity is deemed deleted and replaced with the "City of New York".
- (3) Architect / Engineer: Wherever the words "Architect", "Engineer", "Architect / Engineer" or "Architect and/or Engineer" are used in the Specifications and/or the Contract Drawings, such words are deemed deleted and replaced with the word "Commissioner".
- (4) Products / Manufacturers: Wherever the Specifications and/or the Contract Drawings require the contractor to provide a particular product (i.e., material and/or equipment) from a designated manufacturer and/or vendor, the term "or approved equal" is deemed inserted, even if only one product and/or manufacturer is specified, except as otherwise provided below.
  - (a) Proprietary Items: If the Bid Booklet contains a Notice which identifies a particular product from a designated manufacturer as a "Proprietary Item", the Contractor shall be required to provide such specified product. In such case, no substitution or "approved equal" will be permitted.
- (5) Special Experience Requirements: Special Experience Requirements for the Project, if any, are set forth in the Bid Booklet. Special Experience Requirements may apply to contractors, subcontractors, installers, manufacturers and/or suppliers. If the Specifications and/or the Contract Drawings contain any Special Experience Requirement that is not set forth in the Bid Booklet, such Special Experience Requirement is deemed deleted, except as otherwise provided below.
  - (a) Any Special Experience Requirement that provides that the entity performing the work or supplying the material must have more than three (3) years of experience, is revised to provide that the entity performing the work or supplying the material must have three (3) years of experience, except as described in paragraph (b) below.
  - (b) Any Special Experience Requirement that pertains to the abatement of hazardous materials shall not be subject to the deletion and/or revision set forth above. Such Special Experience Requirement shall remain in full force and effect.
  - (c) Any Special Experience Requirement that provides that the entity performing the work must be licensed, authorized, certified, approved by or acceptable to the manufacturer, is deemed deleted and replaced with the requirement that such entity must be properly trained for the specified work.
  - (d) Any Special Experience Requirement that provides that the individual workers performing the work must be licensed, authorized, certified, approved by or acceptable to the manufacturer, is deemed deleted and replaced with the requirement that such individual workers must be properly trained for the specified work.
- (6) Alternate Bids: If the agency is requesting the submission of Alternate Bids, a Notice regarding such Alternate Bids is set forth in the Bid Booklet. In the event of any conflict or inconsistency between (1) the Notice regarding Alternate Bids set forth in the Bid Booklet and (2) a provision in the Specifications and/or the Contract Drawings regarding Alternate Bids, the Notice set forth in the Bid Booklet shall prevail. If the agency is not requesting the submission of Alternate Bids, as indicated by the absence of a Notice in the Bid Booklet, and the Specifications and/or the Contract Drawings contain any provision regarding Alternate Bids, such provision is deemed deleted.
- (7) Contractor Retained Engineer: If the Specifications and/or the Contract Drawings require the Contractor to retain an Engineer to provide engineering services for the Project, the following sentence is deemed inserted: "Such Engineer must be a Professional Engineer, licensed in the State of New York."

- (8) LEED Related Provisions: If the Specifications and/or the Contract Drawings require the Contractor to purchase FSC certified wood, rapidly renewable materials, or materials within 500 miles, such provisions are deemed deleted and replaced with the requirement that if the contractor has purchased FSC certified wood, rapidly renewable materials, or materials within 500 miles, the contractor shall submit such forms or documentation as may be required by the City in order for the USGBC to certify that the Project qualifies for the related LEED credit(s).
- (9) Guarantees: Requirements for Guarantees and Maintenance are set forth in Schedule B, which is included in the Addendum to the General Conditions. In the event of any conflict or inconsistency between (1) a guarantee and/or maintenance requirement set forth in the Specifications and/or the Contract Drawings and (2) a guarantee and/or maintenance requirement set forth in Schedule B, the guarantee and/or maintenance requirement set forth in Schedule B shall prevail.
- (10) Warranties: Requirements for Warranties are set forth in Schedule B, which is included in the Addendum to the General Conditions.
- (a) In the event of any conflict or inconsistency between (1) a warranty requirement set forth in the Specifications and/or the Contract Drawings and (2) a warranty requirement set forth in Schedule B, the warranty requirement set forth in Schedule B shall prevail.
- (b) In the event a warranty requirement set forth in the Specifications and/or the Contract Drawings is omitted from Schedule B, such omission from Schedule B shall have no effect and the Contractor's obligation to provide the manufacturer's warranty, as set forth in the Specifications and/or the Contract Drawings, shall remain in full force and effect.
- (c) In the event a warranty requirement for a particular item of material or equipment is omitted from Schedule B, as well as from the Specifications or the Contract Drawings, and the manufacturer of such item actually provides a warranty, the Contractor shall be obligated to obtain and deliver to the Commissioner the highest level of warranty actually provided by that manufacturer.
- (11) Exculpatory Provisions: In the event the Specifications and/or the Contract Drawings contain any provision whereby the consultant and/or any of its officers, employees or agents, including subconsultants, is absolved of responsibility for any act or omission, such provision is deemed deleted.
- (12) Insurance: Provisions regarding insurance coverage the Contractor is required to provide are set forth in Article 22 of the City of New York Standard Construction Contract and Schedule A, which is included in the Addendum to the General Conditions. In the event the Specifications and/or the Contract Drawings contain any provision regarding insurance requirements, such provision is deemed deleted.
- (13) Indemnification: Provisions regarding indemnification are set forth in Articles 7, 12, 22 and 57 of the City of New York Standard Construction Contract. In the event the Specifications and/or the Contract Drawings contain any provision regarding indemnification, such provision is deemed deleted.
- (14) Dispute Resolution: Provisions regarding dispute resolution are set forth in Article 27 of the City of New York Standard Construction Contract. In the event the Specifications and/or the Contract Drawings contain any provision regarding dispute resolution, such provision is deemed deleted.
- (15) Payment to Other Entities: In the event the Specifications and/or the Contract Drawings contain any provision which requires the Contractor to make payments to an entity other than a subcontractor and/or supplier providing services and/or material for the project, such provision is deemed deleted.
- (16) General Conditions: In the event of any conflict or inconsistency between (1) the Specifications and/or the Contract Drawings and (2) the General Conditions, the General Conditions shall prevail.
- (17) Standard Construction Contract: In the event of any conflict or inconsistency between (1) the Specifications and/or the Contract Drawings and (2) the City of New York Standard Construction Contract, the City of New York Standard Construction Contract shall prevail.

**SCHEDULE A (FOR PUBLICLY BID PROJECTS)**  
**PART I - Contract Requirements**

Various Articles of the Contract refer to requirements which are set forth in Schedule A of the General Conditions. The Schedule set forth below specifies the following: (1) the referenced Articles of the Contract, and (2) the specific requirements applicable to each separate contract.

REFERENCE	ITEM	REQUIREMENTS	CONTRACT #1
Information For Bidders	Bid Security		See Attachment 1 – Bid Information in the Bid Booklet
Information For Bidders	Performance and Payment Bonds		See Attachment 1- Bid Information in the Bid Booklet
Article 14 Contract	Time of Completion	Consecutive Calendar Days	540 ccds
Article 15 Contract	Liquidated Damages	For each consecutive calendar day over completion time	\$600
Article 17 Contract	Sub-Contracts	Not to exceed Percent of Contract Price	60%
Article 21 Contract	Retainage	Percent of Voucher	If 100% bonds are required 5% If 100% bonds are not required, and Contract Price is less than \$1,000,000 10% If 100% bonds are not required, and Contract Price is more than \$1,000,000 10%
Article 24 Contract	Deposit Guarantee	Percent of Contract Price	1%
Article 24 Contract	Period of Guarantee		See Schedule B of the Addendum to the General Conditions
Article 74 Contract	Statement of Work		See Contract Article 74
Article 75 Contract	Compensation to be Paid to Contractor		See Contract Article 75
Article 78 Contract	MWBE Program		See MWBE Utilization Plan in the Bid Booklet

**SCHEDULE A (FOR PUBLICLY BID PROJECTS)**

**Relating to Article 22 - Insurance**

**PART II. Types of Insurance, Minimum Limits and Special Conditions**

**Note:** All certificate(s) of insurance submitted pursuant to Contract Article 22.3. 3 must be accompanied by a Certification by Broker consistent with Part III below and include the following information:

- For each insurance policy, the name and NAIC number of issuing company, number of policy, and effective dates;
- Policy limits consistent with the requirements listed below;
- Additional insureds or loss payees consistent with the requirements listed below; and
- The number assigned to the Contract by the City (in the "Description of Operations" field).

**Insurance indicated by a blackened box (■) or by (X) in the  to left will be required under this contract.**

Types of Insurance (per Article 22 in its entirety, including listed paragraph)	Minimum Limits and Special Conditions
<p>■ Commercial General Liability      Art. 22.1.1</p>	<p>The minimum limits shall be \$1,000,000.00 per occurrence and \$2,000,000.00 per project aggregate applicable to this <b>Contract</b>.</p> <p>Additional Insureds:</p> <p>1. City of New York, including its officials and employees, with coverage at least as broad as ISO Forms CG 20 10 and CG 20 37, and</p> <p>2. All person(s) or organization(s), if any, that Article 22.1.1(b) of the <b>Contract</b> requires to be named as Additional Insured(s), with coverage at least as broad as ISO Form CG 20 26. The Additional Insured endorsement shall either specify the entity's name, if known, or the entity's title (e.g., Project Manager).</p> <p>3. _____</p>
<p>■ Workers' Compensation              Art. 22.1.2</p> <p>■ Disability Benefits Insurance      Art. 22.1.2</p> <p>■ Employers' Liability                  Art. 22.1.2</p> <p><input type="checkbox"/> Jones Act                                  Art. 22.1.3</p> <p><input type="checkbox"/> U.S. Longshoremen's and Harbor Workers Compensation Act      Art. 22.1.3</p>	<p>Workers' Compensation, Employers' Liability, and Disability Benefits Insurance: Statutory per New York State law without regard to jurisdiction.</p> <p><b>Note:</b> The following forms are acceptable: (1) New York State Workers' Compensation Board Form No. C-105.2, (2) State Insurance Fund Form No. U-26.3, (3) New York State Workers' Compensation Board Form No. DB-120.1 and (3) Request for WC/DB Exemption Form No. CE-200. The City will not accept an ACORD form as proof of Workers' Compensation or Disability Insurance.</p> <p>Jones Act and U.S. Longshoremen's and Harbor Workers' Compensation Act: Statutory per U.S. law.</p>

SCHEDULE A (FOR PUBLICLY BID PROJECTS)

Relating to Article 22 - Insurance

PART II. Types of Insurance, Minimum Limits and Special Conditions

Insurance indicated by a blackened box (■) or by (X) in the  to left will be required under this contract.

Types of Insurance (per Article 22 in its entirety, including listed paragraph)	Minimum Limits and Special Conditions
<input checked="" type="checkbox"/> Builders' Risk <span style="float: right;">Art. 22.1.4</span>	<p>100 % of total value of <b>Work</b></p> <p><b>Contractor</b> the Named Insured; the <b>City</b> both an Additional Insured and one of the loss payees as its interests may appear.</p> <p>If the <b>Work</b> does not involve construction of a new building or gut renovation work, the <b>Contractor</b> may provide an installation floater in lieu of Builders Risk insurance.</p> <p>Note: Builders Risk Insurance may terminate upon <b>Substantial Completion</b> of the <b>Work</b> in its entirety.</p>
<input checked="" type="checkbox"/> Commercial Auto Liability <span style="float: right;">Art. 22.1.5</span>	<p>\$1,000,000.00 per accident combined single limit</p> <p>If vehicles are used for transporting hazardous materials, the <b>Contractor</b> shall provide pollution liability broadened coverage for covered vehicles (endorsement CA 99 48) as well as proof of MCS 90</p>
<input type="checkbox"/> Contractor's Pollution Liability <span style="float: right;">Art. 22.1.6</span>	<p>\$ _____ per occurrence</p> <p>\$ _____ aggregate</p> <p>Additional Insureds:</p> <ol style="list-style-type: none"> <li>1. City of New York, including its officials and employees, and</li> <li>2. _____</li> <li>3. _____</li> </ol>
<input type="checkbox"/> Marine Protection and Indemnity <span style="float: right;">Art. 22.1.7(a)</span>	<p>\$ _____ per occurrence</p> <p>\$ _____ aggregate</p> <p>Additional Insureds:</p> <ol style="list-style-type: none"> <li>1. City of New York, including its officials and employees, and</li> <li>2. _____</li> <li>3. _____</li> </ol>



**SCHEDULE A (FOR PUBLICLY BID PROJECTS)**

**Relating to Article 22 - Insurance**

**PART II. Types of Insurance, Minimum Limits and Special Conditions (Continued)**

Insurance indicated by a blackened box (■) or by (X) in the  to left will be required under this contract.

Types of Insurance (per Article 22 in its entirety, including listed paragraph)	Minimum Limits and Special Conditions
<input type="checkbox"/> Hull and Machinery Insurance      Art. 22.1.7(b)	\$ _____ per occurrence  \$ _____ aggregate  Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____
<input type="checkbox"/> Marine Pollution Liability      Art. 22.1.7(c)	\$ _____ each occurrence  Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____
[OTHER]      Art. 22.1.8  <input type="checkbox"/> Ship Repairers Legal Liability	\$ _____ each occurrence [Contracting agency to fill in total value of City vessels involved]
[OTHER]      Art. 22.1.8  <input type="checkbox"/> Collision Liability/Towers Liability	\$ _____ per occurrence  \$ _____ aggregate  Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____
[OTHER]      Art. 22.1.8  <input type="checkbox"/> Railroad Protective Liability	\$ _____ per occurrence  \$ _____ aggregate  Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____

**SCHEDULE A (FOR PUBLICLY BID PROJECTS)**

**Relating to Article 22 - Insurance**

**PART II. Types of Insurance, Minimum Limits and Special Conditions (Continued)**

Insurance indicated by a blackened box (■) or by (X) in the  to left will be required under this contract.

<p>[OTHER] <span style="float: right;">Art. 22.1.8</span></p> <p><input type="checkbox"/> Asbestos Liability _____</p>	<p>Only required of the Contractor or Subcontractor performing any required asbestos removal.</p> <p>\$1,000,000 each occurrence, \$2,000,000 aggregate (Combined Single Limit); only required of the Contractor or Subcontractor performing any required asbestos removal.</p> <p>Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____</p>
<p>[OTHER] <span style="float: right;">Art. 22.1.8</span></p> <p><input type="checkbox"/> Boiler Insurance _____</p>	<p>\$200,000</p>
<p>[OTHER] <span style="float: right;">Art. 22.1.8</span></p> <p>■ Professional Liability</p> <p>In the event any section of the Specifications requires the Contractor to engage a Professional Engineer to provide design and/or engineering services, the Engineer engaged by the Contractor, as well as any sub consultant(s) performing professional services, shall provide Professional Liability Insurance.</p>	<p>\$1,000,000 per occurrence</p> <p>The Contractor's Professional Engineer shall maintain and submit evidence of Professional Liability Insurance in the minimum amount of \$1,000,000 per claim. The policy or policies shall include an endorsement to cover the liability assumed by the Contractor under this Agreement arising out of the negligent performance of professional services or caused by an error, omission or negligent act of the Contractor's Professional Engineer or anyone employed by the Contractor's Professional Engineer.</p> <p>Claims-made policies will be accepted for Professional Liability Insurance. All such policies shall have an extended reporting period option or automatic coverage of not less than two (2) years. If available as an option, the Contractor's Professional Engineer shall purchase extended reporting period coverage effective on cancellation or termination of such insurance unless a new policy is secured with a retroactive date, including at least the last policy year.</p>



**SCHEDULE A (FOR PUBLICLY BID PROJECTS)**

**Relating to Article 22 - Insurance**

**PART IV. Address of Commissioner**

Wherever reference is made in Article 7 or Article 22 to documents to be sent to the **Commissioner** (e.g., notices, filings, or submissions), such documents shall be sent to the address set forth below or, in the absence of such address, to the **Commissioner's** address as provided elsewhere in this **Contract**.

ACCO's Office, Insurance Unit

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30-30 Thomson Avenue, 4<sup>th</sup> Floor

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Long Island City, New York 11101

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**SCHEDULE B**

**Guarantees and Warranties**

(Reference: Section 01 7839, Article 2.7 of the DDC Standard General Conditions)

**GUARANTY FROM CONTRACTOR**

(1) **Contractor's Guaranty Obligation:** The Contractor shall promptly repair, replace, restore or rebuild, as the Commissioner may determine, any finished Work in which defects of materials or workmanship may appear or to which damage may occur because of such defects, during the one (1) year period subsequent to the date of Substantial Completion (or use and occupancy in accordance with the Contract), except for the areas of Work set forth below:

- Roofing, Waterproofing, and Joint Sealant Work. For these types of work, the guarantee period shall be (2) two years.
- Trees and/or Plant Material. For trees and/or plant material furnished and installed, the guarantee period shall be (2) two years. During the guarantee period, the Contractor shall provide all maintenance services set forth in the Specifications.

(2) **Guaranty Period:** The obligation of the Contractor, and its Surety under the Performance Bond, is limited to the period(s) of time specified above.

(3) **Other Provisions Deemed Deleted:** In the event the Specifications and/or the Contract Drawings contain any provisions regarding guaranty requirements, such provisions are deemed deleted and replaced with the guaranty requirements set forth in this Schedule B.

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**WARRANTY FROM MANUFACTURER**

(1) **Contractor's Obligation to Provide Warranties:** The items of material and/or equipment for which manufacturer warranties are required are listed below. For each item of material and/or equipment listed below, the Contractor shall obtain a written warranty from the manufacturer. Such warranty shall provide that the material or equipment is free from defects for the period set forth below and will be replaced or repaired within such specified period. The Contractor shall deliver all required warranties to the Commissioner.

(2) **Required Warranties:**

Specification Number	Material or Equipment	Warranty Period
071326	Self-Adhering Sheet Waterproofing	Five (5) years from date of Substantial Completion.
075216	Modified Bituminous Roofing	-Special warranty: Fifteen (15) years from date of Substantial Completion.
079200	Joint Sealants	-Special Manufacturer's Warranty: Twenty (20) years from date of Substantial Completion.
085113	Aluminum Windows	-Window: Ten (10) years from date of Substantial Completion. -Glazing Units: Five (5) years from date of Substantial Completion. -Aluminum Finish: Twenty (20)

		years from date of Substantial Completion.
087100	Door Hardware	Three (3) years from date of Substantial Completion, unless otherwise indicated.
221429	Sump Pumps	One (1) year from the date of substantial completion.
233313	Dampers	One (1) year from the date of substantial completion.
233600	Air Terminal Units (VAV Boxes)	One (1) year from the date of substantial completion.
236210	Air Cooled Air Conditioning Units	Two (2) year from the date of substantial completion.
236220	Rooftop Packaged Units	-Parts warranty (excluding refrigerant) for one (1) year from start-up or 18 months from shipment, whichever occurs first.  -Provide five-year extended parts warranty for compressors.
237305	Fans	One (1) year from the date of substantial completion.
238600	Electric Motor Controllers	Five (5) years from date of shipment and shall cover replacement parts on all components.
262416	Panelboards	One (1) year from the date of substantial completion.
262726	Wiring Devices	One (1) year from date of purchase.
262919	Switchboards	Two (2) years from the date of substantial completion.
265000	Luminaires and Accessories	Five (5) years for LED drivers and LED boards.
280000	Security General	Two (2) year parts and labor guarantee from the date of acceptance
282629	Video Surveillance Remote Devices and Sensors	-Two (2) years for fixed cameras. -Two (2) years for pan/tilt/zoom units under constant operation. -All other video surveillance equipment shall have a minimum of two (2) year warranty from date of substantial completion. -Three (3) years parts and labor warranty for thin file transistor (TFT) LCD monitor. -MRK enclosure shall be warrantied to be free from defects in material and workmanship under normal conditions for the lifetime of the rack. -Rack mount LCD monitor and keyboard with integrated touchpad shall be warrantied to be free from defects in parts or materials from workmanship

		<p>under normal conditions for one (1) year.</p> <p>-Rack mount UPS shall be warranted to be free from defects in parts or materials from workmanship under normal conditions for three (3) years. Battery shall be warranted for a period of two (2) years.</p> <p>-Rack mount expansion battery pack shall be warranted to be free from defects in parts or materials from workmanship under normal conditions for two (2) years.</p> <p>-Replacement battery shall be warranted to be free from defects in parts or materials from workmanship under normal conditions for two (2) years.</p>
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(3) **Application:** The obligations under the warranty for the periods specified above shall apply only to the manufacturer of the material or equipment, and not to the Contractor or its Surety; provided, however, the Contractor retains responsibility for obtaining all required warranties from the manufacturers and delivering the same to the Commissioner.

(4) **Other Provisions:** The warranty requirements set forth in this Schedule B are also included in the Specifications.

- (a) In the event of any conflict between a warranty requirement set forth in the Specifications and a warranty requirement set forth in Schedule B, the warranty requirement set forth in Schedule B shall take precedence.
- (b) In the event a warranty requirement set forth in the Specifications is omitted from Schedule B, such omission from Schedule B shall have no effect and the Contractor's obligation to provide the manufacturer's warranty, as set forth in the Specifications, shall remain in full force and effect
- (c) In the event a warranty requirement for a particular item of material or equipment is omitted from both Schedule B and the Specifications, and the manufacturer of such item actually provides a warranty, the Contractor shall be obligated to obtain and deliver to the Commissioner the highest level of warranty actually provided by that manufacturer.
- (d) In the event a warranty requirement is provided for a particular item of material or equipment, and such requirement specifies a warranty period that is longer than that which is actually provided by any of the specified manufacturers, the Contractor shall be obligated to obtain and deliver to the Commissioner the highest level of warranty actually provided by any of the specified manufacturers, unless otherwise directed in writing by the Commissioner.
- (e) Unless indicated otherwise Warranties are to take effect on the date of Substantial Completion.

## SCHEDULE C

### Contract Drawings

(Reference: Section 01 1000, Article 1.5 (A) of the DDC Standard General Conditions)

The Schedule set forth below lists all Contract Drawings for the Project.

#### ARCHITECTURAL DRAWINGS

GN-100.00 GENERAL NOTES  
DM-100.00 EXISTING SITE PLAN  
DM-101.00 EAST ELEVATOR PENTHOUSE PLANS  
DM-102.00 BASEMENT/SUB-BASEMENT PLANS  
DM-103.00 NORTH AND EAST ELEVATIONS  
DM-104.00 SOUTH AND WEST ELEVATIONS  
A-200.00 ROOF PLAN  
A-201.00 EAST ELEVATOR PENTHOUSE PLANS  
A-202.00 EAST ELEVATOR PENTHOUSE LOBBY PLANS FLOORS 1-8  
A-203.00 BASEMENT/SUB-BASEMENT PLANS  
A-300.00 NORTH AND EAST ELEVATIONS  
A-301.00 SOUTH AND WEST ELEVATIONS  
A-302.00 BUILDING SECTIONS  
A-400.00 PASSENGER ELEVATOR DETAILS  
A-401.00 FREIGHT ELEVATOR DETAILS  
A-402.00 PROPOSED DETAILS  
A-403 PROPOSED DETAILS  
A-404.00 EAST ELEVATOR PENTHOUSE WINDOW AND LOUVER DETAILS  
A-405.00 EAST ELEVATOR PENTHOUSE WINDOW AND LOUVER DETAILS  
A-406.00 DOOR DETAILS  
A-407.00 LADDER DETAILS  
A-408.00 LADDER DETAILS  
A-409.00 EAST ELEVATOR PENTHOUSE EXISTING CONDITION IMAGES  
A-500.00 DOOR AND OPENINGS SCHEDULES  
A-501.00 FINISHES SCHEDULES

#### ASBESTOS ABATEMENT DRAWINGS

H-001.00 ASBESTOS ABATEMENT GENERAL NOTES AND DRAWING LIST  
H-002.00 ASBESTOS ABATEMENT 9<sup>TH</sup> FLOOR MACHINE ROOM PLAN  
H-003.00 ASBESTOS ABATEMENT 10<sup>TH</sup> FLOOR NORTH/SOUTH TERRACE AND MACHINE ROOM PLAN  
H-004.00 ASBESTOS ABATEMENT ATTIC LEVEL PLAN

#### MECHANICAL

M-001.00 MECHANICAL DRAWING LIST, SCOPE OF WORK AND NOTES  
M-002.00 MECHANICAL LEGENDS, SYMBOLS AND ABBREVIATIONS  
DM-200.00 MECHANICAL SUB-BASEMENT LEVEL DEMOLITION PART PLAN  
DM-201.00 MECHANICAL ROOF LEVEL AND PENTHOUSE DEMOLITION PART PLAN  
M-200.00 MECHANICAL SUB-BASEMENT LEVEL PART PLAN  
M-201.00 MECHANICAL BASEMENT LEVEL PART PLANS  
M-202.00 MECHANICAL ROOF LEVEL AND PENTHOUSE PART PLAN  
M-400.00 MECHANICAL SECTIONS  
M-500.00 MECHANICAL ELEVATOR SHAFT VENTING AND EMR AIR RISER DIAGRAM  
M-600.00 MECHANICAL DETAILS (SHEET #1)  
M-601.00 MECHANICAL DETAILS (SHEET #2)  
M-602.00 MECHANICAL DETAILS (SHEET #3)  
M-700.00 MECHANICAL EQUIPMENT SCHEDULES  
M-800 MECHANICAL SEQUENCE OF OPERATIONS AND CONTROL DIAGRAMS  
EN-100.00 MECHANICAL ENERGY CODE COMPLIANCE



## **ELECTRICAL**

E-001.00 ELECTRICAL DRAWING LIST, SCOPE OF WORK, GENERAL NOTES,  
SYMBOLS AND ABBREVIATIONS  
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E-101.00 ELECTRICAL FIRST FLOOR POWER PART PLAN  
E-200.00 ELECTRICAL SUB-BASEMENT LEVEL POWER AND LIGHTING PART PLAN  
E-201.00 ELECTRICAL BASEMENT LEVEL POWER AND LIGHTING PART PLAN  
E-202.00 ELECTRICAL 7<sup>TH</sup> FLOOR POWER PART PLAN  
E-203.00 ELECTRICAL ROOF LEVEL POWER PART PLAN  
E-204.00 ELECTRICAL ROOF LEVEL LIGHTING PART PLAN  
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DM-300.00 PLUMBING SUB-BASEMENT LEVEL DEMOLITION PART PLAN  
DM-301.00 PLUMBING BASEMENT LEVEL DEMOLITION PART PLAN  
DM-302.00 PLUMBING ROOF LEVEL AND PENTHOUSE DEMOLITION PART PLAN  
P-200.00 PLUMBING SUB-BASEMENT LEVEL NEW WORK PART PLAN  
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## SCHEDULE D

### Electrical Motor Control Equipment

**(Reference: 01 3506, Article 3.8 of the DDC Standard General Conditions)**

Requirements for electrical motor equipment may be included in one or more sections of the Specifications for the Contract for the Project. Schedule D set forth below delineates specific information for electrical motor control equipment. In the event of any conflict between the Specifications and this Schedule D, Schedule D shall take precedence; provided, however, in the event of an omission from Schedule D (i.e., Schedule D omits either a reference to or information concerning electrical motor equipment which is set forth in the Specifications), such omission from Schedule D shall have no effect and the Contractor's obligation with respect to the electrical motor control equipment, as set forth in the Specifications, shall remain in full force and effect.

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<b>DB</b> Disconnect Circuit Breaker (Switch) <b>TS</b> Thermal Switch <b>MS</b> Magnetic Starter <b>CMS</b> Comb. Mag. Starter	<b>P</b> Pilot Light <b>F</b> Firestat <b>T</b> Thermostat <b>AL</b> Alternator	<b>BG</b> Break Glass Station <b>HOA</b> Hand-Off Auto. <b>PB</b> Push Button Station <b>RO</b> Remote "off"
--	--	---

Equip. Ident.	Location	# of Units	HP or KW	Volts and Phase	Control Type: See legend above	Remarks:
AC-R-1	Roof	1	3.6 HP	460/3	CMS	Supply Fan Motor
AC-R-1	Roof	1	0.75 HP	460/3	CMS	Condenser Fan Motor
ACCU-C-1	Basement	1	0.075 kW	208/1	CMS	Condenser Fan Motor
FCU-C-1	Basement	1	0.056 kW	208/1	CMS	Condenser Fan Motor
P-1	Sub-Bsmt	2	0.5 HP	115/1	CMS	Pump Motor

SCHEDULE E  
Separation of Trades

*NOT USED FOR SINGLE CONTRACTS*

**SCHEDULE F**

**Submittals Schedule**

**(Reference: Section 01 3300 Article 1.5 (C) of the General Conditions)**

The Schedule set forth below lists all submittal requirements for the Contract. In the event of any conflict between the Specifications and this Schedule F, Schedule F shall take precedence; provided, however, in the event of an omission from Schedule F (i.e., Schedule F omits either a reference to or information concerning a submittal requirement which is set forth in the Specifications), such omission from Schedule F shall have no effect and the Contractor's submittal obligation, as set forth in the Specifications, shall remain in full force and effect.

CONSULTANT: \_\_\_\_\_ DATE: \_\_\_\_\_  
 TELEPHONE NUMBER: \_\_\_\_\_  
 DDC PROJECT MANAGER: \_\_\_\_\_ APPROVED: \_\_\_\_\_  
 TELEPHONE NUMBER: \_\_\_\_\_ (DDC RESIDENT ENGINEER/CPM)

REPORT DATE	FMS ID #/PROJECT ID #/ CONTRACT REGISTRATION #/ PROJECT NAME:		Contract 1 – GENERAL CONSTRUCTION															
	SPEC. SECT. #	DESCRIPTION	COORD. WITH CONTR.	SUBMITTAL	SUB DATE	REQ'D DEL.	FABRIC. TIME	TRADE: SHOP DRAWING LOG SHEET #						SUBMISSIONS				
				SHOP Dwg	SAMPLE	CAT			REC'D	RET'D	ACTION	REC'D	RET'D	ACTION	REC'D	RET'D	ACTION	
01 3526		Safety and Health Program	X															
01 3526		Contractor's Safety Plan	X															
01 3526		Historic Treatment Plan	X															
01 5000		Site Plan		X														
01 5000		Reports	X															
01 5423		NYC DOB Scaffold & Sidewalk Shed Permits	X	X														
01 5423		Site Logistics/Site Safety Plan	X															

01 5423	Scaffold & Shed Installation Drawings		X																	
01 7419	Waste Management Plan	X																		
01 7900	Instruction Program for Demonstration & Orientation	X																		
01 7900	Qualification Data	X																		
01 8113.13	MSDS		X																	
01 8119	IAQ Management Plan	X																		
01 8119	Product Cut Sheets			X																
01 8119	IAQ Management Plan	X																		
02 2000	Excavation, Filling and Grading Selective Historic Demolition	X	X																	
02 4191	Selective Historic Demolition	X	X																	
03 3000	Cast-in-Place Concrete	X	X																	
03 4900	Glass Fiber Reinforced Concrete	X	X																	
04513.91	Masonry Restoration Mortaring	X	X																	
04 2113	Brick Masonry	X	X																	





22 1316	Sanitary Waste and Vent Piping and Fitting Materials	X	X															
22 1319	Sanitary Waste Piping Specialities	X	X															
22 1429	Sump Pumps	X	X															
23 0002	HVAC Special Conditions	X	X															
23 0003	Scope of Work	X	X															
23 0005	Access Doors in General Construction	X	X															
23 0200	Firestopping	X	X															
23 0513	Electric Motors	X	X															
23 0529	Hangers, Anchors and Guides	X	X															
23 0548	Vibration Isolation	X	X															
23 0553	Systems Identification	X	X															
23 0593	Testing, Adjusting and Balancing	X	X															
23 0700	Insulation	X	X															
23 1113	Sheetmetal	X	X															
23 2500	Pipe Cleaning and Chemical Water Treatment	X	X															
23 3313	Dampers	X	X															
23 3600	Air Terminal Units	X	X															
23 3610	Air Outlets and Inlets	X	X															





26 0533	Raceways and Boxes	X	X																	
26 0548	Vibration Isolation and Seismic Restraints	X	X																	
26 2213	Dry Type Transformers	X	X																	
26 2416	Panelboards	X	X																	
26 2726	Wiring Devices	X	X																	
26 2813	Fuses (600 V and Less)	X	X																	
26 2816	Disconnect Switches	X	X																	
26 2919	Switchboards	X	X																	
26 4001	Fire Alarm and Detection System	X	X																	
26 5000	Luminaires and Accessories	X	X																	
28 0000	Security General System Req	X	X																	
28 2313	Video Surveillance Control and Management Systems	X	X																	
28 2629	Video Surveillance Remote Devices and Sensors	X	X																	
28 5100	Security Communications System	X	X																	
28 7200	Video Management	X	X																	

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024191	SELECTIVE DEMOLITION, REMOVALS, AND SALVAGE
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**CONTRACT # 1**  
**GENERAL CONSTRUCTION WORK**

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SECTION 02 20 00

EXCAVATION, FILLING AND GRADING

PART 1 - GENERAL

1.1 SCOPE

- A. The Agreement and General Conditions are hereby made a part of this section as if herein set forth in full.
- B. All labor, materials, equipment and accessories necessary for or incidental to the completion of all excavation, filling and grading work, and related items as shown on drawings, as specified herein, and as required by the conditions at the site, are a part of the Contract.
- C. Without restricting the generality of the foregoing, the following items of work are included:
  - 1. All earth, rock and concrete excavation to the bottom of spread footings, pile caps, foundations, walls, pits, catch basins, manholes and areaway as required and indicated on drawings. Piers, concrete slabs and footings shall be benched a minimum of 2" into rock at sloping rock conditions as indicated on the drawings where no excavation is required.
  - 2. Excavating, filling and rough grading of site area within the Contract Limit Line.
  - 3. Excavation, filling, grading and compacting to required elevations for all floors and slabs on grade.
  - 4. Excavating, filling, grading and compacting to required elevations for the appurtenances and site work.
  - 5. Excavating and trenching for mechanical trades, including but not limited to all plumbing, yard drainage, heating, water, gas and electric within the buildings as shown or required by the drawings; backfilling same with clean fill as described hereinafter; and thoroughly compacting to "Rough Grading" elevations. Excavating, filling and grading for mechanical trades outside the building shall be the responsibility of each trade.
  - 6. Shoring, bracing, and protection against damage to existing utilities adjacent to new construction.
  - 7. Providing additional approved suitable material for filling and rough grading.
  - 8. Legal disposing, off the site of surplus excavated materials unsuitable

**EXCAVATION, FILLING AND GRADING**

**02 20 00-1**

January 5, 2015

**Bellevue Men's Shelter Elevator Rehabilitation**  
**FMS# HH112BLEL**

for filling or backfilling.

9. Pumping and dewatering as required for work of this section and for foundation work.
10. Driving of observation wells.
11. Removal of existing tanks, abandoned pipes and utilities, other structures encountered or left by wreckers, old walls, rubble, etc.
12. Provide other labor and materials as may be reasonably inferred to be required to make the work under this Section complete.

**D. Definitions:**

1. Wherever the word "excavating," "excavate," or "excavation," "carried down," "remove," etc., are used, they shall be taken to include the removal of all existing work, including all brick work, all rubble work, rubbish, earth and quicksand, as well as rock, boulders, and old concrete and all other materials and obstructions encountered; they shall also be taken to include all sheet piling, bracing, pumping, and all operations and items needed for the proper execution of the work.
2. Rock and boulders over one cubic yard in size which cannot be removed or dislodged without blasting or drilling shall be classified as "rock excavation."
3. Old concrete uncovered within excavation will be considered as earth excavation except as follows: Old concrete over one cubic yard in size, and which after demolition cannot be excavated without drilling or blasting, shall be classified as "old concrete excavation." The removal of all paving, including but not restricted to street, sidewalk, area and yard paving and foundations for same shall be classified as "earth excavation."
4. Where "earth" is referred to herein it shall include the excavation of materials which can be dug either with normal power shovels, or by hand and without requiring blasting, or wedging, plug and feathering or chipping.
5. All rock excavation down to plan grades shall be part of the Contract Price. Any rock excavation carried below plan grades for compliance with Building Department requirements or the construction supervisor's Engineer's directives in order to obtain proper bearing capacity, or for any other reason, shall be paid for as authorized additional excavation work under the classification of rock.
6. Where the words "finished grades," "finished grade lines," or "future finished grade," appear in these specifications, they shall be taken to mean the finished elevations as indicated on the drawings.
7. Rough grading consists of cutting or filling to the elevation herein

**EXCAVATION, FILLING AND GRADING**  
**02 20 00-2**

January 5, 2015

established with a permissible tolerance of plus or minus 2". This tolerance shall be so used within any area of 100' that it will not be necessary to remove excess or bring an additional fill to meet the required elevations.

**1.2 JOB CONDITIONS**

- A. The Contractor shall visit the site and familiarize himself with all existing conditions. All nearby utilities shall be inspected by the Contractor.

**1.3 PROTECTION**

- A. The work shall be executed so that no damage or injury will occur to public sewers, gas, water, electric or any other pipes.
- B. The above shall also include the protection of all existing sewers to remain in use within the area affected by the work of this project.

**1.4 PROTECTION OF EXCAVATIONS**

- A. Facilities and materials needed to prevent earth and/or rock at bottom of excavation from becoming frozen or unsuitable to receive the foundations shall be furnished.
- B. The excavation shall not be carried to final grades during freezing weather without providing complete protection against freezing of the subgrades as specified hereinafter. Complete protection against freezing shall also be provided if freezing weather sets in after completion of the excavation to final subgrade. This protection shall include adequate heating and coverage of the area to maintain temperatures above freezing until foundations have been concreted and backfilled.
- C. Where excavations have been brought to the bottom elevations called for on the drawings, and the bottom of these excavations become unsuitable in the opinion of the Engineer of Record because of inadequate protection by the Contractor, these excavations shall be carried to lower depths sufficient to provide stable bearings as determined by the Engineer of Record. Such added excavation shall be considered as set forth in article "Errors in Depth" of this section.

**1.5 ERRORS IN DEPTH**

- A. In the event that any part of the excavation be carried through error, beyond the depth and the dimensions indicated on the drawings or called for in the specifications, then the Contractor, at his own expense, shall furnish and install gravel with which to fill to the required level, in all locations except beneath footings.

1.6 DESIGN OF TEMPORARY WORK

- A. Temporary work shall be designed and installed so that the permanent work can be conveniently erected.
- B. Temporary work shall be maintained and kept in good condition.
- C. Temporary work shall be changed, shifted, rebuilt, etc., as needed to suit the conditions of the permanent work.

1.7 SUBSURFACE STRUCTURES AND UTILITIES

- A. The Contractor is to acquaint himself with the existence and location of all surface and subsurface structures and utilities within the project area. He is not to damage any of those that are to remain and he is to leave them accessible and make the necessary provisions by sheeting, hanging, supporting or other means necessary to obtain this result, subject to the approval of the City Department and the utility company involved.

**PART 2 - PRODUCTS**

2.1 FILL

- A. General Fill: Clean sand or other porous material as accepted, containing not more than 10% by weight of materials finer than No. 200 mesh sieve and not more than 10% retained on a 3/4" sieve. Earth fill may be used if accepted by the Commissioner.
- B. Utility Trench Fill: Clean loam, clay, sand or gravel; free from frozen materials, lumps of clay, from rock, boulders, stones, cinders, slag, ashes, vegetable or organic materials, or building debris or other refuse.
- C. Fills required shall be free from wood, debris, combustible materials, vegetable matter or any material subject to decay or disintegration.

**PART 3 - EXECUTION**

3.1 PREPARATION OF PROJECT SITE

- A. Present walls, retaining walls, cellar floors, foundations, footings, and other existing abandoned structural items encountered during excavation operations shall be removed as follows:
  - 1. The above shall be removed as required for trenches and other work.
- B. Where existing abandoned utility lines are within three feet of the lines of new building, areaways, walls, or other parts of the building, they shall be removed. The Contractor shall protect all utility lines which are not to be abandoned and shall be responsible for any damage that may occur.

**3.2 PUMPING AND DEWATERING**

- A. Adequate pumps, well points, or other equipment, appurtenances, power, drains, materials and labor necessary to do all the pumping and dewatering needed to keep all excavations dry during the casting of footings, piers, foundations, slabs, and walls, and at such other times as the progress of the work may demand or as necessary to insure safety to the structure shall be provided.
- B. All pumping and dewatering both inside and outside the areas of the building shall be performed, continued and maintained as required for the completion of all work, including the work of the mechanical trades, throughout the period of the contract.
  - 1. During excavation for and placing of footings, the ground water level shall be maintained at a minimum of 1'-0" below the bottoms of the footings, working slabs and framed and unframed slabs. The dewatering system required shall maintain such levels until the footings are backfilled and the removal of the dewatering system will not endanger any construction area. All pumped water shall be removed from the building area.
- C. The dewatering system or systems shall be installed and operated in such a manner as to avoid the movement of fines or loss of ground from below the bearing level and shall not influence the stability of surrounding areas. Where required, well points, if employed, shall be properly sanded in and sumps shall be sheeted and provided with proper filter material. The facilities needed to eliminate loss of ground shall be included. The well point system shall include a collector of sufficient area and depth to insure the facts that no fines are removed by the dewatering system. The collector shall be placed at a location approved by the Engineer of Record.
- D. The Contractor shall not use any portion of the building foundation units or any part thereof as a sump for drainage resulting from pumping in any other area. The Contractor shall not conduct water to privately owned properties.

**3.3 EXCAVATING**

- A. The excavation in all cases shall extend to the depths of the form and size required for the installation of the work as indicated on the drawings. Footing trenches shall be excavated to allow for side forms. When excavations for foundations have reached the required depths, the Contractor shall make an inspection of the conditions. Machine excavation shall be permitted on footings and slabs on grade to within 6" of final subgrades of footings and slabs on grade. The balance of the excavation work shall be by hand. Rock excavation shall be included down to plan grades. Rock excavation carried below plan grades for compliance with the applicable code requirements, or Commissioner, or Engineer of Record's directives in order to obtain proper bearing capacity, or for any other reason, shall be authorized additional excavation under the classification of rock.
- B. Materials which in the opinion of the Commissioner are not suitable for fill, and any surplus earth and all rock shall be removed from the site, and legally disposed of.

- C. The bottom of excavations shall be leveled off and graded to receive the footings, foundations, slabs, pits and trenches, and grade beams.
- D. Existing utility lines to be retained that are shown on the drawings or the locations of which are made known to the Contractor prior to excavation operations, shall be protected from damage during excavation and backfilling, and if damaged, shall be repaired by the Contractor, at his expense.

**3.4 FILLING AND GRADING**

- A. Backfilling shall not be performed until work has been inspected by the Engineer of Record nor any filling be placed until, in the opinion of the Engineer of Record, walls have sufficiently set to withstand the pressure, and as hereinafter specified in another Section. Care is to be taken that dampproofing application is not damaged while backfilling is being done. All shavings, wood, paper and deleterious materials shall be cleaned out from excavations before backfilling.
- B. All filling, backfilling and rough grading shall be done within the area of the entire site.
- C. The filling or backfilling within the area of the building shall be done so that there will be no void spaces below floors and bottoms of pits and trenches, unless otherwise noted.
- D. Additional backfilling required to bring fill to the finished subgrades shown, shall be done by the Contractor only after the concrete walls and pier, against which the backfilling is done, have attained their full design strength, have been braced, if required by the Drawings and written permission of the Engineer of Record to backfill is obtained. If fill is required on both sides of a wall, it shall be brought up simultaneously and evenly on both sides.
- E. The Contractor shall do all filling necessary to bring the ground surfaces to the required levels for floors, pits, and areaways as shown on the drawings.
- F. Fill shall be properly compacted by mechanical tamping or other methods as accepted by the Engineer of Record to provide a solid bearing surface and prevent settlement. The Engineer of Record may reject materials and such material shall be disposed of at the Contractor's expense.
- G. Suitable excavated materials shall be used as backfill and rough grading. Any surplus materials shall be removed from site and legally disposed of. Should additional material be required for the placing of backfill, other than material obtained from the site, the Contractor shall obtain, deliver and place accepted backfill material as required.
- H. Sufficient suitable material shall be reserved and used to fill solid all space left by removal of temporary work, sheeting, shoring, or bracing.

**3.5 FIELD QUALITY CONTROL**

- A. It is the intent of these specifications that the compacting equipment will produce in place, densities equivalent to 90% of the maximum density obtained by the standard Proctor compactive procedure performed at optimum water content on the material chosen as fill. The Commissioner will provide for testing of compaction at his own expense. If the results of such testing indicate the method of compaction should be modified to obtain the required densities, the Contractor shall adjust his procedures for fill placement accordingly at no additional cost to the City of New York.

**3.7 CLEAN-UP**

- A. All lumber, forms and metal work shall be removed, immediately after completion of local areas. The Contractor shall be responsible for removal of all his debris from the site.

**END OF SECTION**

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SECTION 02 41 91

SELECTIVE DEMOLITION, REMOVALS, AND SALVAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. This Section includes all labor, materials, equipment, and services necessary to complete the work of selective demolition, removals, and salvage as shown on the Drawings, specified herein, and as required by conditions and authorities having jurisdiction, including, but not limited to, the following:
1. Demolition and removal of selected portions of buildings or structures.
  2. Repair procedures for selective demolition operations.

1.3 DEFINITIONS

- A. Selective Demolition: Carefully demolish existing construction and legally dispose of removed elements and materials off-site.
- B. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- C. Remove and Salvage: Detach items from existing construction and store them for restoration and reinstallation.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain City of New York's property, demolished materials shall become Contractor's property and shall be removed from Project site.

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- B. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to City of New York that may be encountered during selective demolition remain City of New York's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to City of New York.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition, removals, and salvage. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI A10.6 and NFPA 241.
- C. Knowledge of Site: Bidders shall visit site and make themselves thoroughly familiar with specific conditions relating to requirements of this Section.

1.6 SUBMITTALS

- A. General: Submit each item in this Article in compliance with the Conditions of the Contract and General Conditions. Revise and resubmit each item as required to obtain Commissioner's approval.
- B. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- C. Schedule of Selective Demolition Activities: Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.
- D. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged. Note location of each item or material.
- E. Predemolition Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by selective demolition operations. Submit before Work begins.
- F. Utility Mark-Outs: Provide mark-outs for all utilities prior to the start of any work that may impact concealed utilities. Concealed utilities include, but are not limited to, any utilities that may be concealed within roofing, walls, foundations, floors or below grade.

1.7 PROJECT CONDITIONS

- A. Maintain access to existing walkways, areaways, courtyards, and other adjacent used facilities.

1. Do not close or obstruct walkways or other used facilities without written permission from authorities having jurisdiction.
- B. City of New York assumes no responsibility for condition of areas to be selectively demolished.
  1. Conditions existing at time of inspection for bidding purpose will be maintained by City of New York as far as practical.
- C. Hazardous Materials: Hazardous materials are known to be present in areas in which selective demolition, removals, and salvage work is to be performed.
  1. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
- D. Storage or sale of removed items or materials on-site will not be permitted.
- E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

## **PART 2 - PRODUCTS**

### **2.1 REPAIR MATERIALS**

- A. Use repair materials identical to existing materials.
  1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to fullest extent possible.
  2. Use materials whose installed performance equals or surpasses that of existing materials.
- B. Comply with material and installation requirements specified in individual Specification Sections.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- B. Inventory and record conditions of items to be removed and reinstalled and items to be removed and salvaged.

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- C. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure nature and extent of conflict. Promptly submit a written report to Commissioner.
- D. As the Work progresses, Contractor shall be responsible to perform any surveys to detect hazards resulting from selective demolition, removals, and storage activities.

**3.2 UTILITY SERVICES**

- A. Existing Utilities: Maintain services indicated to remain and protect them against damage during selective demolition operations.
- B. Do not interrupt existing utilities serving occupied or operating facilities unless authorized in writing by Commissioner and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Commissioner and to authorities having jurisdiction.

**3.3 PREPARATION**

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  - 1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Commissioner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
  - 2. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
  - 3. Protect existing site improvements, appurtenances, and landscaping to remain.
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
  - 1. Provide protection to ensure safe passage of people around selective demolition area.
  - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.

3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
- C. Temporary Enclosures: Provide temporary enclosures for protection of existing building and construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
  1. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
- D. Temporary Shoring: Provide and maintain shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of construction to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being selectively demolished or removed.
  1. Strengthen or add new supports when required during progress of selective demolition, removals, and salvage.

#### 3.4 POLLUTION CONTROLS

- A. Dust Control: Use temporary enclosures and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations.
- B. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  1. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- C. Cleaning: Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition, removals, and salvage operations. Return adjacent areas to condition existing before work of this Section began.

#### 3.5 SELECTIVE DISASSEMBLY, REMOVALS, AND SALVAGE

- A. General: Demolish and remove existing construction only to extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
  1. Proceed with selective demolition, removals, and salvage systematically, from higher to lower level. Complete operations above each floor or tier before disturbing supporting members on next lower level.
  2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to

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remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.

3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  4. Do not use cutting torches or open flames of any kind during selective demolition, removals, and salvage work.
  5. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
  6. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
  7. Locate selective demolition, removals, and salvage equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
  8. Dispose of demolished and removed items and materials promptly.
  9. Return elements of construction and surfaces that are to remain to condition existing before selective demolition, removals, and salvage operations began.
- B. Existing Facilities: Protect stairs, walkways, building entries, and other building facilities during selective demolition, removal, and salvage operations.
- C. Removed and Salvaged Items: Comply with the following:
1. Clean salvaged items.
  2. Pack or crate items after cleaning. Identify contents of containers.
  3. Store items in a secure area until delivery to entity designated to restore and reinstall items.
  4. Protect items from damage during transport and storage.
  5. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition, removals, and salvage.

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- E. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.

3.6 PATCHING AND REPAIRS

- A. General: Promptly repair damage to adjacent construction caused by selective demolition, removals, and salvage operations.

3.7 DISPOSAL OF DEMOLISHED AND REMOVED MATERIALS

- A. General: Promptly dispose of demolished and removed materials not to be salvaged. Do not allow demolished materials to accumulate on-site.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off City of New York's property and legally dispose of them.

END OF SECTION

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**SECTION 028013 – GENERAL CONTRACTOR WORK**  
**ALLOWANCE FOR INCIDENTAL ASBESTOS ABATEMENT**

**1.01 SCOPE FOR ASBESTOS ABATEMENT WORK**

- A. The "General Conditions" apply to the work of this Section.
- B. The Asbestos abatement contractor shall remove asbestos containing materials as needed to perform the other work of this Contract when discovered during the course of work. When required, the Asbestos abatement contractor shall replace the ACM with non-asbestos containing materials. An allowance of **\$15,000.00** for the **General Contractor** is herein established for this incidental work when so ordered and authorized by the Commissioner.
- C. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE RULES AND REGULATIONS OF THE ASBESTOS CONTROL PROGRAM AS PROMULGATED BY TITLE 15 CHAPTER I OF RCNY AND NEW YORK STATE DEPARTMENT OF LABOR INDUSTRIAL CODE RULE 56 CITED AS 12 NYCRR, PART 56 WHICHEVER IS MORE STRINGENT AS PER LATEST AMENDMENTS TO THESE LAWS AND AS MODIFIED HEREIN BY THESE SPECIFICATIONS.
- D. ALL DISPOSAL OF ASBESTOS CONTAMINATED MATERIAL SHALL BE PER LOCAL LAW 70/85.
- E. THE ASBESTOS ABATEMENT CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT CERTAIN METHODS OF ASBESTOS ABATEMENT ARE PROTECTED BY PATENTS. TO DATE, PATENTS HAVE BEEN ISSUED WITH RESPECT TO "NEGATIVE PRESSURE ENCLOSURE" OR "NEGATIVE-AIR" OR "REDUCED PRESSURE" AND "GLOVE BAG".
- F. THE ASBESTOS ABATEMENT CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR AND SHALL HOLD THE DEPARTMENT OF DESIGN AND CONSTRUCTION AND THE CITY HARMLESS FROM ANY AND ALL DAMAGES, LOSSES AND EXPENSES RESULTING FROM ANY INFRINGEMENT BY THE ASBESTOS ABATEMENT CONTRACTOR OF ANY PATENT, INCLUDING BUT NOT LIMITED TO THE PATENTS DESCRIBED ABOVE, USED BY THE ASBESTOS ABATEMENT CONTRACTOR DURING PERFORMANCE OF THIS AGREEMENT.
- G. "Asbestos" shall mean any hydrated mineral silicate separable into commercially usable fibers, including but not limited to chrysotile (serpentine), amosite (cumingtonite-grunerite), crocidolite (riebeckite), tremolite, anthrophyllite and actinolite.

- H. Prior to starting, the Asbestos abatement contractor must notify the Commissioner of the Department of Design and Construction if he/she anticipates any difficulty in performing the Work as required by these Specifications. The Asbestos abatement contractor is responsible to prepare and submit all filings, notifications, etc. required by all City, State and Federal regulatory agencies having jurisdiction.

The Asbestos abatement contractor is responsible for submitting the Asbestos Project Notification Form (ACP-7 Form) to the Department of Environmental Protection, Asbestos Control Program, as per Title 15, Chapter I of RCNY and to the NYSDOL as per Industrial Code Rule 56.

The Asbestos abatement contractor is responsible for preparing, and submitting Asbestos Variance Application (ACP-9). If a Variance is required, the Asbestos abatement contractor is responsible to retain a NYSDOL Asbestos Project Designer, as defined in Title 15, Chapter 1 of the RCNY to prepare and submit the required variance.

The General contractor is responsible for preparing and submitting an Asbestos Abatement Permit and/or Work Place Safety Plans (WPSP) that may be required for the completion of the Contract or incidental work. If such plans are required, the Asbestos abatement contractor is responsible to retain a NYSDOL Licensed Design Professional as defined in Title 15, Chapter 1 of the RCNY to prepare and submit the required plans.

The Asbestos abatement contractor is responsible for the submission of all required documents to the NYCDEP to acquire the appropriate Asbestos Project Conditional Closeout (ACP-20) and/or Asbestos Project Completion Forms (ACP-21) on a timely basis for the completion of the incidental work encountered under this contract.

The Asbestos abatement contractor will be required to attend an on-site job meeting with the Construction Project Manager prior to the start of work to examine conditions and plan the sequence of operations, etc.

The Asbestos abatement contractor shall have a NYSDOL/NYCDEP Asbestos Supervisor onsite to oversee the work and conduct a final visual inspection as required by both Title 15, Chapter 1 of the RCNY and NYSDOL Industrial Code Rule 56.

- I. All work shall be done during regular working hours unless the Asbestos abatement contractor requests authorization to work in other than regular working hours and such authorization is granted by the Commissioner. (Regular work hours are those hours during which any given facility, in which work is to be done, is customarily open and functioning, normally between the hours of 8:00 A.M. and 4:00 P.M. Monday - Friday.) If such work schedule is authorized by the Commissioner, the work shall be done at no additional cost to the City.

- J. The Commissioner may order that work be done in other than regular working hours as herein by defined and this order may require the Asbestos abatement contractor to pay premium or overtime wages to complete the work. If the Commissioner orders work in other than regular working hours, the Asbestos abatement contractor shall multiply the unit price for that portion of the work requiring premium wages by 1.50 when computing payment in accordance with Paragraph 1.09. All requests for premium payment must be supported by certified payroll sheets and field sheets approved by the Construction Project Manager.

**1.02 QUALIFICATIONS OF ASBESTOS ABATEMENT CONTRACTOR**

- A. Requirements: The asbestos abatement contractor must demonstrate compliance with the special experience requirements set forth in subparagraphs (1) through (5) below. The asbestos abatement contractor must, submit documentation demonstrating compliance with all listed requirements. Such documentation shall include without limitation, all required licenses, certificates, and documentation.
1. The asbestos abatement contractor must, whether an individual, corporation, partnership, joint venture or other legal entity, must demonstrate for the three year period prior to the work, that it has been licensed by the New York State Department of Labor, as an "Asbestos abatement contractor".
  2. The asbestos abatement contractor must, for the three year period prior to the work, have been in the business of providing asbestos abatement services as a routine part of its daily operations.
  3. The asbestos abatement contractor proposing to do asbestos abatement work must be thoroughly experienced in such work and must provide evidence of having successfully performed and completed in a timely fashion at least five (5) asbestos abatement projects of similar size and complexity. The aggregate cost of these projects must be at least \$250,000.00 in each of the three years.
  4. For each project submitted to meet the experience requirements set forth above, the asbestos abatement contractor must submit the following information for the project; name and location of the project; name title and telephone number of the owner or the owner's representative who is familiar with the asbestos abatement contractor's work, brief description of the work completed as a prime or sub-asbestos abatement contractor; amount of contract or subcontract and the date of completion.
  5. The asbestos abatement contractor must demonstrate that it has the financial resources, supervisory personnel and equipment necessary to carry out the work and to comply with the required performance schedule, taking into consideration other business commitments. The asbestos

abatement contractor must submit such documentation as may be required by the Department of Design and Construction to demonstrate that it has the requisite capacity to perform the required services of this contract.

- B. Insurance Requirements: The asbestos abatement contractor must provide asbestos liability insurance in the following amount: 1 million dollars per occurrence, 2 million dollars aggregate (combined single limit). The City of New York shall be named as an additional insured on such insurance policy.
- C. Throughout the specifications, reference is made to codes and standards which establish qualities and types of workmanship and materials, and which establish methods for testing and reporting on the pertinent characteristics thereof.

**1.03 ASBESTOS ABATEMENT CONTRACTOR RESPONSIBILITIES**

The Asbestos abatement contractor will visit the subject location within one (1) working day of notification to ascertain actual work required. If the project is identified as being "urgent", then work shall commence no later than 48 hours from the time of notification. In this event, the asbestos abatement contractor shall immediately notify when applicable EPA NESHAPS Coordinator, NYSDOL Asbestos Control Bureau and NYCDEP Asbestos Control Program of start of the work and file the necessary Asbestos Notifications and any applicable Variance Applications with the regulatory agencies cited above..

In the event that the project is not classified as "urgent" the Asbestos abatement contractor shall notify the EPA NESHAPS Coordinator, NYSDOL and NYCDEP by submitting the requisite asbestos project notification forms, postmarked 10 days before activity begins if 260 linear feet or more and/or 160 square feet or more of asbestos containing material will be disturbed.

The following information must be included in the notification:

- A. Name and address of building City or operator;
- B. Project description:
  - 1. Size - square feet, number of linear feet, etc;
  - 2. Age - date of construction and renovations (if known);
  - 3. Use - i.e., office, school, industrial, etc.
  - 4. Scope - repair, demolition, cleaning, etc.
- C. Amount of asbestos involved in work and an explanation of techniques used to determine the amount;

- D. Building location/address, including Block and Lot numbers;
- E. Work schedule including the starting and completion dates;
- F. Abatement methods to be employed;
- G. Procedures for removal of asbestos-containing material;
- H. Name, title and authority of governmental representative sponsoring project.

**1.04 WORK INCLUDED IN UNIT PRICE**

The Asbestos abatement contractor will be paid a basic unit price of **\$25.00** per square feet for the removal and disposal of asbestos containing material and replacement of the same with non-asbestos containing materials.

Unit price shall include all costs necessary to do the work of this Contract, including but not limited to: labor, materials, equipment, utilities, disposal, insurance, overhead and profit.

**1.05 AIR MONITORING – ASBESTOS ABATEMENT CONTRACTOR**

- A. "Air Sampling" shall mean the process of measuring the fiber content of a known volume of air collected during a specific period of time. The procedure utilized for asbestos follows the NIOSH Standard Analytical Method 7400 or the provisional transmission electron microscopy methods developed by the USEPA and/or National Institute of Standard and Technology which are utilized for lower detectability and specific fiber identification.
- B. Air monitoring of Asbestos abatement contractor's personnel will be performed in conformance with OSHA requirements, (All costs associated with this work are deemed included in the unit price.).
- C. Qualifications of Testing Laboratory:

The industrial hygiene laboratory shall be a current proficient participant in the American Industrial Hygiene Association (AIHA) PAT Program. The laboratory identification number shall be submitted and approved by the City. The laboratory shall be accredited by the AIHA and New York State Department of Health Environmental Laboratory Approval Program (ELAP).

Note: Work area air testing and analysis before, during and upon completion of work (clearance testing) will be performed by a Third Party Air Monitor under separate Contract with the City.

**1.06 THIRD PARTY MONITORING AND LABORATORY**

- A. The NYCDDC, at its own expense, will employ the services of an independent Third Party Air Monitoring Firm and Laboratory. The Third Party Air Monitor will perform air sampling activities and project monitoring at the Work Site.
- B. The Laboratory will perform analysis of air samples utilizing Phase Contrast Microscopy (PCM) and/or Transmission Electron Microscopy (TEM).
- C. The Third Party Air Monitoring Firm and the designated Project Monitor shall have access to all areas of the asbestos removal project at all times and shall continuously inspect and monitor the performance of the Asbestos abatement contractor to verify that said performance complies with this Specification. The Third-Party Air Monitor shall be on site throughout the entire abatement operation.
- D. The NYCDDC will be responsible for costs incurred with the Third Party Air Monitoring Firm and laboratory work. Any subsequent additional testing required due to limits exceeded during initial testing shall be paid for by the Asbestos abatement contractor.

**1.07 PAYMENT REQUEST DOCUMENTATION**

- B. The following information shall be included for each payment request:
  - 1. Description of work performed.
  - 2. Linear footage and pipe sizes involved.
  - 3. Square footage for boiler & breaching insulation removed.
  - 4. Square footage of non pipe and boiler areas removed, patched, enclosed, sealed, or painted.
  - 5. Square footage of encapsulation, sealing, patching, and painting involved.
  - 6. Total cost associated with compliance with the assigned task.
  - 7. Architectural, Electrical, HVAC, Plumbing, etc. work incidental to the Asbestos Abatement Work.
  - 8. A certified copy (in form 4312-39) to the Comptroller or Financial Officer of the New York City to the effect that the financial statement is true.
  - 9. A signed copy (in form 6506q-6) of certificate of compliance with non-discriminatory provisions of the Contract.

10. Attach a copy of valid workmen compensation insurance.
  11. Valid asbestos insurance per occurrence.
  12. General liability insurance when required.
- C. Each payment request shall include a grand total for all work completed that billing period, the landfill waste manifests and a copy of waste transporter permit. The Department of Design and Construction will inspect the work performed, review the cost and approve or disapprove requests for payment.
- D. EXPOSURE LOG: With this final payment, the Asbestos abatement contractor shall submit a listing of the names and social security numbers of all employees actively engaged in the abatement work of this Contract. This list shall include a summary showing each part of the abatement work in which the employee was engaged and the dates thereof.

**1.08 QUANTITY CALCULATIONS**

In order to determine the square footage involved for the various pipe sizes of pipe insulation that might be encountered, the following table is to be used.

<u>PIPE INSULATION SIZE O.D.</u>	<u>PIPE SIZE O.D.</u>	<u>SQUARE FOOTAGE PER LINEAR FOOT</u>
2-1/2"	1/2"	0.65
2-3/4"	3/4"	0.72
3"	1"	0.79
3-1/4"	1-1/4"	0.85
3-1/2"	1-1/2"	0.92
4"	2"	1.05
4-1/2"	2-1/2"	1.18
5"	3"	1.31
6"	3-1/4"	1.57
7"	3-1/2"	1.83
8"	4"	2.09
9"	5"	2.36
10"	6"	2.62
12"	8"	3.14
14"	10"	3.67
16"	12"	4.19
18"	14"	4.71

**1.09 METHOD OF PAYMENT**

Payment shall be made in accordance with Items A through R below. Payment shall be calculated based on the actual quantity of the item performed by the asbestos abatement contractor, times the unit price specified below. Credits may apply to certain times, as specified below.

- A. REMOVAL, DISPOSAL AND REPLACEMENT OF ASBESTOS CONTAINING PIPE INSULATION:** Actual linear footage, multiplied by the square footage factor listed for the respective pipe size in Section 1.09, multiplied by the unit price in Section 1.05.

EXAMPLE: 100 lin.ft. of 1/2" pipe and 100 lin.ft. of 6" pipe, including elbows, tees. Flanges, etc.

$$100 \times 0.65 = 65 \text{ sq.ft.} \quad 65 \times \text{unit price} = \text{Payment}$$

$$100 \times 2.62 = 262 \text{ sq.ft.} \quad 262 \times \text{unit price} = \text{Payment}$$

- B. REMOVAL, DISPOSAL AND REPLACEMENT OF BOILER INSULATION:** (all types including Silicate Block and including the removal/replacement of metal jacketing) Payment shall be made at 1.5 times the unit price per square foot.

EXAMPLE: Item B. removal and replacement of 1000 S.F. of boiler insulation (incl. Silicate block)

$$1000 \text{ S.F.} \times (1.5) \times \text{the Unit Price} = \text{Payment}$$

- C. REMOVAL, DISPOSAL AND REPLACEMENT OF TANK INSULATION:** (all types including removal/replacement of metal jacketing) Payment shall be made at 1.5 times the unit price per square foot.
- D. REMOVAL, DISPOSAL AND REPLACEMENT OF BOILER UPTAKE, & BREACHING INSULATION:** (all types including stiffening angles and wire lath) Payment shall be made at 2.0 times the unit price per square foot.
- E. REMOVAL, DISPOSAL AND REPLACEMENT OF DUCT INSULATION:** Payment shall be made at 1.0 times the unit price per square foot.
- F. REMOVAL, DISPOSAL AND REPLACEMENT OF SOFT ASBESTOS CONTAINING MATERIAL:** (Including sprayed-on fire proofing and sound proofing) Payment shall be made at 1.0 times the unit price per square foot of surface area. Area of irregular surfaces must be calculated and confirmed with DDC representative.
- G. ACOUSTIC PLASTER REPAIR AND/OR ENCAPSULATION:** Payment shall be made at 0.5 times the unit price per square foot.



- H. **PATCHING OR REPAIR** of items listed in A through F will be paid at 0.33 times the unit price per square foot.
- I. **REMOVAL, DISPOSAL AND REPLACEMENT OF WATERPROOFING ASBESTOS CONTAINING MATERIAL:** (including friable and non-friable waterproofing material from interior and exterior walls, floors, foundations, penetrations, louvers, vents and openings other than windows, doors and skylights) Payment shall be made at 0.5 times the unit price per square foot.
- J. **REMOVAL, DISPOSAL AND REPLACEMENT OF ASBESTOS CONTAINING ELECTRICAL WIRING INSULATION:** (including friable and non-friable wiring insulation) Payment shall be made at 0.33 times the unit price per square foot.
- K. **PAINTING:** Payment shall be made at 0.05 times the unit price per square foot.
- L. **REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING PLASTER:** from ceilings and walls, including any wire lath and disposal as asbestos containing waste. Payment shall be made at 0.80 times the unit price per square foot.
- M. **REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING FLOOR TILES, CEILING TILES, TRANSITE PANELS:** (including any adhesive, glue, mastic and/or underlayment) and disposal as asbestos containing waste. Payment shall be made at 0.40 times the unit price per square foot. If multiple layers are discovered, each additional layer shall be paid at 0.20 times the unit price per square foot.
- N. **ADDITIONAL CLEAN UP/HOUSEKEEPING OF WORK AREA:** (excluding pre-cleaning of work area required by regulations) HEPA vacuuming and wet cleaning of asbestos contaminated surface. Payment shall be made at 0.20 times the unit price per square foot. When GLOVE BAG is employed to remove ACM, cost of HEPA vacuuming and wet cleaning of floor area up to 3 feet on each side of glove-bag shall be included in unit price and no extra payment will be made.
- O. **REMOVAL, DISPOSAL OF ASBESTOS-CONTAINING ROOFING MATERIAL:** including mastic, flashing and sealant compound and provide temporary asbestos-free roof covering consisting of one layer of rolled roofing paper sealed with asphaltic roofing compound. Payment shall be made at 0.8 times the unit price per square foot. Credit at a rate of 0.33 times the unit price will be taken for each square foot of temporary roof covering which the Asbestos abatement contractor is directed not to install.
- P. **PICK-UP AND DISPOSAL OF GROSS DEBRIS:** (excluding any waste generated from abatement under Item A-R) at a rate of \$150 per cubic yard for asbestos contaminated waste and \$75 per cubic yard for non-asbestos

contaminated waste. This cost includes all labor and material cost associated with work.

- Q. **REMOVAL OF ASBESTOS-CONTAINING BRICK, BLOCK, MORTAR, CEMENT OR CONCRETE:** along with all surfacing materials including wire lath and/or other supporting structures and disposal as ACM waste. Payment shall be made at a rate of \$25.00 per cubic foot of material removed.
- R. **REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING WINDOW/DOOR CAULKING:** including friable and non-friable caulking, weather-stripping, glazing, sealants or other waterproofing materials applied to windows, doors, skylights, etc. Payment shall be made at the rate of \$400.00 per opening regardless of size or configuration. This cost includes labor, consumable materials, set-up/breakdown, removal and disposal, as required.

**Note 1: CREDIT:** For items listed in A through F, a credit at a rate of 0.33 times the unit price, times the respective multiplier (for each item) will be taken for each square foot of insulation which the asbestos abatement contractor is not directed to reapply.

**Note 2: MINIMUM PAYMENT:** The minimum payment per call at any individual job sites or various job sites during the same day will be eight hundred dollars (\$800.00).

**Note 3:** All payments shall be made as described in paragraph 1.09 herein.

**Note 4: WORKING HIGHER THAN 12 FEET ABOVE FLOOR LEVEL OR WORK REQUIRING COMPLEX SCAFFOLDING OR CONSTRUCTION WORK PLATFORMS:** Provisions are made in this Contract to compensate the Asbestos abatement contractor for work performed in locations that are difficult to access due to work at elevations that are significantly higher than the normal work level. The unit price for these items will be paid at 1.20 times the unit price described in Paragraphs 1.09, A through R for those portions of the work that are more than twelve (12) feet above the grade for that would be judged as the normal working level.

#### 1.10 GUARANTEE

- A. Work performed in compliance with each task shall be guaranteed for a period of one year from the date the completed work is accepted by the Department of Design and Construction.
- B. The Commissioner of The Department of Design and Construction will notify the Asbestos abatement contractor in writing regarding defects in work under the guarantee.

#### 1.11 OCCUPANCY OF SITE NOT EXCLUSIVE

Attention is specifically drawn to the fact that contractors, performing the work of other Contracts, may be brought upon any of the work sites of this Contract. Therefore, the

Asbestos abatement contractor shall not have exclusive rights to any site of his work and shall fully cooperate and coordinate his work with the work of other contractors who may be brought upon any site of the work of this Contract. This paragraph applies to those areas outside the regulated Work Area as defined by Title 15, Chapter I of RCNY.

**1.12 SUBMITTALS**

**A. Pre-Construction Submittals:**

1. Attend a pre-construction meeting scheduled by the City of New York Department of Design and Construction. This meeting shall also be attended by a designated representative of the City of New York third party air monitoring firm, facility manager and the Construction Project Manager. At this meeting, the Asbestos abatement contractor shall present three copies of the following items:
  - a. Asbestos abatement contractor's scope of work, work plan and schedule.
  - b. Asbestos project notifications, approved variances and plans to Government Agencies.
  - c. Copies of Permits, clearance and licenses if required.
  - d. Schedules: the Asbestos abatement contractor shall provide to the Construction Project Manager a copy of the following schedules for approval. Once approved, schedules shall be maintained and updated as received. Asbestos abatement contractor shall post a copy of all schedules at the site:
    - (1) A construction schedule stating critical dates of the project including, but not limited to, mobilization, Work Area preparation, demolition, gross removal, fine cleaning, encapsulation, inspections, clearance monitoring, and phase of refinishing and final inspections. The schedule shall be updated biweekly, at a minimum.
    - (2) A schedule of staffing stating number of workers per shift per activity, name and number of supervisor(s) per shift, shifts per day, and total days to be worked.
    - (3) Submit all changes in schedule or staffing to the Construction Project Manager prior to implementation.

- e. Written description of emergency procedures to be followed in case of injury or fire. This section must include evacuation procedures, source of medical assistance (name and telephone number to nearest hospital) and procedures to be used for access by medical personnel (examples: first aid squad and physician). NOTE: Necessary Emergency Procedures Shall Take Priority Over All Other Requirements of These Specifications.
- f. Material Safety Data Sheets (MSDS) for encapsulants, sealants, firestopping foam, cleaners/disinfectants, spray adhesive and any and all potentially hazardous materials that may be employed on the project. No work involving the aforementioned will be allowed to proceed until MSDS are reviewed.
- g. Worker Training and Medical Surveillance: The Asbestos abatement contractor shall submit a list of the persons who will be employed by him /her to perform the removal work. Present evidence that workers have received proper training required by the regulations and the medical examinations required by OSHA 29 CFR 1926.1101.
- h. Logs: Specimen copies of daily progress log, visitor's log, and disposal log.
  - (1) The Asbestos abatement contractor shall provide a permanently bound log book of minimum 8-1/2" x 11" size at the entrance to the Worker and Waste Decontamination enclosure system as hereinafter specified. Log book shall contain on title page the project name, name, address and phone number of the Asbestos abatement contractor; name, address and phone number of Asbestos abatement contractor and City's third party air monitoring firm; emergency numbers including, but not limited to local Fire/Rescue Department. Log book shall contain a list of personnel approved for entry into the Work Area.
  - (2) All entries into the log shall be made in non-washable, permanent ink and such pen shall be strung to or otherwise attached to the log to prevent removal from the log-in area. Under no circumstances shall pencil entries be permitted. Any significant events occurring during the abatement project shall be entered into the log. Upon completion of the job, the Asbestos abatement contractor shall submit the logbook containing a day-to-day record of personnel log entries countersigned by the Construction Project Manager every day.

GENERAL CONTRACTOR WORK ALLOWANCE FOR INCIDENTAL ASBESTOS ABATEMENT

- i. Worker's Acknowledgments: Submit statements signed by each employee that the employee has received training in the proper handling of ACM, understands the health implications and risks involved; and understands the use and limitations of the respiratory equipment to be used.

B. During Construction Submittals:

1. Security and safety logs showing names of person entering workspace, date and time of entry and exit, record of any accident, emergency evacuation, and any other safety and/or health incident.
2. Progress logs showing the number of workers, supervisors, hours of work and tasks completed shall be submitted daily to the Construction Project Manager.
3. Floor plans indicating Asbestos abatement contractor's current work progress shall be submitted for review by the Construction Project Manager.
4. All Asbestos abatement contractors' air monitoring and inspection results.

C. Project Closeout Submittals:

Upon completion of the project and as a condition of acceptance, the Asbestos abatement contractor shall present two copies of the following items, bound and indexed:

1. Lien Waivers from Asbestos abatement contractor, Sub-Asbestos abatement contractors and Suppliers,
2. Daily OSHA air monitoring results,
3. All Waste Manifests (Asbestos and Construction Debris), seals and disposal logs,
4. Field Sign-In/Sign-Out Logs for every shift,
5. Copies of all Building Department Forms and Permits,
6. A Letter of Compliance stating that all the work on this project was performed in accordance with the Specifications and all applicable Federal, State and Local regulations,
7. All Warranties as stated in the Specifications,
  - a. Fully executed disposal certificates and transportation manifest.

8. Project Record: The Asbestos abatement contractor shall maintain a project record for all small and large asbestos projects. During the project, the project record shall be kept on site at all times. Upon completion of the project, the project record shall be maintained by the building owner. The project record shall be submitted to DDC as part of the close out documents. The project record shall consist of:
  - a. Copies of licenses of all asbestos abatement contractors involved in the project;
  - b. Copies of NYCDEP and NYSDOL supervisor and handler certificates for all workers engaged in the project;
  - c. Copies of all project notifications and reports filed with NYCDEP, NYSDOL and USEPA for the project, with any amendments or variances;
  - d. Copies of all asbestos abatement permits, including associated approved plans and work place safety plan;
  - e. A copy of the air sampling log and all air sampling results;
  - f. A copy of the abatement asbestos abatement contractor's daily log book;
  - g. Copies of all asbestos waste manifests;
  - h. A copy of all Project Monitor's Reports (ACP-15).
  - i. A copy of each ATR-1 Form completed for the asbestos project (if required).
  - j. A copy of each Asbestos Project Conditional Closeout Report (ACP-20) if required.
  - k. A copy of the Asbestos Project Completion Form (ACP-21).

### **1.13 PROTECTION OF FURNITURE AND EQUIPMENT**

Cover all furniture and equipment that cannot be removed from Work Areas. Movable furniture and equipment will be removed from Work Areas by the Asbestos abatement contractor prior to start of work. At the conclusion of the work (after final air testing), the Asbestos abatement contractor will remove all plastic covering on walls, floors, furniture, equipment and reinstall furniture and equipment. He shall remove and store all sheaths, curtains and drapes, and reinstall same following final clean up.

**1.14 UTILITIES**

A. General:

All temporary facilities shall be subject to the approval of the Commissioner. Prior to starting work at any site, locations and/or sketches (if required) of temporary facilities must be submitted to the Construction Project Manager for the required approval.

B. Water:

The Department of Design and Construction will furnish all water needed for construction, at no cost to the Asbestos abatement contractor in buildings under their jurisdiction. However, it is the responsibility of the Asbestos abatement contractor to ensure that hot water is provided for showering in the decontamination unit. The Asbestos abatement contractor shall furnish, install and maintain any needed equipment to meet these requirements at his own expense.

C. Electricity:

The Department of Design and Construction will furnish all electricity needed for construction, at no cost to the Asbestos abatement contractor in a building, under their jurisdiction. The Asbestos abatement contractor is responsible for routing the electric power to the abatement Work Area.

All temporary lighting and temporary electrical service for Work Area shall be in weatherproof enclosures and be ground fault protected.

D. In leased spaces, arrangements for water supplies and electricity must be made with the landlord. However, all such arrangements must be made through and are subject to approval of the Department of Design and Construction. Utilities will be provided at no cost to the Asbestos abatement contractor. However, it is the Asbestos abatement contractor's (or the General contractor's) responsibility to furnish and install a suitable distribution system to the Work Area. This system will be provided at no cost to the City.

**1.15 FEES**

The Asbestos abatement contractor shall be responsible for any and all fees or charges imposed by Local, State or Federal Law, Rule and Regulation applicable to the work specified herein, including fees or charges which may be imposed subsequent to the date of the Bid opening.

**END OF SECTION**

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## SECTION 028213

### ASBESTOS ABATEMENT

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

- A. The Contract Documents are as defined in the “Agreement”. The General Conditions shall apply to all Work of this Section.
- B. Work specified herein shall be the removal and disposal of Asbestos-Containing Materials (ACM) and asbestos-contaminated materials from designated areas of the Bellevue Men’s Shelter 400 East 30<sup>th</sup> Street New York, NY 10016.
- C. The following documents were reviewed and utilized to generate this abatement design specification which serves to locate and quantify the amount of ACM, and asbestos contaminated material, to be abated in support of this project:
  - 1. Set of drawings titled “Bellevue Men’s Shelter Elevator Rehabilitation” (100% Design Development Submission Drawings), dated 10/04/13 prepared by WSP
  - 2. Set of 100% Construction Documents Submission drawings titled “Bellevue Men’s Shelter Elevator Rehabilitation” (100% CD Submission Drawings), dated 9/19/14 prepared by WSP;
  - 3. Asbestos Survey Report prepared by Cardno ATC dated 12/12/13.
- D. The phasing and scheduling of work for this project shall be coordinated with and approved by the Construction Project Manager and Facility Manager. The Construction Project Manager and Facility Manager will make the final determination on all issues under this Contract covered by this Specification.

##### 1.02 SCOPE OF WORK

- A. The asbestos abatement contractor is to provide all labor, materials, equipment, services, testing, appurtenances, permits and agreements necessary to perform the work required for the abatement of ACM as required by these contract documents. All work shall be performed in accordance with this Specification, EPA regulations, OSHA regulations, New York City Local Law 70, Title 15, Chapter 1 RCNY, New York State Industrial Code 56, NIOSH recommendations, and any other applicable federal, state or local government regulations. Whenever there is a conflict or overlap of the above references, the most stringent provisions are applicable.

## ASBESTOS ABATEMENT

- B. The intent of this Specification section is to ensure that the asbestos abatement contractor is responsible for the following:
1. Abatement of all ACM.
  2. Cleaning and decontamination of the entire affected area.
  3. Demolition that may be required to access ACM in each area, Asbestos abatement contractor shall dispose of all debris associated with demolition activities as ACM waste.
  4. Removal and disposal of all ACM found within these areas such as duct vibration cloth, roof membrane, roof flashing material, etc.
  5. Provide all scaffolding, platform installation, equipment, tools, transportation and any other equipment required and/or necessary to complete all work described in the Contract Documents.
  6. The Asbestos abatement contractor shall be responsible for and shall include any and all fees or charges imposed by Local, State or Federal Law, Rule or Regulation applicable to the work specified herein, including fees or charges which may be imposed subsequent to the work.
  7. Prior to destructive demolition activities, the DDC may elect to collect bulk samples of assumed asbestos-containing materials and analyze the bulk samples for asbestos content.
- C. The Asbestos abatement contractor shall perform the following work as described below and indicated on the drawings. The drawings are only a diagrammatic representation of the Work Areas and do not constitute the actual quantities of material. Asbestos abatement contractor is responsible for the confirmation of the actual total quantities of the Work
1. **Drawing H-002: 9<sup>th</sup> Floor Machine Room Plan**
    - a. Remove and dispose of asbestos-containing Pipe Insulation (Soft Texture)/ Pipe Fittings and Pipe Insulation (Hard Texture)/Pipe Fittings within **Work Area 1**. Asbestos-containing Pipe Insulation (Soft Texture)/Pipe Fittings and Pipe Insulation (Hard Texture)/Pipe Fittings shall be removed utilizing NYCDEP Title 15, Chapter 1, § 1-106 Tent Containment Procedures.

**ASBESTOS ABATEMENT**

Work Area	Removal Procedure	Approximate Square Feet (Sq. Ft.)	Approximate Linear Feet (Ln. Ft.)
1	NYCDEP Section § 1-106 Tent Containment Procedures	-	200 Ln. Ft. of Pipe Insulation – Soft Texture (Beige) / Pipe Insulation – Hard Texture (Beige) and Pipe Fitting Insulation (Gray)

**2. Drawing H-003: 10<sup>th</sup> Floor North/South Terrace and Machine room Plan**

- a. Remove dispose of asbestos-containing Roof Membrane, Roof Insulation, Tar Vapor Barrier, Roof Drain Flashing, Roof Drain Vapor Barrier, Roof Flashing Membrane, Roof Flashing Insulation and Tar Flashing Vapor Barrier within **Work Area 2**. Asbestos-containing Roof Membrane, Roof Insulation, Tar Vapor Barrier, Roof Drain Flashing, Roof Drain Vapor Barrier, Roof Flashing Membrane, Roof Flashing Insulation and Tar Flashing Vapor Barrier shall be removed utilizing NYCDEP Title 15, Chapter 1, § 1-107 Foam Procedure for Roof Removal. The asbestos abatement contractor shall be responsible for the removal and disposal of all roofing components, including but not limited to roof membrane and roof flashing down to the substrate/deck.
- b. Remove and dispose of asbestos-containing Caulking on Access Door within **Work Area 2**. Asbestos-containing Caulking on Access Door shall be removed utilizing NYCDEP Title 15, Chapter 1, § 1-109 Abatement from Vertical Exterior Surface.
- c. Remove and dispose asbestos-containing Roof Membrane, Roof Insulation, Tar Vapor Barrier, Roof Drain Flashing, Roof Drain Vapor Barrier, Pitch Pocket Material, Roof Flashing Membrane, Roof Flashing Insulation and Tar Flashing Vapor Barrier within **Work Area 3**. Asbestos-containing Roof Membrane, Roof Insulation, Tar Vapor Barrier, Roof Drain Flashing, Roof Drain Vapor Barrier, Pitch Pocket Material, Roof Flashing Membrane, Roof Flashing Insulation and Tar Flashing Vapor Barrier shall be removed utilizing NYCDEP Title 15, Chapter 1, § 1-107 Foam Procedure for Roof Removal. The asbestos abatement contractor shall be responsible for the removal and disposal of all roofing components, including but not limited to roof membrane and roof flashing down to the substrate/deck.
- d. Remove and dispose asbestos-containing Exterior Window Frame Caulking and Tar on Coping Stone within **Work Area 3**. Asbestos-containing Exterior Window Frame Caulking and Tar on Coping Stone shall be

## ASBESTOS ABATEMENT

removed utilizing NYCDEP Title 15, Chapter 1, § 1-109 Abatement from Vertical Exterior Surface.

- e. Remove and dispose of asbestos-containing Electric Wire Wrap on Electrical Panel within **Work Area 4**. Asbestos-containing Electric Wire on Electrical Panel shall be removed utilizing NYCDEP Title 15, Chapter 1 § 1-106 Tent Containment Procedures.

Work Area	Removal Procedure	Approximate Square Feet (Sq. Ft.)	Approximate Linear Feet (Ln. Ft.)
2	NYCDEP Section § 1-107 Foam Procedure for Roof Removal	200 Sq. Ft. of Roof Membrane – 1 <sup>st</sup> Layer (Black), Roof Insulation – 2 <sup>nd</sup> Layer (Black), Tar Vapor Barrier – 3 <sup>rd</sup> Layer (Black), Roof Drain Flashing – 1 <sup>st</sup> Layer (Black), Roof Drain Vapor Barrier – 2 <sup>nd</sup> Layer (Black)	–
		120 Sq. Ft. of Roof Flashing Membrane – 1 <sup>st</sup> Layer (Black), Roof Flashing Insulation – 2 <sup>nd</sup> Layer (Black), Tar Flashing Vapor Barrier – 3 <sup>rd</sup> Layer (Black)	–
	NYCDEP Section § 1-109 Abatement from Vertical Exterior Surface	–	1 Opening (20 Ln. Ft.) of Caulking on Access Door (Black)

**ASBESTOS ABATEMENT**

Work Area	Removal Procedure	Approximate Square Feet (Sq. Ft.)	Approximate Linear Feet (Ln. Ft.)
3	NYCDEP Section § 1-107 Foam Procedure for Roof Removal	200 Sq. Ft. of Roof Membrane – 1 <sup>st</sup> Layer (Black), Roof Insulation – 2 <sup>nd</sup> Layer (Black), Tar Vapor Barrier – 3 <sup>rd</sup> Layer (Black), Roof Drain Flashing – 1 <sup>st</sup> Layer (Black), Roof Drain Flashing – 2 <sup>nd</sup> Layer (Black), Roof Drain Vapor Barrier – 3 <sup>rd</sup> Layer (Black), Pitch Pocket Material (Black)	–
		120 Sq. Ft. of Roof Flashing Membrane 1 <sup>st</sup> Layer (Black), Roof Flashing Insulation – 2 <sup>nd</sup> Layer (Black), Roof Flashing Insulation – 3 <sup>rd</sup> Layer (Brown), Tar Flashing Vapor Barrier – 4 <sup>th</sup> Layer (Black)	–
	NYCDEP Section § 1-109 Abatement from Vertical Exterior Surface	–	1 Opening (20 Ln. Ft.) of Exterior Window Frame Caulking (Black), Exterior Window Frame Caulking (Dark Gray)
		5 Sq. Ft. of Tar on Coping Stone (Black)	–
4	NYCDEP Section § 1-106 Tent Containment Procedures	5 Sq. Ft. of Electric Wire Wrap on Electrical Panel (White)	–

**ASBESTOS ABATEMENT**

**3. Drawing H-004: Attic Level Plan**

- a. Remove and dispose of asbestos-containing Tank Insulation / Pipe Fitting and Horsehair Insulation on Tank Outlet within **Work Area 5**. Asbestos-containing Tank Insulation / Pipe Fitting and Horsehair Insulation on Tank Outlet shall be removed utilizing NYCDEP Title 15, Chapter 1 § 1-106 Tent Containment Procedures.

Work Area	Removal Procedure	Approximate Square Feet (Sq. Ft.)	Approximate Linear Feet (Ln. Ft.)
5	NYCDEP Section § 1-106 Tent Containment Procedures	120 Sq. Ft. of Tank Insulation – 1 <sup>st</sup> Layer (White), Tank Insulation – 2 <sup>nd</sup> Layer (Black), Fitting Associated with Tank Insulation (White), Horsehair Insulation on Tank Outlet (Brown)	-

- D. The facility is under the jurisdiction of the New York City Department of Homeless Services. The asbestos abatement contractor shall perform the work of this contract in a manner that will be least disruptive to the normal use of the building.
- E. Asbestos abatement contractor's attention is directed to the fact that patents cover certain methods of asbestos abatement indicated in the specifications. To date, patents have been issued with regard to negative pressure enclosures or negative or reduced pressure and glove-bag.
- F. Asbestos abatement contractor shall be solely responsible for and shall hold the City of New York Department of Design and Construction and the City harmless from, any and all damages, losses and expenses resulting from any infringement by Asbestos abatement contractor of any patent, including but not limited to the patents described above, used by Asbestos abatement contractor during performance of this agreement.
- G. Prior to starting, the asbestos abatement contractor must notify the Commissioner of the City of New York Department of Design and Construction if he anticipates any difficulty in performing the work as directed and required by these Specifications. Asbestos abatement contractor shall be required to attend an on-site job meeting with the Construction Project Manager prior to start of work to examine conditions of the site for removal and plan the sequence for removal operations.
- H. The asbestos abatement contractor shall retain a certified Project Designer for the preparation of an Asbestos Variance Application (ACP-9), if required.

## ASBESTOS ABATEMENT

- I. The asbestos abatement contractor shall be responsible for preparing and submitting all filings, notifications, amendments and variances, etc. required by all City, State and Federal regulatory agencies having jurisdiction, at no additional cost to the NYC DDC.
- J. The general contractor shall retain a Registered Design Professional (person licensed and registered to practice the professions of architecture or engineering under the Education Law of the State of New York) to prepare a Work Place Safety Plan (WPSP), if required.
- K. The general contractor shall retain a Registered Design Professional (person licensed and registered to practice the professions of architecture or engineering under the Education Law of the State of New York) to perform final inspections required pursuant to Title 28 of the Administrative Code, including but not limited to special inspections required under Chapter 17 of the Building Code. Such special inspections and A-TR1 forms shall be completed by the Registered Design professional.
- L. For coordination with other Asbestos abatement contractors, see the General Conditions governing all Contracts.
- M. Related Asbestos Removal Work Under Other Contracts:
  - 1. Each asbestos abatement contractor shall be responsible for the removal of incidental asbestos not identified in this section and found prior to or during the Work.
  - 2. Incidental asbestos is defined as ACM that is discovered during the course of their work that must be abated to enable them to perform the work of their Contract.
- N. Work Hours:
  - 1. The asbestos abatement contractor shall establish his work schedule in a way that avoids interference or conflict with the normal functioning of the facility. Work in the evenings shall be done at no additional cost to the City.
  - 2. All work shall be done during regular working hours unless the Asbestos abatement contractor requests authorization to work other than regular working hours and such authorization is granted by the Commissioner (Regular working hours are those during which any given facility in which work is to be done is customarily open and functioning). If such work schedule is authorized by the Commissioner the work shall be done at no additional cost to the City.
  - 3. The order of phases and start dates associated with each will be determined by the Construction Project Manager.

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4. Asbestos abatement contractor shall be required to schedule waste transfer during evening hours, when activity within the facility is at a minimum. Evening hours are defined as 6:00 p.m. to 6:00 a.m. Waste transfer must be approved by the Construction Project Manager and Facility Manager.
- O. The following conditions shall apply to all temporary shutdowns of existing services:
1. All temporary lighting and temporary electrical services for use in the Work Area shall be in weather proof enclosures and be ground fault protected and:
  2. Shall be performed at no additional charge to the City.
  3. Shall be performed at times not interfering with the other activities in the building.
  4. Shall be performed only with written consent from the Commissioner and the Facility Manager.
  5. Shall be made through written request to the Commissioner at least 10 days in advance with complete written description of the work to be performed.
- P. Stages of Asbestos Removal Work:
- a. The asbestos abatement contractor will be required to perform the work and it is the intent of this Specification to remove all asbestos containing and asbestos contaminated materials from the Work Area. The asbestos abatement contractor is responsible for verifying all quantities of materials listed.
- Q. Certain equipment in the Work Area may need to remain operational during removal. Therefore, the removal of ACM from this equipment shall be performed as the last removal activities within the Work Area. The Asbestos abatement contractor shall coordinate the scheduling for the removal of ACM on functioning equipment with the Construction Project Manager.

### 1.03 QUALIFICATIONS OF ASBESTOS ABATEMENT CONTRACTOR

- A. Requirements: The asbestos abatement contractor must demonstrate compliance with the special experience requirements set forth in subparagraphs (1) through (5) below. The asbestos abatement contractor must submit documentation demonstrating compliance with all listed requirements. Such documentation shall include without limitation, all required licenses, certificates, and documentation.



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1. The asbestos abatement contractor must, whether an individual, corporation, partnership, joint venture or other legal entity, demonstrate for the three year period prior to the work, that it has been licensed by the New York State Department of Labor, as an "Asbestos Abatement Contractor".
  2. The asbestos abatement contractor must, for the three year period prior to the work, have been in the business of providing asbestos abatement services as a routine part of its daily operations.
  3. The asbestos abatement contractor proposing to do asbestos abatement work must be thoroughly experienced in such work and must provide evidence of having successfully performed and completed in a timely fashion at least five (5) asbestos abatement projects of similar size and complexity. The aggregate cost of these projects must be at least \$1,000,000 in each of the three years.
  4. For each project submitted to meet the experience requirements set forth above, the asbestos abatement contractor must submit the following information for the project; name and location of the project; name title and telephone number of the owner or the owner's representative who is familiar with the asbestos abatement contractor's work; brief description of the work completed as a prime or sub-asbestos abatement contractor; amount of contract or subcontract and the date of completion.
  5. The asbestos abatement contractor must demonstrate that it has the financial resources, supervisory personnel and equipment necessary to carry out the work and to comply with the required performance schedule, taking into consideration other business commitments. The asbestos abatement contractor must submit such documentation as may be required by the Department of Design and Construction to demonstrate that it has the requisite capacity to perform the required services of this contract.
- B. Throughout the specifications, reference is made to codes and standards which establish qualities and types of workmanship and materials, and which establish methods for testing and reporting on the pertinent characteristics thereof. Provide materials or workmanship that meet or exceed the specifically named codes or standards where required by these specifications.
- C. Site Investigation: Asbestos abatement contractor shall inspect all the specifications and related drawings, and will investigate and confirm the site conditions affecting the work, including, but not limited to:
1. Physical considerations and conditions of both the material and structure. These considerations include any obstacles or obstructions encountered in accessing or removing the material.
  2. Handling, storage, transportation and disposal of the material.

## ASBESTOS ABATEMENT

3. Availability of qualified and skilled labor.
4. Availability of utilities.
5. Exact quantities of all materials to be disturbed and/or removed.

### 1.04 WORK BY OTHERS

The City reserves the right during the term of this Contract to have work performed on asbestos abatement projects by other asbestos abatement contractors as the situation warrants.

### 1.05 DEFINITIONS

- A. General Explanation: Certain terms used in this Specification Section are defined below. Definitions and explanations of this Specification Section are not necessarily complete or exclusive, but are general for the Work to the extent they are not stated more explicitly in another element of the Contract Documents.
- B. Definitions in General Use:
  1. Approve: Where used in conjunction with Engineer's response to submittals, requests, applications, inquiries, reports and claims by Asbestos abatement contractor, the meaning of term "approved" will be held to limitations of Engineer's responsibilities and duties as specified in Contract Documents. In no case will "approval" by Engineer be interpreted as a release of Asbestos abatement contractor from responsibilities to fulfill requirements of Contract Documents.
  2. Directed, Requested, etc.: Where not otherwise explained, terms such as "directed," "requested," "authorized," "selected," "approved," "required," "accepted," and "permitted" mean "directed by Engineer," "requested by Engineer," and similar phrases. However, no such implied meaning will be interpreted to extend Engineer's responsibility into Asbestos abatement contractor's responsibility for construction supervision.
  3. Furnish: Except as otherwise defined in greater detail, term "furnish" is used to mean supply and deliver to project site, ready for unloading, unpacking, assembly, installation, etc., as applicable in each instance.
  4. Indicated: The term "indicated" is a cross-reference to graphic representations, notes or schedules on Drawings, to other paragraphs or schedules in the Specifications, and to similar means of recording requirements in Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used in lieu of "indicated," it is for purpose of helping reader locate cross-reference, and no limitation of location is intended except as specifically noted.

## ASBESTOS ABATEMENT

5. **Install:** Except as otherwise defined in greater detail, term "install" is used to describe operations at Project site including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations, as applicable in each instance.
6. **Installer:** The term "installer" is defined as the entity (person or firm) engaged by the asbestos abatement contractor, or its sub-asbestos abatement contractor for performance of a particular unit of work at Project site, including installation, erection, application and similar required operations. It is a general requirement that such entities (installers) be expert in operations they are engaged to perform.
7. **Provide:** Except as otherwise defined in greater detail, term "provide" means furnish and install, complete and ready for intended use, as applicable in each instance.
8. **Third-Party Air Monitor:** The term "Third-Party Air Monitor" is defined as an entity engaged by City and Construction Project Manager to perform specific inspections or tests of the work, either at Project site or elsewhere; and to report and (if required) interpret results of those inspections or tests.

### C. Definitions Relative to Asbestos Abatement:

1. **Abatement:** Any and all procedures physically taken to control fiber release from asbestos-containing materials. This includes removal, encapsulation, enclosure, cleanup and repair.
2. **Adequately Wet:** The complete penetration of a material with amended water to prevent the release of particulates. If visible emissions are observed coming from asbestos-containing material, then the material has not been adequately wetted. However, the absence of visible emissions is not evidence of being adequately wet. ACM must be fully penetrated with the wetting agent in order to be considered adequately wet. If the ACM being abated is resistant to amended water penetration, wetting agent shall be applied to the material prior to and during removal as necessary to minimize fiber release.
3. **Aggressive Sampling:** Method of sampling in which the individual collecting the air sample creates activity by the use of mechanical equipment during the sampling period to stir up settled dust and simulate activity in that area of the building.
4. **AHERA:** Asbestos Hazard Emergency Response Act of 1986
5. **AIHA:** American Industrial Hygiene Association.

## ASBESTOS ABATEMENT

6. **Airlock:** System for permitting entrance and exit while restricting air movement between a contaminated area and an uncontaminated area. It consists of two curtained doorways separated by a distance of at least three feet such that one passes through one doorway into the airlock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the second doorway, thereby preventing flow-through contamination.
7. **Air Sampling:** Process of measuring the fiber content of a known volume of air collected during a specific period. The procedure utilized for asbestos follows the NIOSH Standard Analytical Method 7400, or the provisional transmission electron microscopy methods developed by the US EPA which is utilized for lower detection levels and specific fiber identification.
8. **Ambient Air Monitoring:** "Ambient air monitoring" shall mean measurement or determination of airborne asbestos fiber concentrations outside but in the general vicinity of the worksite.
9. **Amended Water:** Water to which a surfactant has been added.
10. **ANSI:** American National Standards Institute
11. **Area Air Sampling:** Any form of air sampling or monitoring where the sampling device is placed at some stationary location.
12. **Asbestos:** Any hydrated mineral silicate separable into commercially usable fibers, including but not limited to chrysotile (serpentine), amosite (cummingtonite-grunerite), crocidolite (riebeckite), tremolite, anthophyllite and actinolite.
13. **Asbestos-Containing Material (ACM):** Asbestos or any material containing more than one-percent asbestos.
14. **Asbestos-Containing Waste Material:** ACM, asbestos-contaminated objects or debris associated with asbestos abatement requiring disposal.
15. **Asbestos-Contaminated Objects:** Any objects which have been contaminated by asbestos or asbestos-containing material.
16. **Asbestos Assessment Report:** "Asbestos Assessment Report" shall mean the "Form ACP-5" form, as approved by NYCDEP, by which a NYCDEP-certified asbestos investigator certifies that a building or structure (or portion thereof) is free of ACM or the amount of ACM to be abated constitutes a minor project.

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17. Asbestos Handler: Individual who disturbs, removes, repairs, or encloses asbestos material. This individual shall have completed approved training course(s) and be in possession of certification issued by NYCDEP and NYSDOL.
18. Asbestos Handler Supervisor: Individual who supervises the handlers during an asbestos project and ensures that proper asbestos abatement procedures as well as individual safety procedures are being adhered to. This individual shall have completed approved training course(s) and be in possession of certification issued by NYCDEP and NYSDOL.
19. Asbestos Investigator: An individual certified by NYCDEP as having successfully demonstrated his or her ability to identify the presence of and evaluate the condition of asbestos in a building or structure.
20. Asbestos Project: Any form of work performed in a building or structure which will disturb (e.g., remove, enclose, encapsulate) more than 25 linear feet or more than 10 square feet of asbestos-containing material.
21. ASTM: American Society for Testing and Materials.
22. Asbestos Project Notification: The "Form ACP-7" asbestos project notification form as approved by DEP.
23. Authorized Visitor: Authorized visitor shall mean the building owner and his/her representative, and any representative of a regulatory or other agency having jurisdiction over the project.
24. Building Owner: Person in whom legal title to the premises is vested unless the premises are held in land trust, in which instance Building Owner means the person in whom beneficial title is vested.
25. Building Materials: Any and all manmade materials, including but not limited to interior and exterior finishes, equipment, bricks, mortar, concrete, plaster, roofing, flooring, caulking, sealants, tiles, insulation, and outdoor paving such as sidewalks, paving tiles and asphalt.
26. Certified Industrial Hygienist (CIH): Individual with a minimum of five years experience as an industrial hygienist and who has successfully completed both levels of the examination administered by the American Board of Industrial Hygiene and who is currently certified by that board.
27. Certified Safety Professional (CSP): Individual having a bachelor's degree from an accredited college or university and a minimum of four years experience as a safety professional and who has successfully completed both levels of the examination administered by the Board of Certified Safety Professionals and who is currently certified by that board.

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28. Chain of Custody: "Chain of Custody" shall mean the form or set of forms that document the collection and transfer of a sample.
29. City: City of New York
30. Clean Room: An uncontaminated area or room that is part of worker decontamination enclosure system with provisions for storage of workers' street clothes and protective equipment.
31. Clearance Air Monitoring: Employment of aggressive sampling techniques with a volume of air collected to determine the airborne concentration of residual fibers and shall be performed as the final abatement activity.
32. Commissioner: shall mean the head of the Agency that has entered into this contract or his/her duly authorized representative.
33. Competent Person: Shall mean the designated person as defined by OSHA in 29 CFR1926.1101.
34. Curtained Doorway: Device that consists of at least three overlapping sheets of fire retardant plastic over an existing or temporarily framed doorway. One sheet shall be secured at the top and left side, the second sheet at the top and right side, and the third sheet at the top and left side. All sheets shall have weights attached to the bottom to ensure that the sheets hang straight and maintain a seal over the doorway when not in use.
35. Decontamination Enclosure System: Series of connected rooms, separated from the Work Area and from each other by air locks, for the decontamination of workers, materials, waste containers, and equipment.
36. Demolition: The dismantling or razing of a building, including all operations incidental thereto (except for asbestos abatement activities), for which a demolition permit from the New York City Department of Buildings is required.
37. NYCDEP or DEP: The New York City Department of Environmental Protection.
38. Disturb: Any action taken which may alter, change, or stir, such as but not limited to the removal, encapsulation, enclosure or repair of asbestos-containing material.
39. DOB: The New York City Department of Buildings.

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40. Egress: A continuous and unobstructed path of vertical and horizontal egress travel from any occupied portion of a building or structure to a public way. A means of egress consists of three separate and distinct parts: the exit access, the exit and the exit discharge.
41. ELAP: Environmental Laboratory Approval Program administered by the New York State Department of Health.
42. Encapsulant (sealant) or Encapsulating Agent: Liquid material which can be applied to ACM and which temporarily controls the possible release of asbestos fibers from the material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant). A thin coat of lockdown encapsulant shall be applied to all surfaces in the work area which were not the subject of removal or abatement, including the cleaned layer of the surface barriers, but excepting sprinklers, standpipes, and other active elements of the fire suppression system.
43. Encapsulation: The coating or spraying of asbestos-containing material encapsulant. A thin coat of lockdown encapsulant shall be applied to all surfaces in the work area which were not the subject of removal or abatement, including the cleaned layer of the surface barriers, but excepting sprinklers, standpipes, and other active elements of the fire suppression system.
44. Enclosure: Construction of airtight walls and/or ceilings between ACM and the facility environment, or around surfaces coated with ACM, or any other appropriate procedure as determined by the NYCDEP which prevents the release of asbestos fibers.
45. EPA or USEPA: United States Environmental Protection Agency.
46. Equipment Room: Contaminated area or room that is part of the worker decontamination enclosure system with provisions for the storage of contaminated clothing and equipment.
47. Exit: That portion of a means of egress system which is separated from other interior spaces of a building or structure by fire-resistance-rated construction to provide a protected path of egress travel between the exit access and the exit discharge.
48. FDNY: The Fire Department of the City of New York.

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49. Fiber: An acicular single crystal or a similarity elongated polycrystalline aggregate which displays some resemblance to organic fibers by having such properties as flexibility, high aspect ratio, silky luster, axial lineation, and others, and which has attained its shape primarily through growth rather than cleavage.
50. Fixed Object: A unit of equipment, furniture, or other item in the work area which cannot be removed from the work area. Fixed objects shall include equipment, furniture, or other items that are attached, in whole or in part, to a floor, ceiling, wall, or other building structure or system or to another fixed object and cannot be reasonably removed from the work area. Fixed objects shall also include pipes and other equipment inside the work area which are not the subject of the asbestos project. Active fire suppression system components shall not be considered fixed objects.
51. Glovebag technique: shall mean a method for removing asbestos-containing material from heating, ventilation and air conditioning (HVAC) ducts, short piping runs, valves, joints, elbows, and other nonplanar surfaces. The glovebag assembly is a manufactured device consisting of a large bag (constructed of at least 6-mil transparent plastic), two inward-projecting long sleeve gloves, one inward-projecting waterwand sleeve, an internal tool pouch, and an attached, labeled receptacle for asbestos waste. The glovebag is constructed and installed in such a manner that it surrounds the object or area to be decontaminated and contains all asbestos fibers released during the removal process.
52. HEPA-Filter: High efficiency particulate air filter capable of trapping and retaining 99.97 percent of particles (asbestos fibers) greater than 0.3 micrometers mass median aerodynamic equivalent diameter.
53. HEPA vacuum equipment: "HEPA vacuum equipment" shall mean vacuuming equipment with a HEPA filter.
54. Holding Area: Chamber in the equipment decontamination enclosure located between the washroom and an uncontaminated area.
55. Homogeneous Work Area: Portion of the Work Area that contains one type of ACM and/or where one type of abatement is used.
56. Industrial Hygiene: Science and art devoted to the recognition, evaluation, and control of those environmental factors or stresses, arising in or from the work place, which may cause sickness, impaired health and well being, or significant discomfort and inefficiency among worker or among the citizens of the community.



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57. Industrial Hygienist: Individual having a college or university degree or degrees in Engineering, Chemistry, Physics or Medicine, or related Biological Sciences who, by virtue of special studies and training, has acquired competence in industrial hygiene. Such special studies and training must have been sufficient in all of the above cognate sciences to provide the abilities:
  - a. To recognize the environmental factors and to understand their effect on people and their well being; and
  - b. To evaluate, on the basis of experience and with the aid of quantitative measurement techniques, the magnitude of these stresses in terms of ability to impair people's health and well being; and
  - c. To prescribe methods to eliminate, control, or reduce such stresses when necessary to alleviate their efforts.
58. Isolation Barrier: The construction of partitions, the placement of solid materials, and the plasticizing of apertures to seal off the work place from surrounding areas and to contain asbestos fibers in the work area.
59. Large Asbestos Project: Asbestos project involving the disturbances (e.g., removal, enclosure, encapsulation) of 260 linear feet or more of ACM or 160 square feet or more of ACM.
60. Log: An official record of all activities that occurred during the project. At a minimum, the log shall identify the building owner, agent, asbestos abatement contractor, and workers, and other pertinent information including daily activities, cleanings and waste transfers, names and certificate numbers of asbestos handler supervisors and asbestos handlers; results of inspections of decontamination systems, barriers, and negative pressure ventilation equipment; summary of corrective actions and repairs; work stoppages with reason for stoppage; manometer readings at least twice per work shift; daily checks of emergency and fire exits and any unusual events.
61. Minor Project: A project involving the disturbance (e.g., removal, enclosure, encapsulation, repair) of 25 linear feet or less of asbestos containing material or 10 square feet or less of asbestos containing material.
62. Movable Object: Unit of equipment or furniture in the Work Area that can be removed from the Work Area.
63. Negative Air Pressure Equipment: Portable local exhaust system equipped with HEPA filtration. The system shall be capable of creating a negative pressure differential between the outside and inside of the Work Area.

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64. NESHAPS: National Emission Standards for Hazardous Air Pollutants.
65. NFPA: The National Fire Protection Association.
66. NIOSH: National Institute for Occupational Safety and Health.
67. DEP or NYCDEP: New York City Department of Environmental Protection
68. NYSDOL: New York State Department of Labor.
69. NYSDOL ICR 56: "NYSDOL ICR 56" shall mean Part 56 of the Official Compilation of Codes, Rules and Regulations of the State of New York or 12 NYCRR Part 56.
70. NYSDOH: The New York State Department of Health.
71. Obstruction: The blocking of a means of egress with any temporary structure or barrier. A double layer of fire-retardant 6-mil polyethylene sheeting shall not be considered an obstruction when it is prominently marked as an exit with photo luminescent signage or paint and cutting tools (knife, razor) are attached to the work area side of the sheeting for use in the event that the sheeting must be cut to permit egress. A corridor shall not be considered obstructed when there is a clear path measuring at least three (3) feet wide.
72. Occupied Area: Area of the work site where abatement is not taking place and where personnel or occupants normally function or where workers are not required to use personal protective equipment.
73. OSHA: Occupational Safety and Health Administration.
74. Outside air: "Outside air" shall mean the air outside the work place.
75. Person: Individual, partnership, company, corporation, association, firm, organization, governmental agency, administration, or department, or any other group of individuals, or any officer or employee thereof.
76. Personal Air Monitoring: Method used to determine employees' exposure to airborne asbestos fibers. The sample is collected outside the respirator in the worker's breathing zone.
77. Personal Protective Equipment (PPE): Appropriate protective clothing, gloves, eye protection, footwear, and head gear.
78. Phase Contrast Microscopy (PCM): The measurement protocol for the assessment of the fiber content of air. (NIOSH Method 7400).

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79. Physician: Person licensed or otherwise authorized under Article 131 Section 65.22 of the New York State Education Law.
80. Plasticize: To cover floors and walls with fire retardant plastic sheeting as herein specified or by using spray plastics as acceptable to the Department.
81. Polarized Light Microscopy (PLM): The measurement protocol for the assessment of the asbestos content of bulk materials. (Interim Method for the Determination of Asbestiform Materials in Bulk Insulation Samples- 40 CFR Part 763, Subpart F, Appendix A as amended on September 1, 1982)
82. Project Designer: A person who holds a valid Project Designer Certificate issued by the New York State Department of Labor.
83. Project Monitor: A person who holds a valid Project Monitor Certificate issued by the New York State Department of Labor.
84. Qualitative Fit Test: Individual test subject's responding (either voluntarily or involuntarily) to a chemical challenge outside the respirator face-piece. Acceptable methods include irritant smoke test, odorous vapor test, and taste test.
85. Quantitative Fit Test: Exposing the respiratory wearer to a test atmosphere containing an easily detectable, nontoxic aerosol, vapor or gas as the test agent. Instrumentation, which samples the test atmosphere and the air inside the face-piece of the respirator, is used to measure quantitatively the leakage into the respirator. There are a number of test atmospheres, test agents, and exercises to perform during the test.
86. Registered Design Professional: A person licensed and registered to practice the professions of architecture or engineering under the Education Law of the State of New York.
87. Removal: Stripping of any asbestos- containing materials from surfaces or components of a facility or taking out structural components in accordance with 40 CFR 61 Subparts A and M.
88. Renovation: An addition or alteration or change or modification of a building or the service equipment thereof, that is not classified as an ordinary repair as defined in §27-125 of the Administrative Code of the City of New York.
89. Repair: Corrective action using specified work practices (e.g., glovebag, plastic tent procedures, etc.) to minimize the likelihood of fiber release from minimally damaged areas of ACM.

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90. Replacement material: Any material used to replace ACM that contains less than .01 percent asbestos.
91. Shift: A worker's, or simultaneous group of workers', complete daily term of work.
92. Shower Room: Room between the clean room and the equipment room in the worker decontamination enclosure with hot and cold running water controllable at the tap and arranged for complete showering during decontamination.
93. Small Asbestos Project: Asbestos project involving the disturbance (e.g., removal, enclosure, encapsulation) of more than 25 and less than 260 linear feet of ACM or more than ten and less than 160 square feet of ACM.
94. Staging Area: Work Area near the waste transfer airlock where containerized asbestos waste has been placed prior to removal from the Work Area.
95. Strip: To remove asbestos materials from any part of the facility.
96. Structural Member: Load-supporting member of a facility, such as beams and load-supporting walls, or any non-load-supporting member, such as ceiling and non-load-supporting walls.
97. Surface barriers: The plasticizing of walls, floors, and fixed objects within the work area to prevent contamination from subsequent work.
98. Surfactant: Chemical wetting agent added to water to improve penetration.
99. Transmission Electron Microscopy (TEM): The measurement protocol for the assessment of the asbestos fiber content of air. Interim Transmission Electron Microscopy Analytical Methods-40 CFR Part 763, Subpart E, Appendix A.
100. Visible Emissions: Emissions containing particulate material that are visually detectable without the aid of instruments.
101. Washroom: Room between the Work Area and the holding area in the equipment decontamination enclosure system where equipment and waste containers are wet cleaned and/or HEPA-vacuumed prior to disposal.
102. Waste decontamination enclosure system: "Waste decontamination enclosure system" shall mean the decontamination enclosure system designated for the controlled transfer of materials and equipment, consisting of a washroom and a holding area.

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103. Wet Cleaning: "Wet cleaning" shall mean the removal of asbestos fibers from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with water.
104. Wet methods: "Wet methods" shall mean the use of amended water or removal encapsulants to minimize the generation of fibers during ACM disturbance.
105. Work Area: Designated rooms, spaces, or areas of the building or structure where asbestos abatement activities take(s) place.
106. Worker Decontamination Enclosure System: Portion of a decontamination enclosure system designed for controlled passage of workers and authorized visitors, consisting of a clean room, a shower room, and an equipment room separated from each other and from the Work Area by airlocks and curtained doorways.
107. Work Place: The work area and the decontamination enclosure system(s).
108. Work Place Safety Plan: Construction documents prepared by a registered design professional and submitted for review by DEP in order to obtain an asbestos abatement permit. Such plan shall include, but not be limited to, plans, sections, and details of the work area clearly showing the extent, sequence, and means and methods by which the work is to be performed.
109. Work Site: Premises where abatement activity is being performed. May be composed of one or more Work Areas.

### 1.06 STANDARD OPERATING PROCEDURES

- A. Develop and implement a written standard procedure for abatement work to ensure maximum protection and safeguard from asbestos exposure of the workers, visitors, employees, public, and environment.

- B. TELEPHONE PAGING DEVICE

The asbestos abatement contractor or his authorized representative shall, at all times during the normal workday or during periods of overtime work under this Contract, carry a digital telephone paging device ("Beeper") and/or cellular telephones which can be activated by a telephone number in the 212 or 646 or 718 or 917 or 929 area code. He shall supply the Department of Design and Construction with the activation number for the device and he is liable to respond back to the calls from DDC within the next one (1) hour period after he receives calls from DDC. The cost to the asbestos abatement contractor for this device and all charges accruing thereto is deemed included in the work.

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- C. The standard operating procedure shall ensure:
1. Tight security from unauthorized entry into the workspace.
  2. Restriction of asbestos abatement contractor's personnel to the immediate Work Area and access/egress routes.
  3. Donning of proper protective clothing and respiratory protection prior to entering the Work Area.
  4. Safe work practices in the work place, including provisions for inter-room communications, exclusion of eating, drinking, smoking, or in any way breaking the respiratory protection.
  5. Proper exit practices from the work space to the outside through the showering and decontamination facilities.
  6. Removing asbestos in a way that minimizes release of fibers.
  7. Packing, labeling, loading, transporting, and disposing of contaminated material in a way that minimizes exposure and contamination.
  8. Emergency evacuation procedures, for medical or safety situations, to minimize the potential exposure to airborne asbestos fibers for emergency personnel, building occupants, and building environment.
  9. Safety from accidents in the workspace, especially from electrical shocks, fall hazards associated with scaffolding, slippery surfaces, and entanglements in loose hoses and equipment.
  10. Provisions for effective supervision, air monitoring and personnel monitoring for exposure during the work.
  11. Engineering controls that minimize exposure to fibers within the workspace.
  12. The asbestos abatement contractor shall provide a 24-hour fire watch throughout the entire term of the project, to protect against fire and unauthorized entry into the workspace. Fire watch shall be performed by an individual who is a certified asbestos worker capable of entering the Work Area for regular inspections.
- D. Provide an Asbestos Handler Supervisor to provide continuous supervision of all work, and to be responsible for the following:
1. Ensure that individuals are using proper personal protective equipment, are trained in its use and hold valid NYCDEP and NYSDOL Asbestos Handler certificates

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2. Maintain entry log records and ensure that they are recorded in accordance with the provisions of Title 15, Chapter 1 of RCNY and NYSDOL ICR 56.
3. Surveillance of the Work Areas at a minimum of once per work shift or as required by Title 15, Chapter 1 of RCNY and NYSDOL ICR 56 -7.3, to ensure the integrity of work place isolation, negative pressure equipment and workers personal protective equipment is not torn or ripped and that respiratory protection is worn at all times.
4. Ensure that sufficient personal protective equipment is stored in the clean room.
5. Take precautions to prevent heat stress. Precautions include, but are not limited to, selecting lightweight protective clothing, reducing the work rate, and providing adequate fluid breaks.
6. Perform work area inspection with project monitor prior to the commencement of final clearance air monitoring.
7. The asbestos abatement contractor shall retain the asbestos handler supervisor to perform a visual inspection prior to the post-abatement clearance air monitoring to confirm that all containerized waste has been removed from work and holding areas and there is no visible ACM debris or residue on or about all abated surfaces.

### E. ENGINEERING CONTROLS

1. The 8-hour time weighted average airborne concentration of fibers to which any passerby may be exposed shall not exceed 0.01 fibers per cubic centimeter of air when fibers have a physical dimension longer than 5 micrometers as determined by the method prescribed in these Specifications.
2. All asbestos projects shall utilize negative pressure ventilation equipment.
  - a. The asbestos abatement contractor shall use a manometer to document the pressure differential. The asbestos abatement contractor shall install and make the manometer operational once the negative pressure has been established in the work area. Magnahelic manometers shall be calibrated at least every six months and a copy of the current calibration certification shall be available at the work site.
3. Negative pressure ventilation equipment shall be installed and operated to provide at least one air change in the work area every 15 minutes. Where there are no floor or wall barriers because floor or wall material is being abated, there shall be at least one air change in the work area every ten minutes.

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4. The negative pressure ventilation equipment shall operate continuously, 24 hours a day, from the establishment of isolation barriers through successful clearance air monitoring. If such equipment shuts off, adjacent areas shall be monitored for asbestos fibers.
5. A static negative air pressure of 0.02 inches (minimum) water column shall be maintained at all times in the work place during abatement to ensure that contaminated air in the Work Area does not filter back to uncontaminated areas.
6. If the contaminated area of an asbestos project covers the entire floor of the affected building, or an area greater than 15,000 square feet on any given floor, the installation of a negative air cut off switch or switches shall be required at a single location outside the work place, such as inside a stairwell, or at a secured location in the ground floor lobby when conditions warrant. The required switch or switches shall be installed by a licensed electrician pursuant to a permit issued by the Department of Buildings. If negative pressure ventilation equipment is used on multiple floors, the cut off switch shall be able to turn off the equipment on all floors.
7. On loss of negative pressure or electric power to the negative pressure ventilating units, abatement shall stop immediately and shall not resume until power is restored and negative pressure ventilation equipment is operating again.
8. Negative pressure ventilation equipment shall be exhausted to the outside of the building away from occupied areas.
  - a. All openings (including but not limited to operable windows, doors, vents, air intakes or exhausts of any mechanical devices) less than 15 feet from the exterior exhaust duct termination location shall be plasticized with two layers of fire retardant 6-mil polyethylene sheeting, or a second negative pressure ventilation unit with the primary unit's capacity shall be connected in series prior to exhausting to the outside.
  - b. Negative pressure ventilation equipment shall exhaust away from areas accessible to the public.
  - c. All ducting shall be sealed and braced or supported to maintain airtight joints. Ducts shall be reinforced and shall be installed so as to prevent breakage. Damage to ducts must be repaired immediately.
9. Where ducting to the outside is not possible, a second negative pressure ventilation unit compatible with the primary unit's capacity shall be connected in series. The area receiving the exhaust shall have sufficient, non-recycling exhaust capacity to the outside of the structure.



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10. In the event that there is a failure of the containment system or a breach in the Isolation Barriers, all abatement work will cease and the asbestos abatement contractor will immediately correct the condition. Abatement work will not resume until the Work Area has been smoke tested by the third party laboratory and approved by the Construction Project Manager.

### F. LOCKDOWN ENCAPSULATION PROCEDURES

1. The following procedures shall be followed to seal in non-visible residue while conducting lockdown encapsulation on all surfaces from which ACM has not been removed:
  - a. Only encapsulants rated as acceptable or marginally acceptable on the basis of Battelle Columbus Laboratory test procedures and rating requirements developed under the 1978 USEPA Contract shall be used for lockdown encapsulation.
  - b. The encapsulant solvent or vehicle shall not contain a volatile hydrocarbon unless reviewed and approved by DEP.
  - c. Latex paint with solids content greater than 15 percent shall be considered a lockdown sealant for coating all non-metallic surfaces.
  - d. Encapsulants shall be applied using airless spray equipment. Spraying is to occur at the lowest pressure range possible to minimize fiber release from encapsulant impact at the surface. It shall be applied with a consistent horizontal or vertical motion.
  - e. The cleaned layer of the surface barriers shall be removed from walls and floors.

The isolation barriers shall remain in place throughout cleanup. Decontamination enclosure systems shall remain in place and be utilized. A thin coat of lockdown encapsulant shall be applied to all surfaces in the work area which were not the subject of removal or abatement, including the cleaned layer of the surface barriers, but excepting sprinklers, standpipes, and other active elements of the fire suppression system.

### 1.07 NOTIFICATIONS, PERMITS, WARNING SIGNS, LABELS, AND POSTERS

- A. The asbestos abatement contractor shall submit an Asbestos Project Notification (ACP-7) to the NYCDEP listing each work area within the building separately one week in advance of the start of work.
- B. The registered design professional shall obtain an asbestos abatement permit authorizing the performance of construction work as required for asbestos projects involving one or more of the following activities:

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1. Obstruction of an exit door leading to an exit stair or the exterior of the building;
  2. Obstruction of an exterior fire escape or access to that fire escape;
  3. Obstruction of a fire-rated corridor leading to an exit door;
  4. Removal of handrails in an exit stair or ramp;
  5. Removal or dismantling of any fire alarm system component including any fire alarm-initiating device (e.g., smoke detectors, manual pull station);
  6. Removal or dismantling of any exit sign or any component of the exit lighting system, including photo luminescent exit path markings;
  7. Removal or dismantling of any part of a sprinkler system including piping or sprinkler heads;
  8. Removal or dismantling of any part of a standpipe system including fire pumps or valves;
  9. Removal of any non-load bearing / non-fire-rated wall (greater than 45 square feet or 50 percent of a given wall);
  10. Any plumbing work other than the repair or replacement of plumbing fixtures;
  11. Removal of any fire-resistance rated portions of a wall, ceiling, floor, door, corridor, partition, or structural element enclosure including spray-on fire resistance rated materials;
  12. Removal of any fire damper, smoke damper, fire stopping material, fire blocking, or draft stopping within fire-resistance rated assemblies or within concealed spaces;
  13. Any work that otherwise requires a permit from the DOB (full demolitions, alterations, renovations, modifications or plumbing work).
- C. The asbestos abatement contractor shall provide a floor plan showing the areas of the building under abatement and the location of all fire exits in said areas. It shall be prominently posted in the building lobby or comparable location, along with a notice stating the location within the building of the negative air cutoff switch, if applicable.
- D. The general contractor shall submit, as required, an asbestos abatement permit due to one or more of the activities listed in 1.07 (B) (1-8) and (B) (13) of this specification. The asbestos abatement contractor is responsible for submitting, with

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an asbestos project notification, a work place safety plan (WSP) and any other applicable construction documents. These documents must be prepared by a registered design professional.

- E. A WSP is not required for projects requiring an asbestos abatement permit due to one or more of the activities listed in 1.07 (B) (9-12) of this specification. The asbestos abatement contractor shall submit, together with the asbestos project notification, all applicable asbestos abatement permit construction documents.
- F. The general contractor shall retain a Registered Design Professional to perform the inspections required pursuant to Title 28 of the Administrative Code, including but not limited to special inspections required by Chapter 17 of the Building Code, as follows:
  - 1. A final inspection shall be performed by a registered design professional retained by the asbestos abatement contractor after all work authorized by the asbestos abatement permit is completed. The person performing the inspection shall note all failures to comply with the provisions of the Building Code or approved asbestos abatement permit and shall promptly notify the owner in writing. All defects noted in such inspection shall be corrected. The final inspection report shall either:
    - a. Confirm:
      - (1) That the construction work is complete, including the reinstallation or reactivation of any building fire safety or life safety component.
      - (2) That any defects previously noted have been corrected.
      - (3) That all required inspections were performed.
      - (4) That the work is in substantial compliance with the approved asbestos abatement permit construction documents, the Building Code, and other applicable laws and rules.
    - b. Confirm:
      - (1) That the construction work does not return the building (or portion thereof) affected by the abatement project to a condition compliant with the building code and other applicable laws and rules, but that the registered design professional has reviewed an application for asbestos abatement permit construction documents approval that has been approved by the department of buildings, and the subsequent scope of work as approved will, upon completion, render all areas affected by the asbestos project in full

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compliance with the building code and all applicable laws and rules.

- (2) That any defects previously noted that are not addressed by the subsequent scope of work as approved by the department of buildings, have been corrected.
  - (3) That all required inspections that are not addressed by the subsequent scope of work as approved by the department of buildings were performed.
  - (4) That all completed work pursuant to an asbestos abatement permit is in substantial compliance with the approved asbestos abatement permit construction documents.
- G. The general contractor shall provide the final inspection reports to be filed with DEP on A-TR1 form. Records of final inspections made by registered design professionals shall be submitted to DDC as part of the close out document package.
- H. Erect bilingual (English-Spanish) warning signs around the work space and at every point of potential entry from the outside and at main entrance to building which can be viewed by the public without obstruction, in accordance with OSHA 29 CFR 1926.1101 (K) (Sign Specifications) and Title 15, Chapter 1 of RCNY. The warning signs shall be a bright color so that they will be easily noticeable. The size of the sign and the size of the lettering shall be no less than OSHA requirements.
- I. Provide the required labels for all polyethylene bags and all drums utilized to transport contaminated material to the landfill in accordance with OSHA 29 CFR 1926.1101 (K)(2) and by 49 CFR Parts 171 and 172 of the Department of Transportation regulations.
- J. Provide any other signs, labels, warnings, and posted instructions that are necessary to protect, inform and warn people of the hazard from asbestos exposure. Post in a prominent and convenient place for the workers a copy of the latest applicable regulations from OSHA, EPA, NIOSH, State of New York and New York City and any additional items mandated for posting by the aforementioned regulations.
- K. Furnish all permits, variances and notices required to perform the Work.

### 1.08 EMERGENCY PRECAUTIONS

- A. Establish emergency and fire exits from the Work Area. The clean side of all emergency exits shall be equipped with two full sets of protective clothing and respirators at all times.

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- B. Notify local medical emergency personnel, both ambulance crews and hospital emergency room staff prior to commencement of abatement operations as to the possibility of having to handle contaminated or injured workmen, and shall be advised on safe decontamination.
- C. Prepare to administer first aid to injured personnel after decontamination. Seriously injured personnel shall be treated immediately or evacuated immediately for decontamination. When an injury occurs, precautions shall be taken to reduce airborne fiber concentrations (i.e., misting of the air with water) until the injured person has been removed from the Work Area.
- D. Notify, before actual removal of the asbestos material, the local police and fire departments to the danger of entering the Work Area. Asbestos abatement contractor shall make every effort to help these agencies form plans of action should their personnel need to enter the contaminated area.

### 1.09 SUBMITTALS

#### A. Pre-Construction Submittals:

- 1. Attend a pre-construction meeting scheduled by the City of New York Department of Design and Construction. This meeting shall also be attended by a designated representative of the City of New York third party air monitoring firm, facility manager and the Construction Project Manager. At this meeting, the asbestos abatement contractor shall present three copies of the following items, bound and indexed. The detailed plan of action must be submitted at least five (5) days prior to the pre-construction meeting.
  - a. Asbestos abatement contractor's scope of work, work plan and schedule.
  - b. Asbestos project notifications, approved variances and plans to Government Agencies.
  - c. Copies of Permits, clearance and licenses if required.
  - d. Schedules: the asbestos abatement contractor shall provide to the Construction Project Manager a copy of the following schedules for approval. Once approved, schedules shall be maintained and updated as received. Asbestos abatement contractor shall post a copy of all schedules at the site:
    - (1) A construction schedule stating critical dates of the project including, but not limited to, mobilization, Work Area preparation, demolition, gross removal, fine cleaning, encapsulation, inspections, clearance monitoring, and phase of

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refinishing and final inspections. The schedule shall be updated biweekly, at a minimum.

- (2) A schedule of staffing stating number of workers per shift per activity, name and number of supervisor(s) per shift, shifts per day, and total days to be worked.
  - (3) Submit all changes in schedule or staffing to the Construction Project Manager prior to implementation.
  - (4) A schedule of equipment to be used including numbers and types of all major equipment such as HEPA Air Filtration Units, HEPA-vacuums, airless sprayers, Water Atomizing Devices and Type "C" compressors.
- e. A written plan and shop drawings for preparation of work site and decontamination chamber.
  - f. Description of protective clothing and approved respirator to be used, make, model, NIOSH approval numbers.
  - g. Delineation of responsibility of work site supervision, including competent person, with names, resumes, and home telephone numbers.
  - h. Explanation of decontamination sequence and isolation techniques.
  - i. Description of specific equipment to be utilized, including make and model number of air filtration devices, vacuums, sprayers, etc.
  - j. Description of any prepared methods, procedures, techniques, or equipment other than those specified in the Contract Documents.
  - k. Explanation of the handling of asbestos contaminated wastes including EPA and NYCDEP identification numbers of Waste Hauler.
  - l. Description of the final clean-up procedures to be used.
  - m. Name and qualifications of asbestos abatement contractor's Air Monitor including AIHA accreditation, and proof of NIOSH PAT and NIST/NVLAP Bulk Quality Assurance Proficiency of OSHA samples for approval by the City of New York Department of Design and Construction.
  - n. Written description of emergency procedures to be followed in case of injury or fire. This section must include evacuation procedures,

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source of medical assistance (name and telephone number) and procedures to be used for access by medical personnel (examples: first aid squad and physician). NOTE: Necessary Emergency Procedures Shall Take Priority Over All Other Requirements of These Specifications.

- o. Material Safety Data Sheets (MSDS) for encapsulants, sealants, firestopping foam, cleaners/disinfectants, spray adhesive and any and all potentially hazardous materials that may be employed on the project. No work involving the aforementioned will be allowed to proceed until MSDS are reviewed.
- p. Worker Training and Medical Surveillance: Asbestos abatement contractor shall submit a list of the persons who will be employed by him in the removal work. Present evidence that workers have received proper training required by the regulations and the medical examinations required by OSHA 29 CFR 1926.1101.
- q. Logs: Specimen copies of daily progress log, visitor's log, and disposal log.
  - (1) The asbestos abatement contractor shall provide a permanently bound log book of minimum 8-1/2" x 11" size at the entrance to the Worker and Waste Decontamination enclosure system as hereinafter specified. Log book shall contain on title page the project name, name, address and phone number of Environmental Control Representative; name, address and phone number of asbestos abatement contractor; name, address and phone number of asbestos abatement contractor and City's air testing entity; emergency numbers including, but not limited to local Fire/Rescue Department. Log book shall contain a list of personnel approved by the laboratory for entry into the Work Area.
  - (2) All entries into the log shall be made in non-washable, permanent ink and such pen shall be strung to or otherwise attached to the log to prevent removal from the log-in area. Under no circumstances shall pencil entries be permitted. Any significant events occurring during the abatement project shall be entered into the log. Upon completion of the job, the Asbestos abatement contractor shall submit a copy of the logbook containing a day-to-day record of personnel log entries countersigned by the Construction Project Manager every day.
- r. Worker's Acknowledgments: Submit statements signed by each employee that the employee has received training in the proper handling of ACM, understands the health implications and risks

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involved; and understands the use and limitations of the respiratory equipment to be used.

- B. Submit copies of the following items to the Construction Project Manager during the work:
1. Security and safety logs showing names of person entering workspace, date and time of entry and exit, record of any accident, emergency evacuation, and any other safety and/or health incident.
  2. Progress logs showing the number of workers, supervisors, hours of work and tasks completed shall be submitted daily to the Construction Project Manager.
  3. Floor plans indicating asbestos abatement contractor's current work progress shall be submitted for review by the Construction Project Manager at weekly progress meetings.
  4. All asbestos abatement contractors' air monitoring and inspection results.
- C. Project Closeout Submittals:

Upon completion of the project and as a condition of acceptance, the asbestos abatement contractor shall present two copies of the following items, bound and indexed:

1. Lien Waivers from asbestos abatement contractor, Sub-asbestos abatement contractors and Suppliers,
2. Daily OSHA air monitoring results,
3. All Waste Manifests (Asbestos and Construction Debris), seals and disposal logs,
4. Field Sign-In/Sign-Out Logs for every shift,
5. Copies of all Building Department Forms and Permits,
6. A Letter of Compliance stating that all the work on this project was performed in accordance with the Specifications and all applicable Federal, State and Local regulations,
7. All Warranties as stated in the Specifications,
  - a. Fully executed disposal certificates and transportation manifest.



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8. Project Record: The asbestos abatement contractor shall maintain a project record for all small and large asbestos projects. During the project, the project record shall be kept on site at all times. Upon completion of the project, the project record shall be maintained by the building owner. The project record shall be submitted to DDC as part of the close out documents. The project record shall consist of:
  - a. Copies of licenses of all asbestos abatement contractors involved in the project;
  - b. Copies of DEP and NYSDOL supervisor and handler certificates for all workers engaged in the project;
  - c. Copies of all project notifications and reports filed with DEP and NYSDOL for the project, with any amendments or variances;
  - d. Copies of all asbestos abatement permits, including associated approved plans and work place safety plan;
  - e. A copy of the air sampling log and all air sampling results;
  - f. A copy of the abatement asbestos abatement contractor's daily log book;
  - g. All data related to bulk sampling including the results of any asbestos surveys performed by an asbestos investigator;
  - h. Copies of all asbestos waste manifests;
  - i. A copy of all Project Monitor's Reports (ACP-15).
  - j. A copy of each ATR-1 Form completed for the asbestos project (if required).
  - k. A copy of each Asbestos Project Conditional Closeout Report (ACP-20).
  - l. A copy of the Asbestos Project Completion Form (ACP-21).
9. The asbestos abatement contractor shall submit one of the following certifications to the DOB, with a copy provided to DDC:
  - a. Asbestos Project Completion Form. If an asbestos project has been performed, a copy of the asbestos project completion form issued by DEP shall be submitted to DOB, with a copy being provided to DDC, prior to the issuance of a DOB permit and to any amendment of the underlying construction document approval which increases

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the scope of the project to include (a) work area(s) not previously covered.

- b. An Asbestos Project Conditional Close-out Form. If an asbestos project has been performed a copy of the asbestos project conditional close-out form issued by DEP shall be submitted to DOB, with a copy being provided to DDC, prior to the issuance of a DOB permit and to any amendment of the underlying construction document approval which increases the scope of the project to include (a) work area(s) not previously covered.

### 1.10 QUALITY ASSURANCE

- A. All work required for the completion of this project or called for in this Specification must be executed in a workmanlike manner by using the appropriate methods established by regulatory requirements and/or industrial standards. All workmanship or work methods are subject to review and acceptance by the Construction Project Manager. Throughout the Specification, reference is made to codes and standards which establish qualities, levels or types of workmanship which will be considered acceptable. It is the asbestos abatement contractor's responsibility to comply with these codes and standards during the execution of this work.
- B. All materials and equipment required or consumed during the work of this Contract must meet the minimum acceptable criteria established by codes and standards referenced elsewhere in this Specification. Materials and equipment must be submitted for prior approval as part of the asbestos abatement contractor's "Shop Drawings".
- C. It is the asbestos abatement contractor's responsibility, when so required by the Specification or upon written request from the Commissioner or his representative to furnish all required proof that workmanship, materials and/or equipment meet or exceed the codes and standards referenced. Such proof shall be in the form requested, typically a certified report or test conducted by a testing entity approved for that purpose by DDC.
- D. The asbestos abatement contractor shall furnish proof that employees working under his supervision have had instruction on the dangers of asbestos exposure, on respirator use, decontamination, and OSHA regulations. This proof shall be in the form of a notarized affidavit to the effect that the above requirements have been satisfied.
- E. The asbestos abatement contractor will have at all times in his possession and in view at the job site the OSHA regulations 29 CFR 1910.1001, and 1926.1101 Asbestos, and Environmental Protection Agency 40 CFR, Part 61, subpart B: National Emission Standard for asbestos, asbestos stripping, work practices and

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disposal of asbestos waste. He shall also have one copy of NYC Title 15, Chapter 1 of RCNY and NYS DOL ICR 56 at the job site at all times.

- F. Familiarity with Pertinent Codes and Standards: In procuring all items used in this work, it is the a asbestos abatement contractor's responsibility to verify the detailed requirements of the specifically named codes and standards and to verify that the items procured for use in this work meet or exceed the specified requirements, and are suitable for their intended use.
- G. Rejection of Non Complying Items: The Commissioner reserves the right to reject items incorporated into the work that fail to meet the specified minimum requirements. The Commissioner further reserves the right, and without prejudice to other recourse that maybe taken, to accept non-complying items subject to an adjustment in the Contract amount as approved by the City.
- H. Applicable Regulations, Codes and Standards: Applicable standards listed in these Specifications include, but are not necessarily limited to, standards promulgated by the following agencies and organizations:
1. American National Standards Institute (ANSI)  
(Successor to USASI and ASA)  
25 West 43<sup>rd</sup> Street (between 5<sup>th</sup> and 6<sup>th</sup> Avenue) 4<sup>th</sup> Floor  
New York, NY 10036  
212-642-4900
  2. American Society for Testing and Materials (ASTM)  
100 Bar Harbor Drive  
West Conshohocken, PA 19428-2959  
610-832-9500
  3. National Institute for Occupational Safety and Health (NIOSH)  
Robert A. Taft Laboratory  
4676 Columbia Pkwy  
Mailstop R12 Cincinnati, Ohio 45226  
513-841-4428
  4. National Electrical Code (NEC)  
See NFPA
  5. National Fire Protection Association (NFPA)  
1 Batterymarch Park  
Quincy, Massachusetts 02169-7471  
617-770-3000
  6. New York City Fire Department (FDNY)  
9 Metrotech Center  
Brooklyn, NY 11201-5431  
718-999-2117

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7. New York City Department of Buildings (NYC DOB)  
Enforcement Division  
280 Broadway, New York, New York 10007  
212- 566-2850
  8. New York City Department of Environmental Protection (NYCDEP)  
Bureau of Environmental Compliance  
Asbestos Control Program  
59-17 Junction Boulevard, 8<sup>th</sup> Floor  
Corona, New York 11368  
718-595-3682
  9. New York City Department of Health and Mental Hygiene (NYC DOHMH)  
Environmental Investigation  
125 Worth Street  
New York, New York 10013  
212-442-3372
  10. New York State Department of Labor (NYSDOL)  
Division of Safety and Health  
Engineering Services Unit  
State Office Building Campus  
Albany, New York 12240-0010
  11. New York City Department of Sanitation  
125 Worth Street, Room 714  
New York, New York 10013  
212-566-1066
  12. Occupational Safety and Health Administration (OSHA)  
Region II - Regional Office  
201 Varick Street, Room 908  
New York, New York 10014  
212-337-2378
  13. United States Environmental Protection Agency (EPA or USEPA)  
Region II  
Asbestos NESHAPS Contact  
Air and Waste Management Division  
(Air Compliance Branch) – USEPA  
290 Broadway, 21<sup>st</sup> Floor  
New York, New York 10007-1866  
212-637-3660
- I. Post all applicable regulations in a conspicuous place at the job site. Assure that the regulations are not altered, defaced or covered by other materials. One copy of each regulation must also be kept at the Asbestos abatement contractor's office.

1.11 CITY/ASBESTOS ABATEMENT CONTRACTOR RESPONSIBILITIES

- A. The normal occupants of the Work Areas will be relocated by the City prior to the performance of the abatement work and returned there to at the conclusion of the abatement work, at no cost to the asbestos abatement contractor. However, the asbestos abatement contractor shall protect all furniture and equipment in the Work Areas in a manner as hereinafter specified. In addition, the asbestos abatement contractor shall perform the work of this Contract in a manner that will be least disruptive to the normal use of the non-Work Areas in the building.
- B. Asbestos abatement contractor shall be responsible for cleaning all portable items not specifically addressed by the Facility, in the Work Areas, or dispose of same as asbestos contaminated waste.
- C. Facility to provide asbestos abatement contractor with a list of items that cannot be removed and need special attention.
- D. Facility to stop all deliveries that may be scheduled to the Work Area while work is in progress.
- E. Facilities to have authorized personnel on site at all times or supply the asbestos abatement contractor with means of contacting such personnel without unreasonable delay. Such personnel shall have access to all areas, have knowledge of electrical, and air handling equipment. Such personnel shall assist the asbestos abatement contractor in case of any power failure or breakdown to shut down air supply systems, to reset and control all protective systems such as alarms, sprinklers, locks, etc. The Facility shall ensure no active air handling systems are operating within the Work Area.
- F. City will not occupy the portions of the building, in which work is being performed during the entire asbestos removal operation, including completion of clean up.
- G. Asbestos abatement contractor shall provide a plan for 24 hour job security both for prevention of theft and for barring entry of curious but unprotected personnel into Work Areas.
- H. Asbestos abatement contractor shall provide surveillance by a fire watch and set forth procedures to be taken for the safety of building occupants in the event of an emergency, in accordance with the WPSP.
- I. Should the failure of any utility occur, the City will not be responsible to the asbestos abatement contractor for loss of time or any other expense incurred.
- J. Facility will be responsible to notify the asbestos abatement contractor of any planned electrical power shutdowns in order to ensure that there are no power interruptions in the negative air pressure systems.

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- K. Asbestos abatement contractor shall remove all flammable materials from the work area and all sources of ignition (including but not limited to pilot lights) shall be extinguished.
- L. Asbestos abatement contractor shall require a competent person (as defined in OSHA 1926.1101) to perform the following functions and to be on-site continuously for the duration of the project:
  - 1. Monitor the setup of the Work Area enclosure and ensure its integrity.
  - 2. Control entry and exit into the work enclosure.
  - 3. Ensure that employees are adequately trained in the use of engineering controls, proper work practices, proper personal protective equipment and in decontamination procedures.
  - 4. Insure that employees use proper engineering controls, proper work practices, proper personal protective equipment and proper decontamination procedures.
  - 5. The competent person (as defined in OSHA1926.1101) shall check for rips and tears in work suits, and ensure that they are mended immediately or replaced.

### 1.12 USE OF BUILDING FACILITIES

- A. City shall make available to the asbestos abatement contractor, from existing outlets and supplies, all reasonably required amounts of water and electric power at no charge.
- B. Electric power to all Work Areas shall be shut down and locked out except for electrical equipment that must remain in service. Safe temporary power and lighting shall be provided by asbestos abatement contractor in accordance with applicable codes. All power to Work Areas shall be brought in from outside the area through ground-fault interrupter circuits installed at the source. Stationary electrical equipment within the Work Area, which must remain in service, shall be adequately protected, enclosed and ventilated. The Facility will identify all electric lines that must remain in service. Asbestos abatement contractor shall protect all lines.
- C. Asbestos abatement contractor shall provide, at his own expense, all electrical, water, and waste connections, tie-ins, extensions, and construction materials, supplies, etc. All water tie-ins shall be hard piped with polyethylene or copper piping. At the end of each shift, asbestos abatement contractor shall disconnect all hoses within the work zone and place in equipment room of the worker decontamination unit. Asbestos abatement contractor shall ensure positive shutoff of all water to Work Area during non-working hours.

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### D. Utilities:

#### 1. General:

All temporary facilities required to be installed, shall be subject to the approval of the Commissioner. Prior to starting the work at any site; specify clearly the temporary locations of facilities preferably with sketches and submit the same to the Construction Project Manager for approval.

#### 2. Water:

The Department of Design and Construction will furnish all water needed for construction, at no cost to the asbestos abatement contractor in buildings under their jurisdiction. All temporary plumbing or adaptations to supply the needs of the Work Area shall be installed and removed by the asbestos abatement contractor and the cost thereof included in the Lump Sum price for abatement work. Shower water for the decontamination unit shall be provided hot. Heating of water, if necessary, shall be provided by the asbestos abatement contractor.

#### 3. Electricity:

The Department of Design and Construction will furnish all electricity needed for construction, at no cost to the asbestos abatement contractor in buildings under their jurisdiction. All temporary electrical work or adaptations to supply the needs of the Work Area shall be installed and removed by the asbestos abatement contractor and the cost thereof included in the Lump Sum price for abatement work.

In leased spaces, arrangements for water supplies and electricity must be made with the landlord. However, all such arrangements must be made through and are subject to approval of the Department of Design and Construction. Utilities will be provided at no cost to the Asbestos abatement contractor. However, it is the asbestos abatement contractor's (or the General contractor's) responsibility to furnish and install a suitable distribution system to the Work Area. This system will be provided at no cost to the City.

A dedicated power supply for the negative pressure ventilating units shall be utilized. The negative air equipment shall be on a ground fault circuit interrupter (GFCI) protected circuit separate from the remainder of the work area temporary power circuits.

- E. Asbestos abatement contractor shall shut down and lock out all electric power to all work areas except for electrical equipment that must remain in service. Safe temporary power and lighting shall be provided in accordance with all applicable codes. Existing light sources (e.g., house lights) shall not be utilized. All power to work areas shall be brought in from outside the area through ground-fault circuit interrupter at the source.

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1. If electrical circuits, machinery, and other electrical systems in or passing through the work area must stay in operation due to health and safety requirements, the following precautions must be taken:
    - a. All unprotected cables, except low-voltage (less than 24 volts) communication and control system cables, panel boxes of cables and joints in live conduit that run through the work area shall be covered with three (3) independent layers of six (6) mil fire retardant polyethylene. Each layer shall be individually duct taped and sealed. All three (3) layers of polyethylene sheeting shall be left in place until satisfactory clearance air sampling results have been obtained.
    - b. Any energized circuits remaining in the work area shall be posted with a minimum two (2) inch high lettering warning sign which reads: DANGER LIVE ELECTRICAL - KEEP CLEAR. A sign shall be placed on all live covered barriers at a maximum of ten (10) foot intervals. These signs shall be posted in sufficient numbers to warn all persons authorized to enter the work area of the existence of the energized circuits.
  2. Any source of emergency lighting which is temporarily blocked as a result of work place preparation shall be replaced for the duration of the project by battery operated or temporary exit signs, exit lights, or photo luminescent path markings.
- F. Asbestos abatement contractor shall provide a separate temporary electric panel board to power asbestos abatement contractor's equipment. The Facility will designate an existing electrical source in proximity to the Work Area. Asbestos abatement contractor's licensed electrician shall provide temporary tie-in via cable, outlet boxes, junction boxes, receptacles and lights, all with ground fault interruption. At no time shall extension cords greater than 50-feet in length be allowed. All temporary electrical installation shall be in accordance with OSHA regulations. The electric shut down for power panel tie-in will be on off-hours and must be coordinated with the Facility. Asbestos abatement contractor shall provide to the City a specification and drawing outlining his power requirements at the pre-construction meeting.
- G. Additional electrical equipment (i.e., transformers, etc.), which is necessary due to the lack of existing power on the floor, shall be at the asbestos abatement contractor's expense.
- H. Asbestos abatement contractor shall provide fire protection in accordance with all State and Local fire codes.
- I. Sprinklers, standpipes, and other fire suppression systems shall remain in service and shall not be plasticized.



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- J. When temporary service lines are no longer required, they shall be removed by the asbestos abatement contractor. Any parts of the permanent service lines, grounds and buildings, disturbed or damaged by the installation and/or removal of the temporary service lines, shall be restored to their original condition by the asbestos abatement contractor. Senior Stationary Engineer will inspect and test all switches, controls, gauges, etc. and shall submit a list to the Construction Project Manager of any equipment damaged by the asbestos abatement contractor.
- K. Asbestos abatement contractor shall supply hot shower water necessary for use in the decontamination unit.

### 1.13 USE OF THE PREMISES

- A. Asbestos abatement contractor shall confine his apparatus, the storage of materials, and supplies, and the operation of his workmen to limits established by law, ordinances, and the directions of the Construction Project Manager and the Facility. All flammable or combustible materials shall be properly stored to obviate fire and in areas approved by the Facility.
- B. Asbestos abatement contractor shall assure that no exits from the building are obstructed, that appropriate safety barriers are established to prevent access, and that Work Areas are kept neat, clean, and safe.
- C. Asbestos abatement contractor shall maintain exits from the work area or alternative exits shall be established, in accordance with section 1027 of the New York City Fire Code. Exits shall be checked at the beginning and end of each work shift against blockage or impediments to exiting.
- D. If the openings of temporary structural partitions related to abatement work areas block egress, the partition shall consist of two sheets of fire retardant 6-mil plastic, prominently marked as an exit with photo luminescent paint or signage. Cutting tools (e.g., knife, razor) shall be attached to the work area side of the sheeting for use in the event that the barrier must be cut open to allow egress.
- E. All surrounding work, fixtures, soil lines, drains, water lines, gas pipes, electrical conduit, wires, utilities, duct work railings, shrubbery, landscaping, etc. which are to remain in place shall be carefully protected and, if disturbed or damaged, shall be repaired or replaced as directed by the City, at no additional cost.
- F. All routes through the building to be used by the asbestos abatement contractor shall first be approved by the Construction Project Manager and the Facility.
- G. Attention is specifically drawn to the fact that other asbestos abatement contractors, performing the work of other Contracts, may be (or are) brought upon any of the work sites of this Contract. Therefore, the asbestos abatement contractor shall not have exclusive rights to any site of his work and shall fully cooperate and

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coordinate his work with the work of other asbestos abatement contractors who may be on (or are on) any site of the work of this Contract. Regulated area exempted.

- H. Temporary toilet facilities must be provided by the asbestos abatement contractor on the site. Coordinate location of facilities with Construction Project Manager. No toilet facilities will be allowed in the Work Area.

### 1.14 PROTECTION AND DAMAGE

- A. The asbestos abatement contractor is responsible to cover all furniture and equipment that cannot be removed from Work Areas. Moveable furniture and equipment will be removed from Work Areas by asbestos abatement contractor prior to start of work and returned upon successful completion of the final air testing. At the conclusion of the work (after clearance level of air testing reaches the acceptable limit), the asbestos abatement contractor will remove all plastic covering from the walls, floors, furniture, equipment and reinstall furniture and equipment in the cleaned Work Area. The asbestos abatement contractor shall remove all shades, curtains and drapes from the Work Area, and reinstall the same following the final clean up.
- B. Prior to plasticizing, the proposed work areas shall be pre-cleaned using HEPA filtered vacuum equipment and/or wet cleaning methods. Methods that raise dust, such as sweeping or vacuuming with equipment not equipped with HEPA filters, are prohibited.
- C. Use rubber tired vehicles that use non-volatile fuels for conveying material inside building and provide temporary covering, as necessary, to protect floors.
- D. No materials or debris shall be thrown from windows or doors of the building. Building waste system shall NOT be used to remove refuse.
- E. Debris shall be removed from the work site daily. Premises shall be left neat and clean after each work shift, so that work may proceed the next regular workday without interruption. Limited bag storage may take place within the Work Area when approved by the Construction Project Manager.
- F. Protect floors and walls along removal routes from damage, wear and staining with contamination control flooring. All finished surfaces to be protected with Masonite or other rigid sheathing material.
- G. A preliminary inspection for pre-existing damage shall be conducted by asbestos abatement contractor and representative of the City before commencement of the project.

**1.15 RESPIRATORY PROTECTION REQUIREMENTS**

- A. Respiratory protection shall be worn by all individuals who may be exposed to asbestos fibers from the initiation of the asbestos project until all areas have successfully passed clearance air monitoring in accordance with Regulations and these Specifications.
- B. Asbestos abatement contractor shall develop and implement a written respiratory protection program with required site-specific procedures and elements. The program shall be administered by a properly trained individual. The written respiratory protection program shall include the requirements set forth in OSHA Standard 29 CFR 1910.134, at a minimum.
- C. The Asbestos abatement contractor shall provide workers with individually issued and marked respiratory equipment. Respiratory equipment shall be suitable for the asbestos exposure level(s) in the Work Area(s), as specified in OSHA Standards 26 CFR 1910.134 and 29 CFR 1926.1101, NIOSH Standard 42 CFR 84, or as more stringently specified otherwise, herein.
- D. Where respirators with disposable filter parts are employed, the asbestos abatement contractor will provide sufficient filter parts for replacement as necessary or as required by the applicable regulation.
- E. All respiratory protection shall be NIOSH approved. All respiratory protection shall be provided by asbestos abatement contractor, and used by workers in conjunction with the written respiratory protection program.
- F. Asbestos abatement contractor shall provide respirators selected by an Industrial Hygienist that meet the following requirements:

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Table 1. -- Assigned Protection Factors<sup>5</sup>

Type of Respirator <sup>1, 2</sup>	Half mask	Full facepiece	Helmet/hood
1. Air-Purifying Respirator	<sup>3</sup> 10	50	.....
2. Powered Air-Purifying Respirator (PAPR)	50	1,000	<sup>4</sup> 25/1,000
3. Supplied-Air Respirator (SAR) or Airline Respirator			
• Demand mode	10	50	.....
• Continuous flow mode	50	1,000	<sup>4</sup> 25/1,000
• Pressure-demand or other positive-pressure mode	50	1,000	.....
4. Self-Contained Breathing Apparatus (SCBA)			
• Demand mode	10	50	50
• Pressure-demand or other positive-pressure mode (e.g., open/closed circuit)	.....	10,000	10,000

Notes:

<sup>1</sup>Employers may select respirators assigned for use in higher workplace concentrations of a hazardous substance for use at lower concentrations of that substance, or when required respirator use is independent of concentration.

<sup>2</sup>The assigned protection factors in Table 1 are only effective when the employer implements a continuing, effective respirator program as required by this section (29 CFR 1910.134), including training, fit testing, maintenance, and use requirements.

<sup>3</sup>This APF category includes filtering facepieces, and half masks with elastomeric facepieces.

<sup>4</sup>The employer must have evidence provided by the respirator manufacturer that testing of these respirators demonstrates performance at a level of protection of 1,000 or greater to receive an APF of 1,000. This level of performance can best be demonstrated by performing a WPF or SWPF study or equivalent testing. Absent such testing, all other PAPRs and SARs with helmets/hoods are to be treated as loose-fitting facepiece respirators, and receive an APF of 25.

<sup>5</sup>These APFs do not apply to respirators used solely for escape. For escape respirators used in association with specific substances covered by 29 CFR 1910 subpart Z, employers must refer to the appropriate substance-specific standards in that subpart. Escape respirators for other IDLH atmospheres are specified by 29 CFR 1910.134 (d)(2)(ii).

G. Selection of high efficiency filters:

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1. All high efficiency filters shall have a nominal efficiency rating of 100 (99.97-percent effective) when tested against 0.3-micrometer monodisperse diethyl-hexyl phthalate (DOP) particles.
  2. Choose N-, R-, or P-series filters based upon the presence or absence of oil particles.
    - a. N-series filters shall only be used for non-oil solid and water based aerosols or fumes.
    - b. R- and P-series filters shall be used when oil aerosols or fumes (i.e., lubricants, cutting fluids, glycerin, etc.) are present. The R-series filters are oil resistant and the P-series filters are oil proof.
    - c. Follow filter manufacture recommendations.
  3. If a vapor hazard exists, use an organic vapor cartridge in combination with the high efficiency filter.
- H. Historical airborne fiber level data may serve as the basis for selection of the level of respiratory protection to be used for an abatement task. Historical data provided by the asbestos abatement contractor shall be based on personal air monitoring performed during work operations closely resembling the processes, type of material, control methods, work practices, and environmental conditions present at the site. Documentation of aforementioned results may be requested by the City and/or Third-Party Air Monitor for review. This will not relieve the asbestos abatement contractor from providing personal air monitoring to determine the time-weighted average (TWA) for the work under contract. The TWA shall be determined in accordance with 29 CFR 1926.1101.
- I. At no time during actual removal operations shall half-mask air purifying respirators be allowed unless a full 8-hour TWA and excursion limit have been conducted, and reviewed by the Construction Project Manager. If the TWA and excursion limit have not been conducted, a Supplied-Air Respirator (SAR) or Airline Respirator or Self-Contained Breathing Apparatus (SCBA) must be used. Use of single use dust respirators is prohibited for the above respiratory protection.
- J. Workers shall be provided with personally issued and individually marked respirators. Respirators shall not be marked with any equipment that will alter the fit of the respirator in any way. Only waterproof identification markers shall be used.
- K. Asbestos abatement contractor shall ensure that the workers are qualitatively or quantitatively fit tested by an Industrial Hygienist initially and every 12 months thereafter with the type of respirator he/she will be using.

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- L. Whenever the respirator design permits, workers shall perform the positive and negative air pressure fit test each time a respirator is worn. Powered air-purifying respirators shall be tested for adequate flow as specified by the manufacturer.
- M. No facial hairs (beards) shall be permitted to be worn when wearing respiratory protection that requires a mask-to-face seal.
- N. If a worker wears glasses, a spectacle kit to fit their respirator shall be provided by the asbestos abatement contractor at the asbestos abatement contractor's expense.
- O. Respiratory protection maintenance and decontamination procedures shall meet the following requirements:
  - 1. Respiratory protection shall be inspected and decontaminated on a daily basis in accordance with OSHA 29 CFR 1910.134 (b); and
  - 2. High efficiency filters for negative pressure respirators shall be changed after each shower; and
  - 3. Respiratory protection shall be the last piece of worker protection equipment to be removed. Workers must wear respirators in the shower when going through decontamination procedures as stated in Section 3.03 and/or 3.04.
  - 4. Airline respirators with high efficiency filtered disconnect shall be disconnected in the equipment room and worn into the shower. Powered air-purifying respirator face pieces shall be worn into the shower. Filtered/power pack assemblies shall be decontaminated in accordance with manufacturers recommendations; and
  - 5. Respirators shall be stored in a dry place and in such a manner that the face-piece and exhalation valves are not distorted; and
  - 6. Organic solvents shall not be used for washing of respirators.
- P. Authorized visitors shall be provided with suitable respirators and instruction on the proper use of respirators whenever entering the Work Area. Qualitative fit test shall be done to ensure proper fit of respirator.

### 1.16 PROTECTIVE CLOTHING

- A. Provide worker protection as required by the most stringent OSHA and/or EPA standards applicable to the work. Provide to all workers, foremen, superintendents, authorized visitors and inspectors, protective disposable clothing consisting of full body coveralls, head covers, gloves and 18-inch high boot type covers or reusable footwear.

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- B. In addition to personal protective equipment for workers, the asbestos abatement contractor shall make available at each worksite at least four (4) additional uniforms and required respiratory equipment each day for personnel who are authorized to inspect the work site. He/she shall also provide, for the duration of the work at any site involving a decontamination unit for worksite access, a lockable storage locker for use by the Construction Project Manager. In addition to respiratory masks for workers, the asbestos abatement contractor must have on hand at the beginning of each work day, at least four (4) masks each with two sets of fresh filters, for use by personnel who are authorized to inspect the worksite. The asbestos abatement contractor shall check for proper fit of the respirators of all City personnel authorized to enter the Work Area.
- C. Asbestos handlers involved in tent procedures shall wear two (2) disposable suits, including gloves, hood and footwear, and appropriate respiratory equipment. All street clothes shall be removed and stored in a clean room within the work site. The double layer personal protective equipment shall be used for installation of the tent and throughout the procedure, if a decontamination unit (with shower and clean room) is contiguous to the Work Area, only one (1) layer of disposable personal protective equipment shall be required; in this case, prior to exiting the tent the worker shall HEPA vacuum and wet clean the disposable suit.
- D. The outer disposable suit (if 2 suits are worn) shall be removed and remain in the tent upon exiting. Following the tent disposal and work site clean up the workers shall immediately proceed to a shower at the work site. The inner disposal unit and respirator shall be removed in the shower after appropriate wetting. The disposal clothing shall be disposed of as asbestos-containing waste material. The workers shall then fully and vigorously shower with supplied liquid bath soap, shampoo, and clean dry towels.
- E. Coveralls: provide disposable full-body coveralls and disposable head covers. Require that they be worn by all workers in the Work Area. Provide a sufficient number for all required changes for all workers in the Work Area.
- F. Boots: provide work boots with non-skid soles, and where required by OSHA, foot protection, for all workers. Provide boots at no cost to workers. Paint uppers of all boots yellow with waterproof enamel. Do not allow boots to be removed from the Work Area for any reason after being contaminated with ACM and/or dust.
- G. Hard Hats: provide hard hats as required by OSHA for all workers, and provide a minimum of four spares for Inspectors, visitors, etc. Label all hats with same warning label as used on disposal bags. Require hard hats to be worn at all times that work is in progress that may cause potential head injury. Provide hard hats of the type with polyethylene strap suspension. Require hats to remain in the Work Area throughout the work. Thoroughly clean and decontaminate and bag hard hats prior to removing them from the Work Area at the end of the work.

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- H. Goggles: provide eye protection (goggles) as required by OSHA for all workers involved in any activity that may potentially cause eye injury. Require them to be worn at all times during these activities. Thoroughly clean and decontaminate goggles before removing them from the Work Area.
- I. Gloves: provide work gloves to all workers, of the type dictated by the Work and OSHA Standards. Do not remove gloves from the Work Area. Dispose of as asbestos-asbestos contaminated waste at the end of the work. Gloves shall be worn at all times, except during Work Area Preparation activities that do not disturb ACM.
- J. Reusable footwear, hard hats and eye protection devices shall be left in the contaminated Equipment Room until the end of the Asbestos Abatement Work.
- K. Disposable protective clothing shall be discarded and disposed of as asbestos waste every time the wearer exits from the workspace to the outside through the decontamination facility.
- L. Respirators, disposable coveralls, head covers and foot covers shall be provided by the asbestos abatement contractor for the Facilities Representative, Construction Project Manager and any other authorized representative who may inspect the Work Area. Provide two respirators and six respirator filter changes per day.

### 1.17 AIR MONITORING - ASBESTOS ABATEMENT CONTRACTOR

- A. Asbestos abatement contractor shall employ a qualified industrial hygiene laboratory to analyze air samples in accordance with OSHA Regulations, 1926.1101 (Asbestos Standards for Construction) and New York City regulations.
- B. The industrial hygiene laboratory shall be a current proficient participant in the American Industrial Hygiene Association (AIHA) PAT Program. The laboratory identification number shall be submitted and approved by the City. The laboratory shall be accredited by the AIHA and New York State Department of Health Environmental Laboratory Approval Program (ELAP).
- C. Industrial hygiene laboratory shall also be a current proficient participant in the NIST/NVLAP Quality Assurance Program for the identification of bulk samples. Laboratory identification number shall be submitted to and approved by the City.
- D. Air monitoring responsibilities for the asbestos abatement contractor's employees, shall be performed by a representative of the industrial hygiene laboratory retained by the asbestos abatement contractor.
- E. Asbestos abatement contractor shall submit to the City all credentials of the designated (as defined in OSHA 1926.1101) and industrial hygiene laboratory representative for approval.



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- F. Air monitoring and inspection shall be conducted by the Asbestos abatement contractor's competent person (as defined in OSHA 1926.1101).
- G. Continuous (daily or per shift) monitoring and inspection will include Work Area samples, personnel samples from the breathing zone of a worker to accurately determine the employees' 8-hour TWA (unless Type C respirators are used) and decontamination unit clean room samples.
- H. Work Area samples and employee personnel samples shall be taken using pumps whose flow rates can be determined to an accuracy of +5-percent, at a minimum of two liters per minute. This must be demonstrated at the job site.
- I. Sampling and analysis methods shall be per NIOSH 7400A.
- J. Test Reports:
  - 1. Promptly process and distribute one copy of the test results, to the Commissioner.
  - 2. Prompt reports are necessary so that if required, modifications to work methods and/or practices may be implemented as soon as possible.
  - 3. Asbestos abatement contractor shall by facsimile notify the Commissioner within 24 hours of the results of each test, followed by written notification within three days.
- K. Competent person shall conduct inspections and provide written reports daily. Inspections will include checking the standard operating procedures, engineering control systems, respiratory protection and decontamination systems, packaging and disposal of asbestos waste, and any other aspects of the project which may affect the health and safety of the people and environment.
- L. All costs for required air monitoring by the asbestos abatement contractor's competent person shall be borne by the asbestos abatement contractor.
- M. The City reserves the right to conduct air and surface dust sampling in conjunction with and separate from the Third-Party Air Monitor for the purposes of Quality Assurance.
- N. All samples shall be accompanied by a Chain of Custody Record that shall be submitted to the Construction Project Manager upon completion of analysis.

### 1.18 THIRD PARTY MONITORING AND LABORATORY

- A. The NYCDDC, at its own expense, will employ the services of an independent Third Party Air Monitoring Firm and Laboratory. The Third Party Air Monitor will perform air sampling activities and project monitoring at the Work Site.

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- B. The Laboratory will perform analysis of air samples utilizing Phase Contrast Microscopy (PCM) and/or Transmission Electron Microscopy (TEM). This laboratory shall meet the standards stated in Paragraph 1.17. B.
- C. Observations will include, but not be limited to, checking the standard operating procedures, engineering control systems, respiratory protection, decontamination systems, packaging and disposal of asbestos waste, and any other aspects of the project that may affect the health and safety of the environment, Asbestos abatement contractor, and/or facility occupants.
- D. The Third Party Air Monitoring Firm and the designated Project Monitor shall have access to all areas of the asbestos removal project at all times and shall continuously inspect and monitor the performance of the asbestos abatement contractor to verify that said performance complies with this Specification. The Third-Party Air Monitor shall be on site throughout the entire abatement operation.
- E. The NYCDDC will be responsible for costs incurred with the Third Party Air Monitoring Firm and laboratory work. Any subsequent additional testing required due to limits exceeded during initial testing shall be paid for by the Asbestos abatement contractor.
- F. At a minimum, air sampling shall be conducted in accordance with the following schedule:

<b>Abatement Activity</b>	<b>Pre-Abatement</b>	<b>During Abatement</b>	<b>Post-Abatement</b>
Equal to or greater than 10,000 square feet or 10,000 linear feet of ACM	PCM	PCM	TEM
Less than 10,000 square feet or 10,000 linear feet of ACM	PCM	PCM	PCM

Note: TEM is acceptable wherever PCM is required.

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- G. The number of air samples required per stage of abatement and size of abatement project is listed in the table below:

		Pre-Abatement	During Abatement	Post Abatement
<b>Large Asbestos Projects</b>				
1.	Full Containment	10	5	10
2.	Glovebag inside Tent	5 <sup>a</sup>	5 <sup>a</sup>	5 <sup>a</sup>
3.	Exterior Foam and Vertical Surfaces	-	5 <sup>c</sup>	5 <sup>d</sup>
4.	Interior Foam	10	5 <sup>c</sup>	10 <sup>d</sup>
<b>Small Asbestos Projects</b>				
1.	Full Containment	6	3	6
2.	Glovebag inside Tent	3 <sup>b</sup>	3 <sup>b</sup>	3 <sup>b</sup>
3.	Tent	3 <sup>b</sup>	3 <sup>b</sup>	3 <sup>b</sup>
4.	Exterior Foam and Vertical Surfaces	-	3 <sup>c</sup>	3 <sup>d</sup>
5.	Interior Foam	6	3 <sup>c</sup>	6 <sup>d</sup>
<b>Minor Projects</b>				
1.	Glovebag inside Tent	-	-	1 <sup>d</sup>
2.	Tent	-	-	1 <sup>d</sup>
3.	Exterior Foam and Vertical Surfaces	-	-	1 <sup>d</sup>
4.	Interior Foam	-	-	1 <sup>d</sup>

**Notes:**

- a. if more than three (3) tents then two (2) samples required per enclosure.
- b. if more than three (3) tents then one (1) sample required per enclosure.
- c. samples shall be taken within the work area(s).
- d. area sampling is required only if:
  - visible emissions are detected during the project
  - during-abatement area sampling results exceeded 0.01 f/cc or the pre-abatement area sampling result(s) for interior projects where applicable.
  - work area to be reoccupied is an interior space at a school, healthcare, or daycare facility.

- H. Prior to commencement of abatement activities, the Third Party Air Monitoring Firm will collect a minimum number of area samples inside each homogeneous work area.

1. Samples will be taken during normal occupancy activities and circumstances at the work site.

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2. Samplers shall be located within the proposed work area and at all proposed isolation barrier locations.
  3. Samples shall be analyzed using PCM.
  4. The number of samples to be collected will be determined by the size of the project and the abatement methods to be utilized.
- I. Frequency and duration of the air sampling during abatement shall be representative of the actual conditions during the abatement. The size of the asbestos project will be a factor in the number of samples required to monitor the abatement activities. The following minimum schedule of samples shall be required daily.
1. For large asbestos projects employing full containment, area air sampling shall be performed at the following locations:
    - a. Two area samples outside the work area in uncontaminated areas of the building, remote from the decontamination facilities.
      - (1) Primary location selection shall be within 10 feet of isolation barriers.
      - (2) Where negative ventilation exhaust runs through uncontaminated building areas, one of the area samples will be required in these areas to monitor any potential fiber release.
      - (3) Where exhaust tubes have been grouped together in banks of up to five (5) tubes, with each tube exhausting separately and the bank of tubes terminating together at the same controlled area, one area air sample shall be taken.
    - b. One area sample within the uncontaminated entrance to each decontamination enclosure system.
    - c. Where adjacent non-work areas do not exist, an exterior area sample shall be taken.
    - d. One area sample within 5 feet of the unobstructed exhaust from a negative pressure ventilation system exhausting indoors but not within a duct.
    - e. One area sample outside, but within 25 feet of, the building or structure, if the entire building or structure is the work area.
  2. For large asbestos projects involving interior foam method, area air sampling shall be performed at the following sampling locations:

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- a. One area sample taken outside the work area within 10 feet of isolation barriers.
  - b. One area sample taken within the uncontaminated entrance to each worker decontamination and waste decontamination enclosure system.
  - c. One area sample within 5 feet of the unobstructed exhaust from a negative pressure ventilation system exhausting indoors but not within a duct, if applicable.
  - d. Three area samples inside the work area.
  - e. One area sample where the negative ventilation exhaust ducting runs through uncontaminated building areas, if applicable.
3. For large asbestos projects employing the glovebag procedure within a tent, a minimum of five continuous air samples shall be taken concurrently with the abatement for each work area, unless there are more than three enclosures, in which case two area samples per enclosure are required.
- a. Four area samples taken outside the work area within ten feet of tent enclosure(s).
  - b. One area sample taken within the uncontaminated entrance to each worker and waste decontamination enclosure system.
  - c. One area sample within five feet of the unobstructed exhaust from a negative pressure ventilation system exhausting indoors, but not within a duct, if applicable.
  - d. One area sample where negative ventilation exhaust ducting runs through uncontaminated building areas, if applicable.
4. For large asbestos projects involving exterior foam method or removal of ACM from vertical surfaces, a minimum of five continuous area samples shall be taken concurrently with the abatement for each work area using the following minimum requirements:
- a. Three area samples inside the work area and remote from the decontamination systems.
  - b. One area sample within the uncontaminated entrance to each worker and waste decontamination enclosure system.
  - c. One area sample outside the work area within 25 feet of the building or structure, if the entire building or structure is the work area.

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- d. One area sample inside the building or structure at the egress point to the work area, if applicable.
5. For small asbestos projects employing full containment, a minimum of three continuous area samples shall be taken concurrently with the abatement for each work area at the following locations:
    - a. Two area samples taken outside the work area within ten feet of the isolation barriers.
    - b. One area sample within the uncontaminated entrance to each worker or waste decontamination enclosure system.
    - c. One area sample within five feet of the unobstructed exhaust from a negative pressure ventilation system exhausting indoors, but not within a duct, if applicable.
    - d. One area sample where negative ventilation exhaust ducting runs through an uncontaminated building area, if applicable.
  6. Tent Procedures:

For projects involving more than 25 linear feet or 10 square feet, a minimum of three continuous samples shall be taken concurrently throughout abatement.
- J. Post-abatement clearance air monitoring for projects not solely employing glove-bag procedures shall include a minimum number of area samples inside each homogeneous work area and outside each homogeneous work area (five samples inside/five samples outside for Large Projects and three samples inside/three samples outside for Small Projects). In addition to the five sample inside/five sample outside minimum for Large Projects, one additional representative area sample shall be collected inside and outside the work area for every 5,000 square feet above 25,000 square feet of floor space where ACM has been abated.
  - K. Post-abatement clearance air monitoring for Small Projects solely employing glove-bag procedures is not required unless one or more of the following events occurs. In such cases, post-abatement clearance air monitoring procedures shall be followed. The events requiring post-abatement clearance air monitoring are:
    1. The integrity of the glove-bag was compromised,
    2. Visible emissions are detected outside the glove-bag, and/or
    3. Ambient levels exceed 0.01 f/cc during abatement.
  - L. Monitoring requirements for other than post-abatement clearance air monitoring are as follows:

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1. The sampling zone for indoor air samples shall be representative of the building occupants' breathing zone.
  2. If possible, outdoor ambient and baseline samplers should be placed about 6 feet above the ground surface in reasonable proximity to the building and away from obstructions and drafts that may unduly affect airflow.
  3. For outdoor samples, if access to electricity and concerns about security dictate a rooftop site, locations near vents and other structures on the roof that would unduly affect airflow shall be avoided.
  4. Air sampling equipment shall not be placed in corners of rooms or near obstructions such as furniture.
  5. Samples shall have a chain of custody record.
- M. Area air sampling during abatement shall be conducted as specified in the following documents except as restricted or modified herein:
1. Measuring Airborne Asbestos Following an Abatement Action, US EPA document 600/4-85-049 (Nov., 1985);
  2. Guidance for Controlling Asbestos-Containing Materials in Buildings; US EPA Publication 560/5-85- 024 (June, 1984);
  3. Methodology for the Measurement of Airborne Asbestos by Electron Microscopy US EPA Contract No. 68-02- 3266;
  4. Mandatory and non-mandatory Electron Microscopy Methods set forth in 40 CFR Part 763, Subpart E, Appendix A.
  5. NIOSH 7400 method using "A" counting rules
- N. In accordance with the above criteria, area samples (see NYCDEP Asbestos Control Program Regulations) shall conform to the following schedule:

Area Samples for Analysis by	Minimum Volume	Flow Rate
PCM, 25mm cassettes	560 liters	5 to 15 liters/minute
TEM, 25mm cassettes	560 liters	1 to 10 liters/minute
TEM, 37mm cassettes	1,250 liters	1 to 10 liters/minute

- O. Post-abatement clearance air monitoring requirements are as follows:
1. Sampling shall not begin until at least one hour after wet cleaning has been completed and no visible pools of water or condensation remain.
  2. Samplers shall be placed at random around the work area. If the work area contains the number of rooms equivalent to the number of required samples

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based on floor area, a sampler shall be placed in each room. When the number of rooms is greater than the required number of samples, a representative sample of rooms shall be selected.

3. The representative samplers placed outside the work area but within the building shall be located to avoid any air that might escape through the isolation barriers and shall be approximately 50 feet from the entrance to the work area, and 25 feet from the isolation barriers.
- P. The following aggressive sampling procedures shall be used within the work area during all clearance air monitoring:
1. Before starting the sampling pumps, use forced air equipment (such as a one horsepower leaf blower) to direct exhaust air against all walls, ceilings, floors, ledges and other surfaces in the work area. This pre-sampling procedure shall take at least five minutes per 1,000 square feet of floor area; then
  2. Place a 20-inch diameter fan in the center of the room. Use one fan per 10,000 cubic feet of room space. Place the fan on slow speed and point it toward the ceiling.
  3. Start the sampling pumps and sample for the required time or volume.
  4. Turn off the pump and then the fan(s) when sampling is completed.
  5. Collect a minimum number of area samples inside and outside each homogeneous work area (five inside/five outside samples for Large Projects and three inside/three outside samples for Small Projects). In addition to the minimum for Large Projects, one representative area samples shall be collected inside and outside the work area for every 5,000 square feet above 25,000 square feet of floor space where ACM has been abated.
- Q. For post-abatement monitoring, area samples shall conform to the following schedule:

Area Samples for Analysis by	Minimum Volume	Flow Rate
PCM	1,800 liters	5 to 15 liters/minute
TEM	1,250 liters	1 to 10 liters/minute

1. Each homogeneous work area that does not meet the clearance criteria shall be thoroughly re-cleaned using wet methods, with the negative pressure ventilation system in operation. New samples shall be collected in the work area as described above. The process shall be repeated until the work site meets the clearance criteria.
2. For an asbestos project with more than one homogeneous work area, the release criterion shall be applied independently to each work area.



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3. Should airborne fiber concentrations exceed the clearance criteria, the asbestos abatement contractor shall re-clean the work area utilizing wet wiping and HEPA-vacuuming techniques. Following completion of re-cleaning activities, the Third-Party Air Monitor will perform an observation of the Work Area. If the Third-Party Air Monitor determines that the work was performed in accordance with the specifications, the appropriate settling period will be observed and additional air sampling will be performed.
4. All costs resulting from additional air tests and observations shall be borne by the asbestos abatement contractor. These costs may include, but are not limited to, labor, analysis fees, materials, and expenses.
5. After the area has been found to be in compliance, the asbestos abatement contractor may remove Isolation Barriers and perform final cleaning as specified.

### R. Clearance and/or Re-occupancy Criteria:

1. The clearance criteria shall be applied to each homogeneous work area independently.
2. For PCM analysis, the clearance air monitoring shall be considered satisfactory when each of the 5 inside/5 outside samples for Large Projects and/or 3 inside/3 outside samples for Small Projects is less than or equal to 0.01 f/cc or the background concentrations, whichever is greater.
3. For TEM analysis, the clearance air monitoring shall be considered satisfactory when the requirements stated in 40 CFR Part 763, Subpart E, Appendix A, Section IV are met.
4. As soon as the air monitoring tests are completed, the Third-Party Air Monitor will send the results of such tests to the City and notify the Asbestos abatement contractor.
5. The asbestos abatement contractor shall initiate the appropriate closeout information into the DEP ARTS database within 24 hours of work area completion to allow the Third Party Air Monitoring Firm to complete and submit the ACP-15 forms for each specific work area.
6. The asbestos abatement contractor shall provide the ACP-20 and ACP-21 forms to the Third Party Air Monitoring Firm within 48 hours of receipt.

### 1.19 TAMPERING WITH TEST EQUIPMENT

All parties to this Contract are hereby notified that any tampering with testing equipment will be considered an attempt at falsifying reports and records to federal and state

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agencies and each offense will be prosecuted under applicable state and federal criminal codes to the fullest extent possible.

### 1.20 GUARANTEE

- A. Work performed in compliance with this Contract shall be guaranteed for a period of one year from the date the completed work is accepted by the City.
- B. The asbestos abatement contractor shall not be held liable for the guarantee where the repair required under the guarantee is a result of obvious abuse or vandalism, as determined by the Commissioner.
- C. The City will notify the asbestos abatement contractor in writing regarding defects in work under the guarantee.

## PART 2 – PRODUCTS

### 2.01 MATERIAL HANDLING

- A. Deliver all materials to the job site in their manufacturer's original container, with the manufacturer's label intact and legible.
  - 1. Maintain packaged materials with seals unbroken and labels intact until time of use.
  - 2. Store all materials on pallets, away from any damp and/or wet surface. Cover materials in order to prevent damage and/or contamination.
  - 3. Promptly remove damaged materials and unsuitable items from the job site, and promptly replace with material meeting the specified requirements, at no additional cost to the City.
- B. The Construction Project Manager may reject as non-complying such material and products that do not bear identification satisfactory to the Construction Project Manager as to manufacturer, grade, quality and other pertinent information.

### 2.02 MATERIALS

- A. Wetting agents: (Surfactant) shall consist of resin materials in a water base, which have been tested to ensure materials are non-toxic and non-hazardous. Surfactants shall be installed according to the manufacturer's written instructions.
- B. Encapsulants: Liquid material which can be applied to asbestos-containing material which temporarily controls the possible release of asbestos fibers from the material or surface either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant). A thin coat of lockdown encapsulant shall be applied to all surfaces in the work area which were not the subject of removal or

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abatement, including the cleaned layer of the surface barriers, but excepting sprinklers, standpipes, and other active elements of the fire suppression system.

- C. During abatement activities, replacement materials shall be stored outside the work area in a manner to prevent contamination. Materials required for the asbestos project (i.e., plastic sheeting, replacement filters, duct tape, etc.) shall be stored to prevent damage or contamination.
- D. Framing Materials and Doors: As required to construct temporary decontamination facilities and isolation barriers. Lumber shall be high grade, new, finished one side and fire retardant.
- E. Fire Retardant Polyethylene Sheeting: minimum uniform thickness of 6-mil. Provide largest size possible to minimize seams. All materials used in the construction of temporary enclosures shall be noncombustible or fire-retardant in accordance with NFPA 701 and 255.
- F. Fire Retardant Reinforced Polyethylene Sheeting: For covering floor of decontamination units, provide translucent, nylon reinforced or woven polyethylene laminated, fire retardant polyethylene sheeting. Provide largest size possible to minimize seams, minimum uniform thickness 6-mil. All materials used in the construction of temporary enclosures shall be noncombustible or fire-retardant in accordance with NFPA 701 and 255.
- G. Drums: Asbestos-transporting drums, sealable and clearly marked with warning labels as required by OSHA and EPA.
- H. Polyethylene Disposal Bags: Asbestos disposal bags, minimum of fire retardant 6-mil thick. Bags shall be clearly marked with warning labels as required by OSHA and EPA.
- I. Signs: Asbestos warning signs for posting at perimeter of Work Area, as required by OSHA and EPA.
- J. Waste Container Bag Liners and Flexible Trailer Trays: One piece leak-resistant flexible tray with absorbent pad.
- K. Tape: Provide tape which is of high quality with an adhesive that is formulated to aggressively stick to sheet polyethylene.
- L. Spray Adhesive: Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene.
- M. Flexible Duct: Spiral reinforced flex duct for air filtration devices.
- N. Protective Clothing: Workers shall be provided with sufficient sets of properly fitting, full-body, disposable coveralls, head covers, gloves, and 18-inch high

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boot-type foot covers. Protective clothing shall conform to OSHA Standard 29 CFR 1926.1101.

- O. Surfactants, strippers, sealers, or any other chemicals used shall be non-carcinogenic and non-toxic.
- P. Materials used in the construction of temporary enclosures shall be noncombustible or fire-retardant in accordance with NFPA 701 and 255.

### 2.03 TOOLS AND EQUIPMENT

- A. Air Filtration Device (AFD): AFDs shall be equipped with High Efficiency Particulate Air (HEPA) filtration systems and shall be approved by and listed with Underwriter's Laboratory.
- B. Scaffolding: All scaffolding shall be designed and constructed in accordance with OSHA (29 CFR 1926/1910), New York City Building Code, and any other applicable federal, state and local government regulations. Whenever there is a conflict or overlap of the above references the most stringent provisions are applicable. All scaffolding and components shall be capable of supporting without failure a minimum of four times the maximum intended load, plus an allowance for impact. All scaffolding and staging must be certified in writing by a Professional Engineer licensed to practice in the State of New York.
  - 1. Equip rungs of all metal ladders, etc., with an abrasive, non-slip surface.
  - 2. Provide non-skid surface on all scaffold surfaces subject to foot traffic. Scaffold ends and joints shall be sealed with tape to prevent penetration of asbestos fibers.
- C. Transportation Equipment: Transportation Equipment, as required, shall be suitable for loading, temporary storage, transit and unloading of asbestos contaminated waste without exposure to persons or property. Any temporary storage containers positioned outside the building for temporary storage shall be metal, closed and locked.
- D. Vacuum Equipment: All vacuum equipment utilized in the Work Area shall utilize HEPA filtration systems.
- E. Vacuum Attachments: Soft Brush Attachment, Asbestos Scraper Tool, Drill Dust Control Kit.
- F. Electric Sprayer: An electric airless sprayer suitable for application of encapsulating material and shall be approved by and listed with Underwriters Laboratory.
- G. Water Sprayer: The water sprayer shall be an airless or other low-pressure sprayer

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for amended water application.

- H. Water Atomizer: Powered air-misting device equipped with a ground fault interrupter and equipped to operate continuously.
- I. Brushes: All brushes shall have nylon bristles. Wire brushes are excluded from use due to their potential to shred asbestos fibers into small, fine fibers. Wire brushes maybe used for cleaning pipe joints within glove-bags upon written approval of the Construction Project Manager.
- J. Power tools used to drill, cut into, or otherwise disturb ACM shall be manufacturer-equipped with HEPA filtered local exhaust ventilation. Abrasive removal methods, including the use of beadblasters, are prohibited.
- K. Other Tools and Equipment: Asbestos abatement contractor shall provide other suitable tools for the stripping, removal, encapsulation, and disposal activities including but not limited to: hand-held scrapers, sponges, rounded-edge shovels, brooms, and carts.
- L. Fans and Leaf Blower: Provide Leaf Blower (one leaf blower per floor) and one 20-inch diameter fans for each 10,000 cubic feet of Work Area volume to be used for aggressive sampling technique for clearance air testing.
- M. Fire Extinguishers: At least one fire extinguisher with a minimum rating 2-A:10-B:C shall be required for each work place. In the case of large asbestos projects, at least two such fire extinguishers shall be required.
- N. First Aid Kits: Asbestos abatement contractor shall maintain adequately stocked first aid kits in the clean rooms of the decontamination units and within Work Areas. The first aid kit shall be approved by a licensed physician for the work to be performed under this Contract.
- O. Water Service:
  - 1. Temporary Water Service Connection: All connections to the Facilities water system shall include back flow protection. Valves shall be temperature and pressure rated for operation of the temperature and pressures encountered. After completion of use, connections and fittings shall be removed without damage or alteration to existing water piping, and equipment. Leaking or dripping fittings/valves shall be repaired and or replaced as required.
  - 2. Water Hoses: Employ new heavy-duty abrasion-resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system to provide water into each Work Area and to each Decontamination Enclosure Unit. Provide fittings as required for connection to existing wall hydrants or spouts, as well as temporary water heating equipment, branch

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piping, showers, shut-off nozzles and equipment.

3. **Water Heater:** Provide UL rated 40-gallon electric water heaters to supply hot water for Personal Decontamination Enclosure System Shower. Activate from 30 Amp Circuit breakers located within the Decontamination Enclosure sub panel. Provide relief valve compatible with water heater operations, pipe relief valve down to drip pan at floor level with type 'L' copper piping. Drip pans shall be 6-inch deep and securely fastened to water heater. Wiring of the water heater shall comply with NEMA, NECA, and UL standards.

### P. Electrical Service:

1. **General:** Comply with applicable NEMA, NECA and UL standards and governing regulations for materials and layout of temporary electric service.
2. **Temporary Power:** Provide service to decontamination unit sub panel with minimum 60 AMP, two pole circuit breaker or fused disconnect connected to the building's main distribution panel. Sub panel and disconnect shall be sized and equipped to accommodate all electrical equipment required for completion of the work.
3. **Voltage Differences:** Provide identification warning signs at power outlets that are other than 110-120 volt power. Provide polarized outlets for plug-in type outlets, to prevent insertion of 110-120 volt plugs into higher voltage outlets. Dry type transformers shall be provided where required to provide voltages necessary for work operations.
4. **Ground Fault Protection:** Equip all circuits for any purpose entering Work Area with ground fault circuit interrupters (GFCI). Locate the GFCIs outside the Work Area so that all circuits are protected prior to entry to Work Area. Provide circuit breaker type ground fault circuit interrupters (GFCI) equipped with test button and reset switch for all circuits to be used for any purpose in Work Area, decontamination units, exterior, or as otherwise required by NEC, OSHA or other authority.
5. **Power Distribution System:** Provide circuits of adequate size and proper characteristics for each use. In general run wiring overhead, and rise vertically where wiring will be least subject to damage from operations.
6. **Temporary Wiring:** In the Work Area shall be type UF non-metallic sheathed cable located overhead and exposed for surveillance. Provide liquid tight enclosures or boxes for all wiring devices. Do not wire temporary lighting with plain, exposed (insulated) electrical conductors.
7. **Electrical Power Cords:** Use only grounded extension cords; use hard service cords where exposed to traffic and abrasion. Use single lengths of cords only.

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8. Temporary Lighting: All lighting within the Work Area shall be liquid and moisture proof and designed for the use intended.
  - a. Provide sufficient temporary lighting to ensure proper workmanship everywhere; by combined use of daylight, general lighting, and portable plug-in task lighting.
  - b. Provide lighting in the Decontamination Unit as required to supply a minimum 50-foot candle light level.
9. If electrical circuits, machinery, and other electrical systems in or passing through the work area must stay in operation due to health and safety requirements, the following precautions must be taken:
  - a. All unprotected cables, except low-voltage (less than 24 volts) communication and control system cables, panel boxes of cables and joints in live conduit that run through the work area shall be covered with three (3) independent layers of six (6) mil fire retardant polyethylene. Each layer shall be individually duct taped and sealed. All three (3) layers of polyethylene sheeting shall be left in place until satisfactory clearance air sampling results have been obtained.

### 2.04 CLEANING

- A. Throughout the construction period, the asbestos abatement contractor shall maintain the building as described in this Section.
  1. The asbestos abatement contractor shall prevent building areas other than the Work Area from becoming contaminated with asbestos-containing dust or debris. Should areas outside the Work Area become contaminated with asbestos-containing dust or debris as a consequence of the asbestos abatement contractor's work practices, the asbestos abatement contractor shall be responsible for cleaning these areas in accordance with the procedures appended in Title 15, Chapter 1 of RCNY and NYSDOL ICR56. All costs incurred in cleaning or otherwise decontaminating non-Work Areas and the contents thereof shall be borne by the asbestos abatement contractor at no additional cost to the City.
  2. The asbestos abatement contractor shall provide to all personnel and laborers the required equipment and materials needed to maintain the specified standard of cleanliness.
- B. General
  1. Waste water from asbestos removal operations, including shower water, may be discharged into the public sewer system only after approved filtration is on operation to remove asbestos fibers.

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2. Asbestos wastes shall be double bagged in six mil (.006") fire retardant polyethylene bags approved for ACM disposal and shall be properly labeled and handled before disposal.
3. All waste generated shall be bagged, wrapped or containerized immediately upon removal. The personal and waste decontamination enclosure systems and floor and scaffold surfaces shall be HEPA vacuumed and wet cleaned at the end of each work shift at a minimum.
4. The asbestos abatement contractor shall use corrugated cartons or drums for disposal of asbestos-containing waste having sharp edged components (e.g., nails, screws, metal lathe and tin sheeting) that may tear polyethylene bags and sheeting. The waste within the drums or cartons must be double bagged.
5. The asbestos abatement contractor shall transport all bags of waste to disposal site in thirty gallon capacity metal or fiber drums with tight lids, or in locked steel dumpster.
6. Dumping of debris, waste or bagged waste will not be permitted.
7. The waste decontamination enclosure system shall be wet cleaned twice using wet cleaning methods upon completion of waste removal. When the worker decontamination enclosure shower room alternates as a waste container wash room, the shower room shall be washed immediately with cloths or mops saturated with a detergent solution prior to wet cleaning.
8. Excessive water accumulation or flooding in the work area shall require work to stop until the water is collected and disposed of properly.
9. ACM shall be collected utilizing rubber dust pans and rubber squeegees.
10. HEPA vacuums shall not be used on wet materials unless specifically designed for that purpose.
11. Metal shovels shall not be used within the work area.
12. Mastic solvent when used will be applied in moderation (e.g., by airless sprayer). Saturation of the concrete floor with mastic solvent must be avoided.
13. The asbestos abatement contractor shall retain all items in the storage area in an orderly arrangement allowing maximum access, not impeding traffic, and providing the required protection of all materials.
14. The asbestos abatement contractor shall not allow accumulation of scrap, debris, waste material, and other items not required for use in this work. When asbestos contaminated waste must be kept on the work site overnight



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or longer, it shall be double bagged and stored in accordance with New York City Department of Sanitation (NYCDOS) regulation Title 16 Chapter 8, and Federal, State and City laws.

15. At least twice a week (more if necessary), the asbestos abatement contractor shall completely remove all scrap, debris and waste material from the job site.
16. The asbestos abatement contractor shall provide adequate storage space for all items awaiting removal from the job site, observing all requirements for fire protection and concerns for the environment.
17. All respiratory protection equipment shall be selected from the latest NIOSH Certified Equipment list.
18. Daily and more often, if necessary, the asbestos abatement contractor shall inspect the Work Areas and adjoining spaces, and pick up all scrap, debris, and waste material. All such items shall be removed to the place designated for their storage.
19. Weekly, and more often, if necessary, the asbestos abatement contractor shall inspect all arrangements of materials stored on the site; re-stack and tidy them or otherwise service them to meet the requirements of these Specifications.
20. The asbestos abatement contractor shall maintain the site in a neat and orderly condition at all times.

### PART 3 – EXECUTION

#### 3.01 WORKER DECONTAMINATION FACILITY

##### A. Large Asbestos Projects (Small Project Option):

1. Provide a worker decontamination facility in accordance with, Title 15, Chapter 1, OSHA Standard 29 CFR 1926.1101, 12NYCRR Part 56 and as specified herein. Unless approved by NYCDEP and the City, worker decontamination facilities shall be attached to the Work Areas
  - a. Structure:
    - (1) Use modular systems or build using wood or metal frame studs, joists, and rafters placed at a maximum of 16 inches on-center.

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- (2) When worker decontamination unit is located outdoors, in areas with public access, or in correctional facilities, frame work shall be lined with minimum 3/8" thickness fire rated plywood sheathing. Sheathing shall be caulked or taped airtight at all joints and seams.
  - (3) Interior shall be covered with two layers of fire retardant 6-mil polyethylene sheeting, with a minimum overlap of 12 inches at seams. Seal seams airtight using tape and adhesive. The interior floor shall be covered with two (2) layers of reinforced fire-retardant polyethylene sheeting with a minimum overlap on the walls of twelve inches.
  - (4) Entrances to the decontamination unit shall be secured with lockable hinged doors. Doors shall be open at all times when abatement operations are in progress. Doors shall be louvered to allow for air movement through the decontamination units into Work Area.
- b. **Curtained Doorways:** A device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms.
  - c. **Air Locks:** Air locks shall consist of two curtained doorways placed a minimum of three feet apart.
  - d. **Decontamination Enclosure System** shall be placed adjacent to the Work Area and shall consist of three totally enclosed chambers, separated from Work Area and each other by airlocks, as follows:
    - (1) **Equipment Room:** The equipment room shall have a curtain doorway to separate it from the Work Area, and share a common airlock with the shower room. The equipment room shall be large enough to accommodate at least one worker (allowing them enough room to remove their protective clothing and footwear), and a fire retardant 6-mil disposal bag for collection of discarded clothing and equipment. The equipment room shall be utilized for the storage of equipment and tools after decontamination using a HEPA-vacuum and/or wet cleaning. A one-day supply of replacement filters, in sealed containers, for HEPA-vacuums and negative air machines, extra tools, containers of surfactant, and other materials and equipment required for the project shall be stored here. A walk-off pan filled with water shall be placed in the Work Area just outside the equipment room for persons to clean foot coverings when leaving the Work Area.

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Contaminated footwear and reusable work clothing shall be stored in this room.

- (2) Shower Room: The shower room shall have two airlocks (one that separates it from the equipment room and one that separates it from the clean room). The shower room shall contain at least one shower, with hot and cold water adjustable at the tap, per six workers. Careful attention shall be given to the shower to ensure against leaking of any kind and shall contain a rigid catch basin at least six inches deep. Asbestos abatement contractor shall supply towels, shampoo and liquid soap in the shower room at all times. Shower water shall be continuously drained, collected, and filtered through a system with at least a 5-micron particle size collection capacity. A system containing a series of several filters with progressively smaller pore sizes shall be used to avoid rapid clogging of the filters by large particles. Pumps shall be installed, maintained and utilized in accordance with manufacturer's recommendations. Filtered water shall be discharged in accordance with applicable codes. Contaminated filters shall be disposed of as asbestos waste.
- (3) Clean Room: The clean room shall share a common airlock with the shower room and shall have a curtained doorway to separate it from outside non-contaminated areas. Lockers, for storage of workers' street clothing, and shelves, for storing respirators, shall be provided in this area. Clean disposable clothing, replacement filters for respirators, and clean dry towels shall be provided in the clean room. The clean room shall not be used for the storage of tool, equipment or other materials.

### B. Small Asbestos Projects:

1. Provide a worker decontamination facility in accordance with, Title 15, Chapter 1, OSHA Standard 29 CFR 1926.1101, 12NYCRR Part 56 and as specified herein. Unless approved by NYCDEP and the City, worker decontamination facilities shall be attached to the Work Areas.
2. The worker decontamination enclosure system shall consist of, as a minimum, an equipment room, a shower room, and a clean room separated from each other and from the work area by curtained doorways. The equipment storage, personnel gross decontamination and removal of disposal clothing shall occur in the equipment room prior to entering the shower. All other requirements shall be the same as described above for a large asbestos project.

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3. For small asbestos projects with only one exit from the work area, the shower room may be used as a waste washroom. The clean room shall not be used for waste storage. All other requirements shall be the same as described above for a large asbestos project.
- C. Decontamination Enclosure System Utilities: Lighting, heat, and electricity shall be provided as necessary by the Asbestos abatement contractor, and as specified herein.

### 3.02 WASTE DECONTAMINATION FACILITY

#### A. Large Asbestos Project (Small Project Option)

1. Provide a worker decontamination facility in accordance with, Title 15, Chapter 1, OSHA Standard 29 CFR 1926.1101, 12NYCRR Part 56 and as specified herein. Unless approved by NYCDEP and the City, worker decontamination facilities shall be attached to the Work Areas.
  - a. Structure:
    - (1) Use modular systems or build using wood or metal frame studs, joists, and rafters placed at a maximum of 16 inches on-center.
    - (2) When worker decontamination unit is located outdoors, in areas with public access, or in correctional facilities, frame work shall be lined with minimum 3/8" thickness fire rated plywood sheathing. Sheathing shall be caulked or taped airtight at all joints and seams.
    - (3) Interior walls shall be covered with two layers of fire retardant 6-mil polyethylene sheeting, with a minimum overlap of 12 inches at seams. Seal seams airtight using tape and adhesive. The interior floor shall be covered with two (2) layers of reinforced fire-retardant polyethylene sheeting with a minimum overlap on the walls of twelve inches.
    - (4) Entrances to the decontamination unit shall be secured with lockable hinged doors. Doors shall be open at all times when abatement operations are in progress. Doors shall be louvered to allow for air movement through the decontamination units into the Work Area.
  - b. Curtained Doorways: A device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms.

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- c. Air Locks: Air locks shall consist of two curtained doorways placed a minimum of three feet apart.
  - d. Decontamination Enclosure System shall be located outside the work area and attached to all locations through which ACM waste will be removed from the work area and shall consist of two totally enclosed chambers, separated from the Work Area and each other by airlocks, as follows:
    - (1) Washroom: An equipment washroom shall have two air locks (one separating the unit from the Work Area and one common air lock that separates it from the holding area). The washroom shall have facilities for washing material containers and equipment. Gross removal of dust and debris from contaminated material containers and equipment shall be accomplished in the Work Area, prior to moving to the washroom.
    - (2) Holding Area: A holding area shall share a common air lock with the equipment washroom and shall have a curtained doorway to outside areas. A hinged, lockable door shall be placed at the holding area entrance to prevent unauthorized access into the Work Area.
- B. Small Asbestos Project:
- 1. The worker decontamination enclosure system shall consist of, as a minimum, an equipment room, a shower room, and a clean room separated from each other and from the work area by curtained doorways. The equipment storage, personnel gross decontamination and removal of disposal clothing shall occur in the equipment room prior to entering the shower. All other requirements shall be the same as described above for a large asbestos project.
  - 2. For small asbestos projects with only one exit from the work area, the shower room may be used as a waste washroom. The clean room shall not be used for waste storage. All other requirements shall be the same as described above for a large asbestos project.
- C. Decontamination Enclosure System Utilities: Lighting, heat, and electricity shall be provided as necessary by the Asbestos abatement contractor, and as specified herein.

**3.03 PERSONNEL ENTRANCE AND DECONTAMINATION PROCEDURES FOR REMOVAL OPERATIONS UTILIZING REMOTE DECONTAMINATION FACILITIES**

- A. All individuals who enter the Work Area shall sign the entry log, located in the clean room, upon each entry and exit. The log shall be permanently bound and shall fully identify the facility, agents, asbestos abatement contractor(s), the project, each Work Area, and worker respiratory protection employed. The job supervisor shall be responsible for the maintenance of the log during the abatement activity. The log shall be submitted to the NYC DDC within 48 hours of request.
- B. Each worker shall remove street clothes in the clean room; wear two disposable suits, including gloves, hoods and non-skid footwear; and put on a clean respirator (with new filters) before entering the Work Area.
- C. Each worker shall, before leaving the Work Area or tent, clean the outside of the respirators and outer layer of protective clothing by wet cleaning and/or HEPA-vacuuming. The outer disposable suit shall be removed in the airlock prior to proceeding to the Worker Decontamination Unit. The inner disposable suit and respirator shall be wet wiped and HEPA vacuumed thoroughly before removing and prior to aggressive shower.
- D. Following showering and drying off, each worker or authorized visitor shall proceed directly to the clean room, dress in street clothes, and exit the decontamination enclosure system immediately.

**3.04 PERSONNEL ENTRANCE AND DECONTAMINATION PROCEDURES FOR REMOVAL OPERATIONS UTILIZING ATTACHED DECONTAMINATION FACILITIES**

- A. All workers and authorized visitors shall enter the Work Area through the worker decontamination facility.
- B. All individuals who enter the Work Area shall sign the entry log, located in the clean room, upon each entry and exit. The log shall be permanently bound and shall identify fully the facility, agents, asbestos abatement contractor(s), the project, each Work Area and worker respiratory protection employed. The site supervisor shall be responsible for the maintenance of the log during the abatement activity. The log shall be submitted to the NYC DDC within 48 hours of request.
- C. Each worker or authorized visitor shall, upon entering the job site, remove street clothes in the clean room and put on a clean respirator with filters, and clean protective clothing before entering the Work Area through the shower room and equipment room.
- D. Each worker or authorized visitor shall, each time he leaves the Work Area, remove gross contamination from clothing before leaving the Work Area; proceed

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to the equipment room and remove clothing except the respirator; still wearing the respirator, proceed to the shower room; clean the outside of the respirator with soap and water while showering; remove filters, wet them, and dispose of them in the container provided for that purpose; wash and rinse the inside of the respirator; and thoroughly shampoo and wash himself/herself.

- E. Following showering and drying off, each worker or authorized visitor shall proceed directly to the clean room, dress in street clothes, and exit the decontamination enclosure system immediately. Disposable clothing of the type worn inside the Work Area is not permitted outside the Work Area.

### **3.05 MAINTENANCE OF DECONTAMINATION ENCLOSURE FACILITIES AND BARRIERS**

The following procedures shall be followed during abatement activities.

- A. All polyethylene barriers inside the work place and partitions constructed to isolate the Work Area from occupied areas shall be inspected by the asbestos handler supervisor at least twice per shift.
- B. Smoke tubes shall be used to test the integrity of the Work Area barriers and the decontamination enclosure systems daily before abatement activity begins and at the end of each shift.
- C. Damage and defects in the decontamination enclosure system shall be repaired immediately upon discovery. The decontamination enclosure system shall be maintained in a clean and sanitary condition at all times.
- D. At any time during the abatement activity, if visible emissions are observed, or elevated asbestos fiber counts outside the Work Area are measured, or if damage occurs to barriers, abatement shall stop. The source of the contamination shall be located, the integrity of the barriers shall be restored and extended to include the contaminated area, and visible residue shall be cleaned up using appropriate HEPA-vacuuming and wet cleaning.
- E. Inspections and observations shall be documented in the daily project log by the asbestos handler supervisor.
- F. The daily inspection to ensure that exits have been checked against exterior blockage or impediments to exiting shall be documented in the log book. If exits are found to be blocked, abatement activities shall stop until the blockage is cleared.

### **3.06 MODIFICATIONS TO HVAC SYSTEMS**

- A. Shut down, isolate or seal, all existing HVAC units, fans, exhaust fans, perimeter convection air units, supply and/or return air ducts, etc., situated in, traversing or

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servicing the work zone.

- B. Seal all seams with duct tape. Wrap entire duct with a minimum of two layers of fire retardant 6-mil polyethylene sheeting. All shutdowns are to be coordinated with the Facility. Where systems must be maintained, i.e., traversing Work Areas to non-Work Areas, only supply ducts will be maintained, protect as described above. All returns must be blanked off in Work Area and adjacent areas, including floor above and below Work Area. When required Asbestos abatement contractor shall apply for a clarification from NYCDEP. The Asbestos abatement contractor shall implement the following engineering procedures:
1. Maintenance of a positive pressure within the HVAC system of 0.01 inch water gauge (or greater) with respect to the ambient pressure outside the Work Area. The conditions for this system shall be maintained and be operational 24 hours per day from the initiation of Work Area preparation until successful final air clearance. Positive pressurization of HVAC system shall be applied only under the direction and control of professional engineer, or other knowledgeable licensed professional;
  2. The positive pressurization of the duct shall be tested, inspected and recorded both at the beginning and at the end of each shift;
  3. The positive pressurization shall be monitored using instrumentation which will provide a written record of pressurization and that will trigger an audible alarm, if the static pressure falls below the set value;
  4. The supply air fan and the supply air damper for the active positive-pressurized duct shall be placed in the manual "on" positions to prevent shutdown by fail-safe mechanisms;
  5. The return air fan and the return air dampers shall be shut down and locked-out;
  6. All the seams of the HVAC ducts that pass through the Work Area shall be sealed;
  7. The HVAC ducts that pass through the Work Area shall be covered with two (2) layers of fire retardant 6-mil polyethylene sheeting, and all seams and edges of both layers shall be sealed airtight;
  8. The supply air fans, return air fans, and all dampers servicing the Work Area itself shall be shut down and locked-out. All openings within the Work Area of supply and return air ducts shall be sealed with 3/8-inch fire rated plywood and two layers of fire retardant 6-mil polyethylene;



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9. When abatement occurs during periods while the HVAC system is shut down an alternative method of pressurization of the duct passing through the Work Area should be employed (e.g., by low-pressure "blowers", etc., directly coupled into the duct). Item #4 above shall be deleted and shall be replaced by the requirement to set the dampers of the HVAC duct in the manual closed positions, in order to effect pressurization.
- C. Asbestos abatement contractor to coordinate this item with the Facility and Construction Project Manager at the commencement of work. Where present HVAC systems (ducts) service an area and that air system cannot be shut down, asbestos abatement contractor shall isolate and seal the ducts, both supply and return, at the boundary of that zone.
1. To isolate, cap, or seal a duct, the asbestos abatement contractor shall remove insulation from duct (if necessary), then disconnect linkage to fold shut all fire dampers. Asbestos abatement contractor shall seal all edges and seams with caulk and duct-tape.
  2. Asbestos abatement contractor shall then cut existing duct and fold metal in and secure with approved fasteners. Asbestos abatement contractor shall caulk and duct-tape all seams and edges.
  3. All ducts shall then be completely wrapped and sealed with duct-tape and three (3) layers of reinforced polyethylene sheeting.
  4. All ducts shall be restored to original working order at the end of the project.
- D. Where present HVAC systems (ducts) service occupied areas (non-Work Areas), the Asbestos abatement contractor shall blank off the ducts.
1. To isolate or seal the return duct, the asbestos abatement contractor shall remove any insulation (if necessary) from the duct. Then disconnect linkage to fold shut all fire dampers and insert a fiberglass board within the duct. Asbestos abatement contractor shall seal all edges and seams with caulk, duct-tape and three (3) layers of reinforced polyethylene sheeting.
  2. All isolation of return ducts and any other activity that requires removal of ceiling by the asbestos abatement contractor shall be conducted under controls. Work is to be coordinated with the Construction Project Manager and the Facility and is described as follows:
    - a. Work shall occur as scheduled.
    - b. Horizontal surfaces near the blanking operations shall be protected with fire retardant 6-mil polyethylene sheeting.
    - c. Plastic drapes shall be used to enclose the immediate area.

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- d. Asbestos abatement contractor to position and operate air filtration devices and HEPA-vacuums in the area to clean space after blanking operations.
  - e. All personnel involved with this work shall receive personal protection (i.e., respirators and disposable suits).
- E. Upon loss of negative pressure or electric power, all work activities in an area shall cease immediately and shall not resume until negative pressure and/or electric power has been fully restored. When a power failure or loss of negative pressure lasts, or is expected to last, longer than thirty (30) minutes, the following sequence of events shall occur.
- 1. All make up air inlets shall be sealed airtight.
  - 2. All decontamination facilities shall be sealed airtight after evacuation of all personnel from the Work Area.
  - 3. All adjacent areas shall be monitored for potential fiber release upon discovery of and subsequently throughout, power failure.

### **3.07 LOCKOUT OF HVAC SYSTEMS, ELECTRIC POWER, AND ACTIVE BOILERS**

Prior to the start of any prep work, the asbestos abatement contractor shall employ skilled tradesmen with limited asbestos licenses for the following work:

- A. Disable all ventilating systems or other systems bringing air into or exhausting air out of the Work Area. Disable system by disconnecting wires removing circuit breakers, by lockable switch or other positive means to ensure against accidental re-starting of equipment.
- B. Lock out power to the Work Area by switching off all breakers and removing them from panels or by switching and locking entire panel. Label panel with following notation: "DANGER CIRCUIT BEING WORKED ON". Give all keys to Facility.
- C. Lock out power to circuits running through Work Area whenever possible by switching off and removing breakers from panel. If circuits must remain live, the Facility shall notify asbestos abatement contractor in order that he may secure a variance from NYCDEP. The asbestos abatement contractor shall protect all conduit and wires to remain and label all active circuits at intervals not to exceed 3 feet with tags having the following notation: "DANGER LIVE ELECTROCUTION HAZARD". The asbestos abatement contractor shall label all circuits in all locations including hidden locations that may be affected by the work in a similar manner.

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- D. All boilers and other equipment within the work area shall be shut down, locked out, tagged out and the burner/boiler/equipment accesses and openings shall be sealed until abatement activities are complete. If the boiler or other exhausted equipment will be subject to abatement, all breeching, stacks, columns, flues, shafts, and double-walled enclosures serving as exhausts or vents shall be segregated from the affected boiler or equipment and sealed airtight to eliminate potential chimney effects within the work area.

### PART 4 – PREPARATION OF WORK AREA AND REMOVAL PROCEDURES

#### 4.01 REMOVAL OF ASBESTOS-CONTAINING MATERIAL

##### A. Asbestos abatement contractor Responsibility

Asbestos abatement contractor shall be responsible for the proper removal of ACM from the Work Area using standard industry techniques. The Third-Party Air Monitor representative shall observe the Work.

##### 1. General Requirements:

- a. Removal of ACM shall be performed using wet methods. Dry removal of ACM is prohibited.
- b. Spray ACM with amended water with sufficient frequency and quantity to enhance penetration. Sufficient time shall be allowed for amended water to penetrate the material to the substrate prior to removal. All ACM shall be thoroughly wetted while work is being conducted.
- c. Accumulation of standing water on the floor of the Work Area is prohibited.
- d. Apply removal encapsulants, when used, in accordance with the manufacturer's recommendations and guidelines.
- e. Containerize ACM immediately upon detachment from the substrate. Alternately, ACM may be dropped in to a flexible catch basin and promptly bagged. Detached ACM is not permitted to lie on the floor for any period of time. Excess air within the bag shall be removed before sealing. ACM shall not be dropped from a height of greater than 10 feet. Above 10 feet, dust free inclined chutes may be used. Maximum inclination from horizontal shall be 60-degrees for all chutes.
- f. Exits from the work area shall be maintained, or alternative exits shall be established, in accordance with section 1027 of the New York City

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Fire Code. Exits shall be checked at the beginning and end of each work shift against blockage or impediments to exiting.

- g. Signs clearly indicating the direction of exits shall be maintained and prominently displayed within the work area.
- h. No smoking signs shall be maintained and prominently displayed within the work place.
- i. At least one fire extinguisher with a minimum rating 2-A:10-B:C shall be required for each work place. In the case of large asbestos projects, at least two such fire extinguishers shall be required.
- j. If the containment area of an asbestos project covers the entire floor of the affected building, or an area greater than 15,000 square feet on any given floor, the installation of a negative air cut off switch or switches shall be required at a single location outside the work place, such as inside a stairwell, or at a secured location in the ground floor lobby when conditions warrant. The required switch or switches shall be installed by a licensed electrician pursuant to a permit issued by the Department of Buildings. If negative pressure ventilation equipment is used on multiple floors the cutoff switch shall be able to turn off the equipment on all floors.

B. Removal of ACM Utilizing Full Containment Procedures shall be as follows:

1. Preparation Procedures:

- a. Ensure that the Third-Party Air Monitor has performed area monitoring and established a background count prior to the preparatory operations for each removal area, as applicable.
- b. Shut down, isolate, and lock out or tag heating, ventilating, and air conditioning (HVAC) systems which serve or which pass through the Work Area. Vents within the Work Area and seams in HVAC components shall be sealed with tape and two layers of fire retardant polyethylene sheeting. Filters in HVAC systems shall be removed and treated as asbestos-asbestos contaminated waste.
- c. Shut down, disconnect, and lock out or tag all electric power to the Work Area so that there is no possibility of its reactivation until after clearance testing of the Work Area.
- d. Provide and install decontamination enclosure systems in accordance with Sections 3.01 and 3.02 of this Section.
- e. Remove ACM that may be disturbed by the erection of partitions

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using tent procedures and wet removal methods. Removal shall be limited to a one-foot wide strip running the length/height of the partition.

- f. Pre-clean and remove moveable objects from the Work Area. Pre-cleaning shall be accomplished using HEPA-vacuum and wet-cleaning techniques. Store moveable objects at a location determined by the City.
- g. Protect carpeting that will remain in the Work Area.
  - (1) Pre-clean carpeting utilizing wet-cleaning techniques.
  - (2) Install a minimum of two layers of fire retardant 6-mil reinforced polyethylene sheeting over carpeting.
  - (3) Place a rigid flooring material, minimum thickness of 3/8-inch, over polyethylene sheeting.
- h. Pre-clean all fixed objects to remain within the Work Area using HEPA-vacuum and wet-cleaning techniques.
- i. Seal fixed objects with two individual layers, minimum, of 6-mil fire retardant polyethylene sheeting.
- j. Pre-clean entire Work Area utilizing HEPA-vacuum and wet-cleaning techniques. Methods of cleaning that raise dust; such as dry sweeping or use of vacuum equipment not equipped with HEPA-filters, is prohibited.
- k. Install isolation barriers (i.e., sealing of all openings, including but not limited to windows, corridors, doorways, skylights, ducts, grills, diffusers, and other penetrations within the Work Area) using two layers of 6-mil fire retardant polyethylene sheeting and duct-tape.
- l. Construct rigid framework to support Work Area barriers.
  - (1) Framework shall be constructed using 2-inch by 4-inch wooden or metal studs placed 16 inch on center when existing walls and/or ceiling do not exist for all openings greater than 32 square feet. Framework is not required except where one dimension is one foot or less or the opening will be used as an emergency exit.
  - (2) Apply a solid construction material, minimum thickness of 3/8-inch to the Work Area side of the framing. In secure interior areas, not subject to access from the public or building

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occupants, an additional layer of 6-mil fire retardant polyethylene sheeting may be substituted for the rigid construction material.

- (3) Caulk all wall, floor, ceiling, and fixture joints to form a leak tight seal.
- m. Seal floor drains, sumps, shower tubs, and other collection devices with two layers of 6-mil fire retardant plastic and fire rated plywood, as necessary, and provide a system to collect all water used by the asbestos abatement contractor. Collected water shall be passed through a water filtration system prior to being discharged into the sanitary sewer.
- n. Remove ceiling mounted objects not previously sealed that will interfere with removal operations. Mist object and surrounding ACM with amended water prior to removal to minimize fiber dispersal. Clean all moveable objects using HEPA-vacuum and wet-cleaning techniques prior to removal from the Work Area.
- o. Fiberglass insulation with intact coverings shall be protected in place during abatement activities. These materials shall be protected with two layers of 6-mil fire retardant polyethylene sheeting as isolation barriers and two additional layers of 6-mil fire retardant polyethylene sheeting serving as primary and secondary surface barriers.
- p. Install and initiate operation of AFDs to provide a negative pressure and a minimum of four air changes per hour within the Work Area relative to surrounding non-Work Areas. Do not shut down AFDs until the Work Area is released to the City following final clearance procedures. The use of HEPA-filtered vacuum to produce a negative air pressure inside the enclosure is prohibited.
- q. Maintain emergency and fire exits from the Work Areas or establish alternative exits satisfactory to the local fire officials. Emergency exits and routes shall be established and clearly marked with florescent paint or other effective designations to permit easy location from anywhere within the Work Area. Cutting tools (e.g., knife, razor) shall be attached to the work area side of the sheeting for use in the event that the barrier must be cut open to allow egress. Emergency exits shall be secured to prevent access from uncontaminated areas and yet permit emergency exiting. Exits shall be checked daily against exterior blockage or impediments to exiting.
- r. Temporary lighting within the Work Area and decontamination system shall be provided as required to achieve minimum illumination levels.

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- s. Hand power tools used to drill, cut into, or otherwise disturb ACM shall be manufacturer-equipped with HEPA filtered local exhaust ventilation.
- t. Prior to being plasticized, the Work Areas shall be cleaned using HEPA vacuum equipment and/or wet cleaning methods as appropriate. Methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters, shall not be used.
- u. Plasticize the area after pre-cleaning, using the following procedures.
  - (1) Cover floors with one layer of 6-mil fire retardant polyethylene sheeting, turning layer a minimum of 6 inches up wall, and seal layer to wall.
  - (2) Cover walls with one layer of 6-mil fire retardant polyethylene sheeting, overlapping wall layer a minimum of 6 inches, and seal layer to floor layer.
  - (3) Cover floors with a second layer of 6-mil fire retardant polyethylene sheeting, turning layer a minimum of 12 inches up wall, and seal layer to wall.
  - (4) Cover walls with a second layer of fire retardant 6-mil polyethylene sheeting, overlapping wall layer a minimum of 12 inches, and seal layer to floor layer.
  - (5) In areas where demolition is required to access ACM, a layer of fire retardant 6-mil reinforced polyethylene sheeting shall be placed on the floor of the enclosure.
  - (6) Perform demolition required to access ACM. Debris resulting from demolition activities shall be disposed of as ACM waste as described in this Specification.
  - (7) Repeat preparation of areas accessed by demolition activities as described above.
- v. Suspended ceiling tiles and T-grid components shall remain in place until the preparation of the Work Area below the ceiling tiles are completed and personnel and equipment decontamination enclosures have been constructed.
- w. Scaffolds shall be provided for workers engaged in work that cannot safely be performed from the ground or other solid Work Area surface.

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- x. Means of egress shall not be obstructed by hardwall barriers.
  - y. Pre-Removal Inspections.
    - (1) Prior to removal of any ACM, the asbestos abatement contractor shall notify the Third-Party Air Monitor and request a pre-removal inspection. Posting of warning signs, building of decontamination enclosure systems, and all other preparatory steps have been taken prior to notification of the Third-Party Air Monitor.
    - (2) Asbestos abatement contractor shall correct any deficiencies observed by Third-Party Air Monitor at no additional cost to City.
    - (3) Following the Third-Party Air Monitor's approval of the Work Area preparations, removal of ACM may commence.
2. Removal of ACM Within Full Containment:
- a. Mist material with amended water. Allow sufficient time for the amended water to penetrate the material to be removed.
  - b. Remove the material using hand tools such as scrapers or putty knives. Wire-mesh or wood lathe reinforcing, when present, shall be cut into manageable pieces and disposed of as ACM.
  - c. Remove any residual material from the substrate using wet cleaning methods and nylon-bristled hand brushes.
  - d. Place the removal material immediately into a properly labeled fire retardant 6-mil polyethylene bag. All material shall be properly containerized and decontaminated prior to removal from the Work Area.
  - e. Following the completion of removal of insulation, all visible residue shall be removed from the substrate.
3. Following Removal of ACM utilizing Full Containment Procedures:
- a. First Cleaning:
    - (1) Remove any visible accumulation of asbestos material and debris. HEPA-vacuuming and wet cleaning shall be performed on all surfaces inside the Work Area. All sealed drums, plastic bags, and equipment used in the Work Area shall be removed from the Work Area.



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- (2) Upon request of the asbestos abatement contractor, the Third-Party Air Monitor will perform a visual inspection. Evidence of asbestos contamination identified during the inspection will necessitate further cleaning as heretofore specified.
  - (3) Remove first layer of plastic sheathing inside the Work Area. The isolation barriers and decontamination facility shall remain in place and be utilized.
- b. Second Cleaning:
- (1) After the first cleaning, the Work Area shall be vacated for twelve hours to allow fibers to settle.
  - (2) All objects and surfaces in the Work Area shall be HEPA - vacuumed and wet cleaned for a second cleaning.
  - (3) A thin coat of lockdown encapsulant shall be applied to all plastic covered surfaces in the Work Area.
  - (4) When the encapsulant is dry, second layer of polyethylene sheeting on the walls, ceiling and floors shall be removed. Do not remove seals from doors, windows, Isolation Barriers or disconnect the negative pressure equipment.
- c. Third Cleaning:
- (1) A minimum of four hours after the second cleaning, all the surfaces in the Work Area shall be HEPA-vacuumed and wet cleaned for a third cleaning.
  - (2) Upon the request of the asbestos abatement contractor, the Third-Party Air Monitor will do final visual inspection for re-occupancy. Evidence of asbestos contamination identified during the inspection will necessitate further cleaning as heretofore specified.
  - (3) When the Work Area passes the Third-Party Air Monitor's visual re-occupancy inspection, air sampling shall not begin until at least one hour after the completion of the third cleaning. The Third-Party Air Monitor shall perform air monitoring using aggressive testing techniques. The Third-Party Air Monitor will approve re-occupancy if the specified fiber count in the Work Area is achieved according to the Third-Party Air Monitor.

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- (4) When the Work Area passes the re-occupancy test, all controls and seals established shall be removed.
- (5) The cleaned layer of the surface barriers shall be removed from walls and floors.
- (6) The isolation barriers shall remain in place throughout cleanup. Decontamination enclosure systems shall remain in place and be utilized. A thin coat of lockdown encapsulant shall be applied to all surfaces in the work area which were not the subject of removal or abatement, including the cleaned layer of the surface barriers, but excepting sprinklers, standpipes, and other active elements of the fire suppression system.

d. Final Barrier Removal:

- (1) Upon receipt of acceptable clearance testing results, polyethylene sheeting and Isolation Barriers shall be removed and disposed accordingly as asbestos-containing material.
- (2) The area surrounding the abatement work place shall be cleaned of any visible debris utilizing HEPA vacuum and wet methods.

e. The Third-Party Air Monitor will conduct a final visual observation. Approval must be granted prior to break down of decontamination facility and asbestos abatement contractor demobilization.

C. Removal of ACM utilizing NYCDEP Title 15, Chapter 1 §1-106 Tent Containment Procedures and/or Tent and Glove-bag Procedures utilizing NYDEP Title 15, Chapter 1 §1-105 shall be as follows:

1. Preparation Procedures:

- a. Ensure that the Third-Party Air Monitor has performed area monitoring and established a background count prior to the preparatory operations for each removal area, as applicable.
- b. Shut down, isolate, and lock out or tag heating, ventilating, and air conditioning (HVAC) systems which serve or which pass through the Work Area. Vents within the Work Area and seams in HVAC components shall be sealed with tape and two layers of polyethylene sheeting. Filters in HVAC systems shall be removed and treated as asbestos-asbestos contaminated waste.
- c. Shut down, disconnect, and lock out or tag all electric power to the Work Area so that there is no possibility of its reactivation until after clearance testing of the Work Area.

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- d. Provide and install decontamination enclosure systems in accordance with PART 3 - EXECUTION, Sections 3.01 and 3.02 of these Specifications. Decontamination facilities may be remote from the Work Areas.
- e. Construct rigid framework to support Work Area barriers. Framework shall be constructed using 2-inch by 4-inch wooden or metal studs placed 16 inch on center when existing walls and/or ceiling do not exist.
- f. Seal floor drains, sumps, shower tubs, and other collection devices with two layers of fire retardant 6-mil plastic and minimum 3/8" fire rated plywood, as necessary, and provide a system to collect all water used by the asbestos abatement contractor. Collected water shall be passed through a water filtration system prior to being discharged into the sanitary sewer. Any opening greater than 32 square feet shall be framed with 2-inch by 4-inch studding placed 16 inches on center.
- g. Install and initiate operation of AFDs to provide a negative pressure and a minimum of four air changes per hour and negative pressure of -0.02" of water column within the Work Area relative to surrounding non-Work Areas. Do not shut down AFDs until the Work Area is released to the City following final clearance procedures. The use of HEPA-filtered vacuums to produce a negative air pressure inside the enclosure is prohibited.
- h. Maintain emergency and fire exits from the Work Areas or establish alternative exits satisfactory to the local fire officials. Emergency exits and routes shall be established and clearly marked with florescent paint or other effective designations to permit easy location from anywhere within the Work Area. Emergency exits shall be secured to prevent access from uncontaminated areas and yet permit emergency exiting. Exits shall be checked daily against exterior blockage or impediments to exiting.
- i. Temporary lighting within the Work Area and decontamination system shall be provided as required to achieve minimum illumination levels.
- j. Hand power tools used to drill, cut into, or otherwise disturb ACM shall be manufacture equipped with HEPA filtered local exhaust ventilation.
- k. Prior to being plasticized, the Work Areas shall be cleaned using HEPA-vacuum equipment and/or wet cleaning methods as appropriate. Methods that raise dust, such as dry sweeping or

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vacuuming with equipment not equipped with HEPA filters, shall not be used.

1. There shall be an airlock at the entrance to the tent, unless there is an attached worker or waste decontamination system.
- m. Plasticize the area after pre-cleaning, using the following procedures. Do not apply polyethylene sheeting to the wall and ceiling surfaces that will be demolished to access ACM.
  - (1) Cover floor with one layer of fire retardant 6-mil polyethylene sheeting, turning layer a minimum of 12 inches up wall, and seal layer to wall.
  - (2) Cover walls with one layer of fire retardant 6-mil polyethylene sheeting, overlapping wall layer a minimum of 12 inches, and seal layer to floor layer.
  - (3) Cover ceilings with one layer of fire retardant 6-mil polyethylene sheeting, overlapping wall layer a minimum of 12 inches, and seal layer to wall layer.
  - (4) Repeat procedure for second layer. All joints in polyethylene sheeting shall be glued and taped in such a manner as to prohibit air passage. Joints on plastic layers shall be staggered to reduce the potential for water to penetrate.
  - (5) In areas where demolition is required to access ACM, a layer of fire retardant 6-mil reinforced polyethylene sheeting shall be placed on the floor of the enclosure.
  - (6) Perform demolition required to access ACM. Debris resulting from demolition activities shall be disposed of as ACM as described in this Specification.
  - (7) Repeat preparation of areas accessed by demolition activities as described above.
  - (8) Suspended ceiling tiles and T-grid components shall remain in place until the preparation of the Work Area below the ceiling tiles are completed and personnel and equipment decontamination enclosures have been constructed.
  - (9) Protect non-ACM insulation within the Work Area(s) with two individual layers of fire retardant 6-mil polyethylene sheeting. Sheeting shall remain in-place until satisfactory clearance air monitoring results are achieved.

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- n. Installation of glove-bags for removal of thermal system insulation, when required:
- (1) General: Glove-bag operations shall be performed using commercially available glove-bags of at least fire retardant 6-mil, transparent plastic appropriately sized for the diameter of the material to be removed. The use of "moveable" glove-bag techniques is strictly forbidden. At no time, shall the glove-bag be sized to allow for the removal of more than three linear feet of insulation. Glovebag procedures may only be used in conjunction with full containment of the work area or the tent procedure.
  - (2) Place the necessary tools and materials inside of the tool pouch of the glove-bag before the glove-bag procedure begins.
  - (3) Place duct-tape securely around the affected area to form a smooth area to which the glove-bag can be securely fastened.
  - (4) Attach glove-bag to the cable, wire or pipe. Seal top of glove-bag by double folding and stapling. Place duct-tape along the seam to form an airtight seal. Seal sides of glove-bag, where cable, wire or pipe passes through, with duct-tape to form an airtight seal.
  - (5) If the material adjacent to the work section is damaged, terminates, is jointed or contains an irregularity, wrap the section in two layers of 6-mil fire retardant polyethylene sheeting and seal airtight with duct-tape.
  - (6) Smoke test each glove-bag as indicated below. The Third-Party Air Monitor shall be present during all smoke testing.
  - (7) The glovebag shall be placed under negative pressure utilizing a HEPA vacuum, and a smoke tube shall then be aspirated to direct smoke at all seams and seals from outside the glovebag. Any leaks detected by the smoke test shall be duct taped airtight.
  - (8) All necessary tools and materials shall be brought into the work area before the glovebag procedure begins.
  - (9) Glovebag procedures shall be conducted by workers specifically trained in glovebag procedures and equipped with appropriate personal protective equipment.
  - (10) The insulation diameter worked shall not exceed one half the

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bag working length above the attached gloves.

- o. Glovebag procedures shall be conducted by workers specifically trained in glovebag procedures and equipped with appropriate personal protective equipment.
  - p. Pre-Removal Inspections
    - (1) Prior to removal of any ACM, the Asbestos abatement contractor shall notify the Third-Party Air Monitor and request a pre-removal inspection. Posting of warning signs, building of decontamination enclosure systems, and all other preparatory steps have been taken prior to notification of the Third-Party Air Monitor.
    - (2) Asbestos abatement contractor shall correct any deficiencies observed by Third-Party Air Monitor at no additional cost to City.
    - (3) Following the Third-Party Air Monitor's approval of the Work Area preparations, removal of ACM may commence.
2. Removal of ACM Thermal Insulation Using Glove-Bag Techniques:
- a. Mist material with amended water. Allow sufficient time for the amended water to penetrate the material to be removed.
  - b. Remove the insulation using hand tools such as knives or scissors.
  - c. Exercise caution when removing insulation.
  - d. Remove any residual asbestos-containing insulation from the substrate using wet cleaning methods and nylon-bristled hand brushes.
    - (1) Any insulation ends created by this procedure shall be sealed with encapsulant prior to bag removal or thoroughly wetted before bag removal and sealed with wettable cloth end caps and spray glue or any combination of these materials immediately following bag removal.
    - (2) The tool pouch shall be separated from the bag prior to disposal by twisting it and the wall to which it is attached several times, and taping the twist to hold it in place, thus sealing the bag and the pouch which are severed at the midpoint of the twist. Alternatively, the tools can be pulled through with one or both glove inserts, thus turning the gloves inside out. The glove(s) is/are then twist sealed forming a new

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pouch, taped and several mid-seal forming two separate bags.

- (3) A HEPA vacuum shall be used for evacuation of the glovebag in preparation for removal of the bag from the surface for clean-up in the event of a spill, and for post project clean-up.
- (4) With the glovebag collapsed and the ACM in the bottom of the bag, the bag shall be twisted several times and taped to seal that section during bag removal.
- (5) A 6-mil plastic bag shall be slipped around the glovebag while it is still attached to the surface. The bag shall be detached from the surface by removing the tape or cutting the top with blunt scissors.
- (6) The asbestos-containing waste, the clean-up materials, and protective clothing shall be wetted sufficiently, double-bagged minimizing air content, sealed separately, and disposed of in conformance with applicable regulations.

### 3. Removal of ACM Utilizing Tent Containment Procedure:

- a. Tent procedures shall be limited to the removal of less than 260 linear feet and 160 square feet of ACM and shall not result in disturbance of ACM during tent erection.
- b. Mist material with amended water and/or foam. Allow sufficient time for the amended water to penetrate the material to be removed.
- c. Cut bands, wire or other items placed over insulation or ACM.
- d. Remove the ACM using hand tools such as knives or scrapers.
- e. Exercise caution when removing ACM.
- f. Remove any residual asbestos-containing material from the substrate using wet cleaning methods.
- g. Seal exposed ends of remaining insulation or ACM with a "wetable cloth" and/or encapsulant.
- h. Place the removed material immediately into a properly labeled fire retardant 6-mil polyethylene bag. All material shall be properly containerized and decontaminated prior to removal from the Work Area.
- i. Following the completion of removal of ACM, all visible residue

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shall be removed from the substrate.

4. Following Removal of ACM Utilizing Tent Containment or Tent/Glovebag Procedure:
  - a. Clean all visible accumulations of loose ACM. Metal shovels shall not be used within the Work Area.
  - b. Accumulations of dust shall be cleaned continuously until completion of clean up.
  - c. After removal of all visible accumulations of ACM, the area shall be:
    - (1) Wet cleaned using rags, mops or sponges.
    - (2) Permitted sufficient time to dry, prior to HEPA vacuuming all substrates.
    - (3) Lightly encapsulated to lockdown residual asbestos. A thin coat of an encapsulating agent shall be applied to any surfaces in the Work Area which were not the subject of removal or other remediation activities. In no event shall encapsulant be applied to any surface that was the subject of removal or other remediation activities prior to obtaining satisfactory clearance air monitoring results. Asbestos abatement contractor shall request and pass a visual inspection performed by the consultant before proceeding to the next step. Documentation of passing this inspection shall be recorded in a daily logbook.
    - (4) The Third-Party Air Monitor will conduct a visual observation of the Work Area to verify the absence of asbestos-containing waste materials.
    - (5) If the Work is accepted by the Third-Party Air Monitor based on the inspection, asbestos abatement contractor shall be notified. Conduct the following activities in accordance with the contract and all applicable laws, codes, rules and regulations.
      - (a) All waste shall be removed from the Work Area and holding areas.
      - (b) All tools and equipment are to be removed and decontaminated in the decontamination enclosure system.
    - (6) If the Work is not approved, the Third-Party Air Monitor will inform Asbestos abatement contractor who will then HEPA-vacuum and/or wet-clean the Work Area. The Third-Party Air Monitor will then perform a subsequent visual observation. This



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process will continue until the Third-Party Air Monitor accepts the Work Area as clean.

- (7) The Work Area shall be vacated for a minimum of one hour to allow fibers to settle prior to clearance air monitoring, when required.

d. Final Barrier Removal

- (1) Upon receipt of acceptable clearance testing results polyethylene sheeting (inside layers) and Isolation Barriers shall be removed and disposed accordingly as ACM. The tent shall be collapsed inward, enclosing the contaminated clothing. This contaminated material shall be disposed of in another plastic bag. The HEPA vacuum shall be decontaminated and sealed.

- (2) The area surrounding the abatement work place shall be cleaned of any visible debris utilizing HEPA-vacuum and wet methods.

- e. The Third-Party Air Monitor will conduct a final visual inspection. Approval must be granted prior to break down of decontamination facility and asbestos abatement contractor demobilization. Other Information: Extra time required to clean Work Areas in order to achieve clearance criteria shall not be considered grounds for an extension of time for contract completion.

D. Removal of ACM Roofing and Flashing Materials utilizing NYC DEP § 1-107 Foam Procedure for Roof Removal shall be as follows:

1. Preparation procedures:

- a. These procedures apply only to the removal of asbestos-containing roofing material (ACRM) from exterior roof surfaces. The work area on the roof shall be cordoned off with clearly visible barriers such as caution tape, and only authorized persons shall have access.
- b. The foam or viscous liquid shall be non-toxic, shall not require special respiratory protection for handling, and shall not affect the handling and disposal of the waste.
- c. The foam or viscous liquid shall coat and maintain a stable blanket (minimum 1" thickness) for the duration of the removal process and shall leave an identifiable colored residue when it dissipates.
- d. The foam or viscous liquid shall wet the ACRM. The ACRM shall be

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kept wet through the bagging process.

- e. Persons entering the work area shall wear correctly-fitting, good traction rubber boots.
- f. Abatement shall not be carried out during adverse weather conditions (e.g., precipitation, high winds, ambient temperature below 32 degrees Fahrenheit, etc.).
- g. The worker decontamination unit may be attached to each work area at an entry/exit from each work area, or may be remote, in which case it shall be equipped with an airlock at the entrance. In addition to the shower head(s), the shower room shall be equipped with a flexible hose for waste decontamination for removal of less than 1,000 square feet of ACRM. For 1,000 square feet or more of ACRM removal, a separate waste decontamination facility shall be located at an entry/exit from each work area. Remote holding areas for the asbestos containing waste shall comply with Title 16, Chapter 8, Rules of the City of New York (16 RCNY 8 et. seq.).
- h. Movable objects shall be removed from the work area, or kept in place and wrapped in one sheet of fire retardant 6 mil plastic sheeting.
- i. Provisions shall be made to ensure a safe and adequate air supply to affected building(s). All vents, skylights, air intakes, windows and doors opening onto the roof, and all other openings shall be sealed with 2 layers of fire retardant 6 mil plastic or fitting with HEPA filters when appropriate. Temporary extensions may be installed to a height of 10 feet to ensure adequate air exchange instead of sealing vents, air intakes, etc., with 2 layers of plastic or HEPA filters. Drains may be equipped with 5 micron filtering system in lieu of being sealed.
- j. Fixed objects including perimeter walls, bulkheads, cooling towers, ducts and other rooftop appurtenances shall be covered in one sheet of fire retardant 6 mil plastic up to a height of at least six feet.
- k. THE ASBESTOS ABATEMENT CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF THE INTERIOR SPACES BENEATH THE ROOF.
- l. All office equipment and furniture, including but not limited to desks, chairs, computers, printers, cabinets, etc., carpeted and wooden floors shall be covered with one layer of 6- mil plastic sheeting.

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- m. THE ASBESTOS ABATEMENT CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE THAT MAY OCCUR IN THE INTERIOR SPACES, INCLUDING BUT NOT LIMITED TO OFFICE EQUIPMENT, FURNITURE, FLOORS, ETC., BENEATH THE ROOF DURING ALL PHASES OF THE ROOF ABATEMENT.
- n. The asbestos abatement contractor shall provide temporary roof protection consisting of 10-mil polyethylene sheeting following abatement over the open roof areas. Strict coordination with the General Asbestos abatement contractor, Construction Project Manager and/or Architect is required and necessary during this phase of abatement.
- o. Preliminary examination shall be conducted and precautions shall be taken to prevent damage to the interior of the building, including but not limited to office equipment, furniture, carpeted and wooden floors, etc., and to ensure no adverse effect on the structural stability of the roof due to the abatement activity.
- p. Abatement activities shall not be carried out during adverse weather conditions (e.g., precipitation, heavy winds, etc.).
- q. The floor area between the remote decontamination facility and the Work Area must be protected with 2 layers of 6-mil. polyethylene sheeting suitably anchored.
- r. Provisions shall be made to ensure a safe and adequate air supply to affected building(s). All vents, skylights, air intakes, windows and doors opening onto the roof, and all other openings are to be sealed with two layers of 6-mil plastic or fitted with HEPA-filters where appropriate. In lieu of sealing vents; air intakes, etc., with two layers of plastic or HEPA-filters, temporary extensions may be installed to a height of 10 feet to ensure adequate air exchange. Drains may be equipped with 5 micron filtering systems in lieu of being sealed.
- s. Pre-Removal Inspections:
  - (1) Prior to removal of any ACM, the Asbestos abatement contractor shall notify the Third-Party Air Monitor and request a pre-removal inspection. Posting of warning signs, building of decontamination enclosure systems, and all other preparatory steps have been taken prior to notification of the Third-Party Air Monitor.
  - (2) Asbestos abatement contractor shall correct any deficiencies observed by Third-Party Air Monitor at no additional cost to City.

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- (3) Following the Third-Party Air Monitor's approval of the Work Area preparations, removal of ACM may commence.

### 2. Removal of ACM Roofing and Flashing Materials:

- a. The asbestos abatement contractor shall be responsible for the removal of all roofing components, including multiple layers of built-up membrane, tar, vapor barrier and/or flashing down to the substrate/deck.
- b. Prior to actual removal, the built-up roofing shall be blanketed and wetted with a minimum 1" coating of the acceptable foam or viscous liquid which shall be maintained for the duration of the removal until the material is bagged. The foam or viscous liquid shall be confined to the work area.
- c. Hand-held power tools used to drill, cut into, or otherwise disturb the ACRM shall be equipped with the HEPA-filtered local exhaust ventilation and operated to prevent potential fiber release.
- d. Abatement shall not be performed in adverse weather conditions (e.g., precipitation, heavy winds, etc.). Asbestos abatement contractor shall protect all exposed roof during adverse weather conditions.
- e. Portable HEPA-vacuum machines shall be available during abatement.
- f. After the ACM removal and bagging, the bagged waste shall be HEPA-vacuumed, and then wet-cleaned and transferred into the shower room for double bagging. The double-bagged waste shall be transferred outside the clean room for its final transfer for storage in an enclosed waste container.

### 3. Following Removal of ACM Roofing and/or Flashing:

- a. Upon completion of the abatement in roof work area, clean-up procedures shall involve removal and bagging of:
- b. The asbestos containing roofing material (ACRM)
- c. Visible accumulations of asbestos containing waste
- d. All excess foam or similar viscous liquid
- e. All debris, and shall be followed by a thorough wet cleaning.

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- f. All tools shall be wet cleaned and HEPA-vacuumed, and then removed from the work area upon completion.
  - g. Following the removal of all debris, the work area shall be thoroughly wet cleaned. The work area shall be allowed to dry completely before the visual inspection is conducted. The inspection shall confirm the absence in the work area of:
    - (1) ACM, debris, bagged ACM waste,
    - (2) Excess foam or other viscous liquid.
  - h. If the work area fails visual inspection, it shall undergo another wet cleaning and/or HEPA vacuuming until it passes the visual inspection.
  - i. When the visual inspection and clearance testing is successful, all plastic may be removed.
  - j. Air monitoring shall be conducted in accordance with the relevant provisions of Air sampling shall be conducted in compliance with NYC DEP Title 15 Chapter 1, §1-41 Air Sampling Schedule.
- E. Removal of ACM Vertical and/or Sloping sections of Roof Flashing or of sloping sections of ACRM in New York City utilizing NYC DEP Variance Attachment FT (Addendum Attachment to FR) shall be as follows:
- 1. Preparation procedures:
    - a. Vertical and/or sloping sections of roof flashing, or any sloping sections of ACRM, shall not be removed using procedures of Attachment FR or of any modification of Attachment FR. The preliminary test set forth in this requirement must meet the air monitoring requirements.
    - b. At least TWO MODIFIED TENTS constructed as per the DEP/ACP Attachment TM shall be installed, each enclosing not less than 50 square feet approximately nor more than 160 square feet approximately of vertical and/or sloping sections of the in-place roof flashing or sloping sections of ACRM.
    - c. Engineering controls shall NOT be applied to each tent and therefore NO air volume changes shall occur within each tent during the flashing removal or during the ACRM removals as specified in Item 4 below.

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- d. Using CONTINUOUS spraying at the point of removal, with foam as specified in Attachment FR's section B) within one tent at a time, the vertical and/or sloping sections of roof flashing or the sloping sections of ACRM shall be removed by manual methods.
- e. Inside each tent in sequence, continuous air sampling shall be performed during the entire removal procedure.
- f. The city shall require the Third-Party Air Monitor to perform the air sampling.
- g. The city shall assess the air sampling analyses from each of the two tents and shall declare the in-tent air monitoring to be acceptable.
- h. Any tent inside which any individual analysis exceeded 0.01 fibers/cc of air shall be subjected to final air clearance procedures before dismantling.
- i. Where the in-tent air monitoring gives acceptable results as, removal of the remaining vertical and/or sloping roof flashing or remaining sloping sections of ACRM may be permitted to occur, using CONTINUOUS spraying of foam at ALL points of removal without tent enclosures and foam blanket.
- j. Abatement activities shall not be carried out during adverse weather conditions (e.g., precipitation, heavy winds, etc.).
- k. The work area on the roof shall be cordoned off, and only authorized persons shall have access to the "designated" work area.
- l. Movable objects shall be removed from the work area, or kept in place and wrapped in one sheet of 6-mil plastic sheeting. Fixed objects including perimeter walls, bulkheads, cooling towers, ducts and other rooftop appurtenances shall be covered in one sheet of plastic (minimum height of 6 feet).
- m. The worker decontamination unit shall be constructed at an entry/exit from each work area with at least a shower room and a clean room. In addition to the shower head(s), the shower room shall be equipped with a flexible hose for waste decontamination for removal of less than 1,000 square feet. For more than 1,000 square feet of removal, a separate waste decontamination facility shall be located at an entry/exit from each work area.
- n. The floor area between the remote decontamination facility and the Work Area must be protected with 2 layers of 6-mil. polyethylene sheeting suitably anchored.

## **ASBESTOS ABATEMENT**

- o. Provisions shall be made to ensure a safe and adequate air supply to affected building(s). All vents, skylights, air intakes, windows and doors opening onto the roof, and all other openings are to be sealed with two layers of 6-mil plastic or fitted with HEPA-filters where appropriate. In lieu of sealing vents, air intakes, etc., with two layers of plastic or HEPA-filters, temporary extensions may be installed to a height of 10 feet to ensure adequate air exchange. Drains may be equipped with 5 micron filtering systems in lieu of being sealed.
  
- 2. Pre-Removal Inspections:

  - a. Prior to removal of any ACM, the asbestos abatement contractor shall notify the Third-Party Air Monitor and request a pre-removal inspection. Posting of warning signs, building of decontamination enclosure systems, and all other preparatory steps have been taken prior to notification of the Third-Party Air Monitor.
  - b. Asbestos abatement contractor shall correct any deficiencies observed by Third-Party Air Monitor at no additional cost to City.
  - c. Following the Third-Party Air Monitor's approval of the Work Area preparations, removal of ACM may commence.
  
- 3. Removal of ACM Vertical and/or Sloping sections of Roof Flashing or the Sloping sections of ACRM:

  - a. The asbestos abatement contractor shall be responsible for the removal of all vertical and/or sloping sections of roof flashing or the sloping sections of ACRM down to the substrate/deck.
  - b. Abatement shall not be performed in adverse weather conditions (e.g., precipitation, heavy winds, etc.). Asbestos abatement contractor shall protect all exposed roof during adverse weather conditions.
  - c. Prior to actual removal, the material shall be blanketed and wetted with a minimum two-inch thick coating of the acceptable foam or viscous liquid which shall be maintained for the duration of the removal until the material is bagged. The foam or viscous liquid shall be confined to the work area.
  - d. Manual methods of removal are recommended, however, if hand-held power tools are used to drill, cut into, or otherwise disturb the asbestos-containing roofing material, the power tools shall be equipped with HEPA-filtered local exhaust ventilation and operated to prevent potential fiber release.

## ASBESTOS ABATEMENT

- e. Portable HEPA-vacuum machines shall be available during abatement.
  - f. After the ACM removal and bagging, the bagged waste shall be HEPA-vacuumed then wet cleaned and transferred into the shower room for double bagging. The double-bagged waste shall be transferred outside the clean room for its final transfer for storage in an enclosed waste container.
4. Following Removal of ACM Vertical and/or Sloping sections of Roof Flashing or the Sloping sections of ACRM:
- a. Upon completion of the abatement in roof work area, clean-up procedures shall involve removal and bagging of:
    - b. The asbestos containing roofing material (ACRM)
    - c. Visible accumulations of asbestos containing waste
    - d. All excess foam or similar viscous liquid
  - e. All debris, and shall be followed by a thorough wet cleaning.
  - f. All tools shall be wet cleaned and HEPA-vacuumed, and then removed from the work area upon completion.
  - g. The work area shall be allowed to dry completely before the visual inspection is conducted. The inspection shall confirm the absence in the work area of:
    - h. ACM, debris, bagged ACM waste,
    - i. Excess foam or other viscous liquid.
  - j. If the work area fails visual inspection, it shall undergo another wet cleaning and/or HEPA vacuuming until it passes the visual inspection.
  - k. When the visual inspection and clearance testing is successful, all plastic may be removed.
- F. Removal of ACM from Vertical Exterior Surfaces utilizing NYCDEP Title 15, Chapter 1 §1-109 Abatement from Vertical Exterior Surfaces procedures shall be as follows:

Preparation procedures: This procedure shall apply to the abatement of asbestos-containing materials from vertical exterior surfaces such as, but not limited to caulking or glazing compounds, asphaltic



## ASBESTOS ABATEMENT

materials or tar, cement siding or shingles (including transite), paints, sealants coping stone caps or clay roof tiles.

- a. The entire surface to be abated and ground-level perimeter shall be considered the work area unless partitions and warning tape are used to define the work area.
- b. A restricted area shall be established using warning tape extending at least 25 feet from the affected areas of the building or to the nearest vertical obstruction or the curb.
- c. The restricted area may be entered only by certified workers or authorized visitors.
- d. Before plasticizing, the restricted area shall be inspected for ACM debris and, if necessary, pre-cleaned using HEPA vacuums and wet methods.
- e. All openings to the building or structure's interior which are within 25 feet of the affected ACM shall be closed and sealed.
- f. Scaffolding erected to access the ACM shall be constructed, maintained, and used in accordance with applicable federal, state, and city laws.
- g. Horizontal surfaces beneath the affected ACM shall be covered with two layers of fire-retardant 6-mil plastic to a width of six feet.
- h. Elevated platforms being used to access the affected ACM shall be plasticized with two layers of fire-retardant 6-mil plastic, which shall extend up from the platform to at least the height of the mid-rail on three sides, and shall be attached directly to the building just below the surfaces under abatement.
- i. The ground-level restricted area shall be cleared of all moveable objects and plasticized with two sheets of fire-retardant 6-mil plastic, which shall be extended one foot up the side of the building. The plasticized area shall be ten feet wide for every floor up to a maximum width of thirty feet, or to the curb. This plastic shall be cleaned, replaced, and disposed of as asbestos waste at the end of each shift.
- j. Sidewalk bridges in the restricted area shall be covered with two layers of fire retardant 6-mil plastic, placed over and secured to the bridge, spread across the full width, draped over the side to ground level, and extended to a width of at least thirty feet.

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- k. Establish a remote decontamination unit in accordance with Section 3.01 within the restricted area.
  - l. Construct all elevated work platforms a minimum of one foot below the surface to be abated.
  - m. Pre-Removal Inspections
    - (1) Prior to removal of any ACM, the asbestos abatement contractor shall notify the Project Monitor and request a pre-removal inspection. Posting of warning signs, building of decontamination enclosure systems, and all other preparatory steps have been taken prior to notification of the Third-Party Air Monitor.
    - (2) Asbestos abatement contractor shall correct any deficiencies observed by Third-Party Air Monitor at no additional cost to City.
    - (3) Following the Project Monitor's approval of the Work Area preparations, removal of ACM may commence.
2. Removal of ACM Materials:
- a. Mist material with amended water. Allow sufficient time for the amended water to penetrate the material to be removed.
  - b. Remove the caulk using hand tools such as knives or scrapers.
  - c. Exercise caution when removing caulking material to prevent damage to windows or skylight openings.
  - d. Remove any residual asbestos-containing caulking material from the substrate using wet cleaning methods and nylon-bristled hand brushes. The use of metal bristled brushes is prohibited.
  - e. Place the removed material immediately into a properly labeled 6-mil polyethylene bag. All material shall be properly containerized and decontaminated prior to removal from the Work Area.
  - f. Following the completion of removal of caulking, all visible residues shall be removed from the substrate.
  - g. Air sampling shall be conducted in compliance with NYC DEP Title 15 Chapter 1, §1-41 Air Sampling Schedule. This sampling shall be performed by the Third Party Air Monitoring Firm.

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3. Following Removal of ACM :
  - a. The stripped substrate shall be HEPA vacuumed and wet-wiped.
  - b. A visual clearance inspection shall be conducted by the asbestos handler supervisor and project monitor after the work area dries, to ensure the absence of ACM residue or debris in the work area.
  - c. After the inspection is completed, the warning tapes and barriers may be removed.
  - d. The clearance inspection shall be documented in the log and the project air sampling log.
  - e. Air monitoring shall be conducted in accordance with relevant provisions.
  - f. Asbestos abatement contractor shall request and pass a visual inspection performed by the consultant before proceeding to the next step. Documentation of passing this inspection shall be recorded in a daily logbook.
  - g. The Third-Party Air Monitor will conduct a visual observation of the Work Area to verify the absence of asbestos-containing waste materials.
  - h. If the Work is accepted by the Third-Party Air Monitor based on the inspection, asbestos abatement contractor shall be notified. Conduct the following activities in accordance with the contract and all applicable laws, codes, rules and regulations:
    - (1) All waste shall be removed from the Work Area and holding areas.
    - (2) All tools and equipment are to be removed and decontaminated in the decontamination enclosure system.
  - i. If the Work is not approved, the Third-Party Air Monitor will inform Asbestos abatement contractor who will then HEPA-vacuum and/or wet-clean the Work Area. The Third-Party Air Monitor will then perform a subsequent visual observation. This process will continue until the Third-Party Air Monitor accepts the Work Area as clean.
  - j. Final Barrier Removal
    - (1) Upon receipt of acceptable observation results, polyethylene sheeting and barrier tape shall be removed and disposed accordingly as ACM.

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- (2) The area surrounding the abatement work place shall be cleaned of any visible debris utilizing HEPA vacuum and wet methods.
- (3) The Third-Party Air Monitor will conduct final visual inspection. Approval must be granted prior to break down of decontamination facility and asbestos abatement contractor demobilization. Other Information: Extra time required to clean Work Areas in order to achieve clearance criteria shall not be considered grounds for an extension of time for contract completion.

### 4.02 MAINTENANCE OF CONTAINED WORK AREA AND DECONTAMINATION ENCLOSURE SYSTEMS

- A. Ensure that barriers are installed in a manner appropriate to the expected weather conditions during the project and for its duration. Repair damaged barriers and remedy defects immediately upon their discovery. Visually inspect barriers at the beginning and end of each work period.
- B. Visually inspect non-Work Areas and the decontamination enclosure system for water leakage. Check the floor below, ceiling and walls, and view beneath/or around the decontamination enclosure system, for signs of leakage. Perform the visual inspection a minimum of two times for each 8-hour work shift.

## PART 5 – ASBESTOS WASTE MANAGEMENT

### 5.01 ACM WASTE REQUIREMENTS

- A. The asbestos abatement contractor and all sub-asbestos abatement contractors are specifically alerted to the illegal practice of combining asbestos-containing waste (ACW) from one project with the ACW of other projects without using the services of a permitted waste transfer station as defined by 6 NYCRR Part 360 and 364. As part of the shop drawing submittals, the Asbestos abatement contractor must submit for approval the proposed method of transportation and disposal that will be utilized to manage the ACW of this Contract. If a permitted transfer station is to be used, the cost shall be included in the work.. The asbestos abatement contractor must submit a waste manifest consistent with whatever approved method is utilized as part of the invoicing and payment procedures.
- B. The asbestos abatement contractor shall maintain compliance with the strictest set of regulations of Title 15, Chapter 1 of RCNY, NYC LL 70/85, NYS DOL ICR 56, USEPA, Asbestos Regulation 40 CFR Section 61.152, 29 CFR 1926.1101, 29 CFR 1910.1200 (F) of OSHA's Hazard Communication Standards, and other applicable standards.

## ASBESTOS ABATEMENT

**NOTE:** Any penalties incurred for failure to comply with any of the above regulations will be the sole responsibility for fines imposed due to negligence of the Asbestos abatement contractor.

- C. When presenting ACW for storage at the generation site, the Asbestos abatement contractor shall:
1. Wet down ACW in a manner sufficient to prevent all visible emissions of dust into the air.
  2. Seal material in a leak tight container while wet.
  3. Keep ACW separate from any other waste.
- D. When presenting ACW for storage away from the site of generation, the Asbestos abatement contractor shall:
1. Ensure that ACW has been properly packaged as per requirements above.
  2. Examine the containers of ACW to ensure that there are no breaks in the containers and that no visible dust is being released into the air.
  3. If examination reveals damage to a container of ACW the Asbestos abatement contractor or person accepting the waste shall immediately wet down the ACW and repackage it into a clean leak tight container. The subsequent repackaging shall be the financial responsibility of the Asbestos abatement contractor and occur at no extra cost to the City.
  4. Keep ACW separate from any other waste.
- E. When storing ACW – The Asbestos abatement contractor shall:
1. Ensure that the ACW has been sufficiently wetted down in tight containers.
  2. Re-wet and repackage any damaged containers.
  3. Maintain at storage site an adequate supply of spare leak tight containers.
  4. Maintain at storage site an adequate supply of amended water.
  5. Keep ACW separate from any other waste.
  6. Keep ACW in a secured, enclosed, and locked container.
  7. If the Asbestos abatement contractor has intention of sorting a quantity of ACW greater than or equal to 50 cubic yards, the Asbestos abatement contractor shall:

## ASBESTOS ABATEMENT

- a. Submit a written request and receive written approval from the City.
- F. When presenting for transport, the Asbestos abatement contractor shall:
1. Ensure that ACW has been sufficiently wetted down.
  2. Examine the integrity of the container's airtight seal.
  3. Re-wet and repackage any damaged containers.
  4. Keep ACW separate from all other waste.
  5. Ensure that a person transporting asbestos waste holds a valid permit issued pursuant to law.
  6. Frequency of Waste Removal:
    - a. Properly packaged and labeled asbestos waste shall be removed from the site on a daily basis. Under no circumstance shall asbestos waste be stored on site without written approval from the City. The Waste Hauler and landfill shall be as indicated on the notifications to regulatory agencies.
- G. Waste Load-out Through Equipment Decontamination Enclosure (Full Decontamination Facility): Place asbestos waste in disposal bags. Large items not able to fit into disposal bags shall be wrapped in one layer of 6-mil thick polyethylene sheeting. Clean outer covering of asbestos waste package by wet cleaning and/or HEPA-vacuuuming in a designated part of the Work Area. Move wrapped asbestos waste to the equipment washroom, wet clean each bag or object and place it inside a second disposal bag, or a second layer of 6-mil polyethylene sheeting, as the item's physical characteristics demand. Air volume shall be minimized, and the bags or sheeting shall be sealed airtight with tape.
1. The clean containerized items shall be moved to the equipment decontamination enclosure holding area pending load-out to storage or disposal facilities.
  2. Workers who have entered the equipment decontamination enclosure system from the uncontaminated non-Work Area shall perform load-out of containers from the decontamination enclosure holding area. Dress workers moving asbestos waste to storage or disposal facilities in clean overalls of a color different than from that of coveralls used in the Work Area. Ensure that workers do not enter from uncontaminated areas into the equipment washroom or the Work Area. Ensure that contaminated workers do not exit the Work Area through the equipment decontamination enclosure system.
  3. Thoroughly clean the equipment decontamination enclosure system immediately upon completion of the waste load-out activities, and at the

## ASBESTOS ABATEMENT

completion of each work shift.

4. Labeled ACM waste containers or bags shall not be used for non-ACM debris or trash. Any materials placed in labeled containers or bags, including those turned "inside-out", shall be handled and disposed of as ACM waste.
- H. All asbestos materials, wastes, shower water, polyethylene, disposable equipment and supplies shall be disposed of as asbestos contaminated waste, in accordance with the EPA regulation (40 CFR, Section 61.150) and those requirements of the New York Department of Environmental Conservation and New York City Department of Sanitation.
- I. All asbestos materials shall be prepared for transportation in accordance with this specification and all applicable Federal, State, County and City Regulations. asbestos abatement contractor shall submit the following documentation:
1. Where applicable, an EPA Generator's identification number which has been obtained from the EPA for all asbestos waste generated from the project.
  2. Applicable State Waste Hauler license and registration numbers.
  3. Federal Hazardous Materials Waste Hauler number.
  4. Designated landfill EPA Permit numbers.
- J. Prior to loading asbestos waste the enclosed cargo areas (dumpster) shall be prepared as follows:
1. Clean via HEPA-vacuum and wet wipe techniques the enclosed cargo areas of all visible debris prior to preparing with polyethylene.
  2. Line the cargo area with two layers of 6-mil polyethylene sheeting to prevent contamination from damaged or leaking containers. Floor sheeting shall be installed first and extend up the walls a minimum of 24-inches. Wall sheeting shall be overlapped and taped securely into place.
- K. Asbestos-containing waste shall be placed on level surfaces in the cargo area of the dumpster and shall be packed tightly to prevent any shifting or tipping of the waste during transportation.
- L. Asbestos-containing waste shall not be thrown into or dropped from the dumpster. All material shall be handled carefully to prevent rupture of the containers.

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- M. All personnel engaged in handling and loading of asbestos contaminated waste outside of the Work Area shall wear protective clothing. The disposable clothing shall include head, body and foot protection and color of clothing shall be different from abatement personnel in the Work Area. Minimum respiratory protection shall be half face, dual cartridge, air purifying respirators with HEPA-filters.
- N. Asbestos abatement contractor shall immediately clean debris or residue observed on containers or surfaces outside of the Work Area. Cleaning shall be via HEPA equipped wet/dry vacuums only.
- O. All asbestos-containing waste shall be transported from the abatement site to the landfill by a registered Waste Hauler. When transporting ACW:
  - 1. Ensure that the ACW has been sufficiently wetted down in a leak tight container.
  - 2. Re-wet and repackage any damaged containers.
  - 3. Maintain at storage site an adequate supply of spare leak tight containers.
  - 4. Maintain at storage site an adequate supply of amended water.
  - 5. Keep ACW separate from any other waste.
- P. Keep ACW in a secured, enclosed, and locked container.
- Q. Waste transport documents shall conform to the requirements of the U.S. Department of Transportation, Hazardous Materials Transportation Regulation, 49 CFR Part 173 and EPA 40 CFR 61.150 (d)(1)(2). Shipping documents shall be clearly marked with the required designation "RQ Asbestos". Asbestos abatement contractor shall provide a copy of this document to the City.
- R. A uniform hazardous waste manifest shall be prepared by the asbestos abatement contractor and signed by the asbestos abatement contractor each time the asbestos abatement contractor ships a dumpster load of Asbestos-Containing Waste Material. The uniform hazardous waste manifest shall include the site of waste generation, the names and addresses of the Transporter, the asbestos abatement contractor, and the landfill operator with information on the type and number of asbestos-waste containers, time and date. Asbestos abatement contractor shall provide the Construction Project Manager, Third-Party Air Monitor or authorized designated representative with signed copies of the waste manifest before each departure.
- S. Asbestos abatement contractor or his registered hazardous Waste Hauler shall transport asbestos-containing waste material from the abatement site directly to the specified disposal site. Asbestos abatement contractor or their Waste Hauler shall not accept material from any other site when transporting asbestos-containing



## ASBESTOS ABATEMENT

waste material from the abatement site. The authorized DDC representative or Construction Project Manager reserves the right to travel with asbestos abatement contractor's Waste Hauler to the waste disposal site. No intermediate storage of waste material (i.e., asbestos abatement contractor's warehouse) shall be permitted.

- T. Final or progress application for payments will not be processed unless all hazardous waste manifests generated to date have been received and reviewed by the Construction Project Manager.
- U. All asbestos materials, wastes, shower water, polyethylene disposable equipment and supplies shall be disposed of as asbestos contaminated waste, in accordance with the EPA regulation (40 CFR, Section 61.150) and those requirements of the New York State Department of Environmental Conservation and the New York Department of Sanitation.
- V. Asbestos abatement contractor shall transport all sealed drums to a landfill disposal site approved by the Department of Environmental Conservation and the EPA. Transportation shall be performed by a New York State registered Waste Hauler, where required. When presenting the ACW for disposal the Asbestos abatement contractor or sub Asbestos abatement contractor shall:
  - 1. Ensure that waste container is properly labeled according to the National Emission Standard for Hazardous Air Pollutants (NESHAP); Asbestos Revision, 40 CFR, Part 61, Subpart M. The labels shall include the name of the waste generator and the location where the waste was generated.
  - 2. Comply with all applicable orders issued pursuant to asbestos disposal.
  - 3. Ensure that ACW has been sufficiently wetted down.
  - 4. Re-wet and repackage any damaged containers.
  - 5. Keep ACW separate from all other wastes.
- W. Asbestos abatement contractor shall notify the waste disposal site, at least 24 hours prior to transportation of asbestos contaminated waste to be delivered. Asbestos abatement contractor shall determine if a larger notification period is required.
- X. At the site asbestos abatement contractors or Waste Hauler trucks shall approach the dump location as close as possible for unloading asbestos waste. Containers shall be carefully placed in the ground. Do not throw containers from truck.
- Y. Asbestos abatement contractor or Waste Hauler shall inspect containers as they are unloaded at the disposal site. Material in damaged containers shall be repacked in empty containers, as necessary.
- Z. Asbestos abatement contractor or Waste Hauler shall not remove asbestos-

## ASBESTOS ABATEMENT

containing waste Material from drums unless required to do so by the disposal site City. Used drums shall be disposed of as asbestos-asbestos contaminated waste.

- AA. All personnel engaged in unloading of the containers at the waste site shall wear protective clothing. The disposable clothing shall include head, body and foot protection. Minimum respiratory protection shall be half face, dual cartridge, air purifying respirators with HEPA-filters. Workers shall remove their protective clothing at the disposal site, place it in labeled disposal bags and leave them with the deposited waste shipment.
- BB. For the compaction operation, the asbestos abatement contractor shall ensure that disposal sites personnel have been provided with personal protective equipment by the disposal operator. If the disposal site City has not provided this protective equipment, the asbestos abatement contractor shall supply protective clothing and respiratory protection for the duration of this operation (PAPR respirators are mandatory).
- CC. If containers are broken or damaged, the asbestos abatement contractor or Waste Hauler shall, using personnel who are properly trained and wearing proper protective equipment, shall repackage the waste in properly labeled containers. Asbestos abatement contractor shall then clean the entire truck and its contents using HEPA-vacuums and wet cleaning techniques until no visible residue is observed.
- DD. Following the removal of all containerized waste, the asbestos abatement contractor shall decontaminate the truck cargo area using HEPA-vacuums and/or wet cleaning techniques until no residue is observed. All 6-mil polyethylene sheeting shall be removed and discarded as asbestos-containing waste material along with contaminated cleaning material and protective clothing, in containers at the disposal site.
- EE. The transporter(s) of all asbestos waste shall not back-haul any items on his return from landfill/disposal site.
- FF. All asbestos waste shall be disposed of in an approved Asbestos Landfill site only.
  - 1. NO PERSON UNDER ANY CIRCUMSTANCES SHALL ABANDON ACW. The same shall be disposed of only by certified persons in approved landfills.
  - 2. A manifest form will be signed by the Landfill documenting receipt and acceptance of the asbestos-containing waste. This manifest will be furnished to the City of New York within thirty calendar days from the project completion date.

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3. It is the responsibility of the Asbestos abatement contractor to determine current waste handling, transportation and disposal regulations for the work site and for each waste disposal landfill. The Asbestos abatement contractor must comply fully with these regulations and all appropriate U.S. Department of Transportation, EPA and other Federal, State and Local entities' regulations and all other current legal requirements.
4. The asbestos abatement contractor shall obtain an agreement from the transporter (s) that the practice of "Back-Hauling" will not be engaged in, with respect to any and all waste loads taken from this site during the work.
5. The asbestos abatement contractor will document actual disposal of the waste at the designated landfill by having completed a Disposal Certificate and will provide a copy of the same to the Department of Design and Construction.

**PART 6 – ACCEPTANCE**

**6.01 ACCEPTANCE**

Upon satisfactory completion of all decontamination procedures, a certificate will be issued by the Construction Project Manager with copies to all parties.

- A. A letter of Compliance stating that all the work on the project was performed in accordance with the Specifications and all applicable Federal, State and Local regulations.
- B. All warranties as stated in the Specifications.

**END OF SECTION 028213**

SECTION 03 30 00

CAST-IN-PLACE CONCRETE AND CEMENT WORK

PART 1 - GENERAL

- 1.1 The general provisions of the contract, including General and Supplementary Provisions and General Requirements, apply to the work specified in this Section.
- 1.2 SCOPE OF WORK
  - A. Provide all labor, materials, equipment and perform all operations in connection with the furnishing and installation of all concrete and cement work and related work necessary to complete the work of the project including, but not limited to, the following:
    1. Foundation systems including walls, pits and the like.
    2. Floor slabs on grade.
    3. Structural concrete slabs and normal and lightweight floor fill systems on decking supplied by others.
    4. Supply, fabricate and place all required reinforcing bars, mesh and other reinforcement for concrete where shown, called for, and/or required complete with proper supporting devices.
    5. Erection and removal of all formwork required to properly complete the work.
    6. Finishing of all concrete work as hereinafter specified.
    7. Curing and protection of all concrete and cement work.
    8. Floor sealers and dustproofing of all areas exposed and/or covered with carpet.
    9. Cutting, patching, grouting, repairing and pointing up as required.
    10. Vapor barrier system below slabs on grade.
    11. Grouting of all beam bearing plates and column base plates.
    12. All other work and materials as may be reasonably inferred and needed to make the work of this Section complete.
    13. Equipment pads as required.

**CAST-IN-PLACE CONCRETE AND CEMENT  
WORK  
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B. Related Work Specified Elsewhere:

1. Structural Steel & Metal Decking (05 10 00) and (05 30 00).
2. Excavation, Filling and Grading (02 22 00).

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed concrete work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C94 requirements for production facilities and equipment.
- C. Comply with ACI 301, "Specification for Structural Concrete", including the following, unless modified by the requirements of the Contract Documents.
1. General requirements, including submittals, quality assurance, acceptance of structure, and protection of in-place concrete.
  2. Formwork and form accessories.
  3. Concrete mixtures.
  4. Handling, placing and constructing concrete.

1.4 REFERENCE STANDARDS

- A. Comply with the latest edition of the American Concrete Institute Standard "Specifications for Structural Concrete for Buildings", (ACI 301). ACI 318 "Building Code Requirements for Reinforced Concrete".
- B. The ACI Field Reference Manual, SP-15 shall be kept at the job site, and the practices set forth therein, shall be strictly adhered to.
- C. Building Code of the jurisdiction where the work is to be accomplished.

1.5 SUBMITTALS REQUIRED

- A. Shop drawings showing reinforcing, bending and bar lists. The Shop drawings shall be prepared only by competent detailers, checked prior to submission, and submitted in accordance with Section 01300.
- B. The Shop Drawings shall show construction joint locations and the added

**CAST-IN-PLACE CONCRETE AND CEMENT  
WORK**

reinforcement required at same.

- C. Obtain and coordinate information for sleeves and openings in concrete, which are required for the work of other trades. Make coordinated drawings showing size and location of openings and sleeves and incorporate this information on the reinforcing drawings.
- D. Only those splices indicated on the approved shop drawings will be permitted.
- E. Provide elevations of all foundation walls and other structural elements to a minimum 1/4" scale.
- F. Submit 12" linear samples of dovetails, reglets, rod supports and the like and piece samples of inserts, ties and the like.
- G. Certification of specification compliance.
- H. Deviations: Should the Contractor desire a deviation from the Drawings or Specifications, or both, he shall call the specific deviation to the Commissioner's attention in writing prior to the submittal of shop drawings showing the subject deviation. Requests for deviations shall be submitted on the Contractor's letterhead. Deviations not identified, or identified only in letters of transmittal or in shop drawings or both, without the required written description on the Contractor's letterhead may not be accepted and shall be sufficient cause for the Commissioner to return shop drawing including such deviations, rejected, without further action. Acceptance of shop drawings including deviations not detected by the Commissioner during shop drawing review shall not relieve the Contractor from responsibility to conform strictly to the Contractor Documents. Deviations will be allowed only where permitted by the Commissioner in writing.

#### 1.6 TESTING AND INSPECTION

- A. An organization, approved by the Commissioner, shall be retained by the City of New York for testing, inspection and control of the concrete at the batching plant and in the field. The Contractor shall accept test results from this organization as final.
- B. Testing, inspection and control shall be performed as directed by the Engineer of Record. The testing services listed in ACI Standard 301 shall be the minimum required.

#### 1.7 CONCRETE TESTING

- A. Upon award of the Contract an independent testing laboratory shall be selected jointly by the City of New York, Commissioner and Engineer of Record. The laboratory shall be licensed by the State of New York and will

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perform all laboratory tests, field inspections of concrete, including the taking of cylinders in the field, the testing, handling and transportation of cores and cylinders in accordance with A.C.I. Code and requirements of the New York City Building Department. The costs of the inspection shall be borne by the City of New York.

- B. The Contractor shall be responsible for notifying the laboratory when pours are to be made. The Contractor shall provide a protected and heated location for storing cylinders on the site and shall cooperate in all ways with the laboratory in the performance of their duties.
- C. The testing agency shall provide a full time qualified inspector at the place of batching, who will inspect concrete and materials for concrete. The testing agency shall provide adequate equipment for the determination of moisture content and gradation of fine and coarse aggregates. Adjustment shall be made in batch weights to compensate for variation in moisture content. The testing agency's inspector shall verify the batch weights. The testing agency shall have an inspector at the plant and at the site to certify that the concrete is as per specifications.
- D. The testing agency shall provide a qualified inspector at the site to see that concrete is thoroughly mixed and properly placed. It shall be the responsibility of the inspector to control the consistency of the mix in order that there will be no segregation due to excessive water, to make the specimens, and submit records showing the slump, unit weight and air content of the concrete, the temperature of the air and of the concrete, the mixing time and quantity of concrete placed.
- E. The inspectors shall immediately call to the attention of the Commissioner, the Engineer of Record and governing agency(s) any discrepancies found in the work.
- F. During the progress of the work, three test cylinders shall be molded for each 50 cu. yds. or fraction thereof of each class of concrete placed in any one day's concreting. Cylinder shall be taken directly from the mixer in accordance standard RS10-51, cured in accordance with reference standard RS10-52 and tested at the age of 28 days in accordance with reference standard RS10-17.
- G. The Laboratory shall be directed to send one copy of test results directly to the Commissioner and two copies directly to the Engineer of Record.
- H. If the results of these tests and inspections indicate that the concrete does not meet the requirements as set forth on the Drawings or in these Specifications or is otherwise unsatisfactory, the Contractor shall proceed as directed by the Commissioner. All additional costs resulting from retesting, load testing, replacement of concrete and/or damage to the work of other trades shall be borne by the Contractor.

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1.8 INSPECTION

- A. The laboratory will control concrete quality, the Engineer of Record will inspect the reinforcement and placement of concrete and will file reports with the Building Department.
- B. To minimize inspection costs, the Contractor shall make as large pours as practical but must average at least 50 cubic yards per day. Inspection costs which may accrue because Contractor failed to maintain the required minimum average will be borne by the Contractor.
- C. The Contractor shall keep accurate records of total concrete delivered and shall reconcile same with the laboratory weekly.
- D. Inspections and tests will be made as per requirements herein and as deemed necessary by the Commissioner. The Contractor shall give the Commissioner 36 hours notice before any pour.

**PART 2 - PRODUCTS**

2.1 CONCRETE CONSTITUENTS

- A. Cement, ASTM C-150, Type I or II, use one brand only for each type of cement used throughout the project. Air entrained cement shall not be permitted.
- B. Normalweight Fine Aggregate - washed, inert, natural or manufactured or combination thereof, sand conforming to ASTM C-33 gradation.
- C. Normalweight Coarse Aggregate - well graded crushed stone or washed gravel conforming to ASTM C-33, sizes 57 for foundations and 67 for slabs and structure.
- D. Lightweight Coarse Aggregate - well graded crushed expanded shale produced by rotary kiln method; "Solite" or equal, conforming to ASTM C330.
- E. Water - Potable, clean and free from oils, acids, alkali, organic matter and other deleterious material.
- F. Admixtures
  - 1. Water-reducing agents: "WRDA"/W.R. Grace & Company; "Pozzolith 200N"/Master Builder's Company; "PDA25"/Protex Industries; or approved equal conforming to ASTM C-494.
  - 2. Air-entrainment: "DAREX AEA"/Grace; "MB-WR"/Master Builder's;

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"PROTEX AEA"/Protex or approved equal conforming to ASTM C-260.

3. Admixture retaining setting of cement in concrete shall not be used without written approval of Commissioner.
4. Admixture causing accelerated setting of cement in concrete SHALL NOT BE USED.
5. Admixtures containing calcium chloride or other chloride salts shall not be used.

## 2.2 FORM MATERIALS

- A. Exposed concrete finish - 5/8 inch plyform coated with form release oil.
- B. Unexposed concrete finish - forms of metal, wood or other material approved by the Commissioner.
- C. Chamfer strips - 1/2 inch 45 degree wood or "PVC" installed at all corners, inside and out of all forms unless otherwise directed by Commissioner.
- D. Form ties and spreaders - prefabricated assemblies by Richmond; Superior, Dayton or approved equal. Wire ties SHALL NOT BE USED. Ties for foundation work shall be of snap design with removal cones and water seal washer.

## 2.3 REINFORCEMENT

- A. Reinforcing Bars - ASTM A-615, grade 60 and deformations ASTM A-305.
- B. Welded Wire Fabric - ASTM A-185.
- C. Accessories - Product Standard PS7-766, Class C. Accessories touching interior formed surfaces shall be plastic tipped and/or otherwise isolated.

## 2.4 MISCELLANEOUS MATERIALS

- A. Grout - ready-to-use metallic aggregate product similar and equal to "Embeco" by Master Builders; "Vibro-Foil" by Grace; "Ferrolith G" by Sonnoborn. Strength - 7500 psi/28 days.
- B. Waterstops - extruded "PVC"; 2000 psi minimum tensile strength; 350% minimum elongation; Shore "A" hardness, 65 to 75; maximum .15% water absorption; inert; as manufactured by Progress Unlimited.
- C. Vapor Barrier - 6 mil polyethelene

- D. Membrane Curing Compound - ASTM C-309, Type I.
- E. Chemical Hardener - Sonnoborn "Lapidolith" or approved equal.

2.5 UNDERSLAB DRAINAGE COURSE

- A. Material to be selected bank run or crushed stone with no more than 5% of fines passing a 200 mesh sieve.

**PART 3 - EXECUTION**

3.1 INSPECTION

- A. Examine all work prepared by others to receive work of this section and report any defects affecting installation to the Contractor for correction. Commencement of work will be construed as complete acceptance of preparatory work by others.

3.2 CONCRETE

- A. Concrete shall develop the minimum compressive strengths shown on Drawings at 28 days when sampled and tested in accordance with ASTM C-31 and C-39 with a design slump of 5 inches.
- B. Preliminary tests for the purpose of determining concrete mixes, in accordance with Chapter 4 of the ACI Building Code, and tests of cement and other concrete materials will be made at a laboratory approved by the Commissioner. The Contractor shall have his representative present when preliminary tests are made. It shall be the responsibility of the Contractor to satisfy himself that concrete mixes, based on the results of the preliminary tests, will produce concrete strengths as required by the Contract.
- C. The Contractor shall submit samples of cement and other concrete materials for preliminary tests. Cement samples shall be of the same brand, type and source, and aggregate samples shall be of the same source, grading and mineral composition as the materials to be used in the actual construction. Approval of concrete materials will be conditional on acceptable results of preliminary tests.
- D. A representative of the supplier of the lightweight aggregate, in addition to that of the testing laboratory, shall supervise at the start of concrete operations, the batching at the plant, and the placing of concrete at the site in accordance with his instructions and to the satisfaction of the Commissioner.
- E. Concrete shall be in accordance with the requirements and specifications

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of Article C26-1004 of the New York City Building Code. "Building Code Requirements for Reinforced Concrete" as modified by reference standard RS10-3 of the New York City Building Code.

- F. Concrete shall be proportioned, batched and mixed by Method II - "Performance Concrete" of the New York City Building Code as specified in Article C26-1004.3b Mixes with performance data from previous projects, similarly proportioned, may be accepted in lieu of preliminary tests subject to approval of the Commissioners, provided that acceptable performance data from previous projects are submitted and cement, aggregates, and other ingredients of concrete used for the building shall be the same and from the same sources as those in previously used mixes. The concrete shall be produced in a plant acceptable to the Commissioner and that plant shall have automatic batching and recording devices for all ingredients. All attestations required by the Provisions of Section C26-1004.3 (a) (5) shall be done by the producer who shall certify that the concrete as discharged from his control will meet the requirements for ingredients, slump, and when tested in accordance with reference standard RS10-17, for strength.
- G. All laboratory costs connected with establishing a design mix satisfactory to the New York City Building Department and the Engineer of Record shall be borne entirely by the City of New York.

### 3.3 FORMWORK

- A. Comply with ACI 347, Chapter 1 thru 3 for the design and construction of all concrete forms not otherwise specified.
- B. Use new plywood or other approved material which can be arranged in a regular pattern to form vertical surface that will be exposed to view. Form accessories, form oil, details of form work construction at joints, and the like shall be approved by the Commissioner as/Article 1.5 herein.

### 3.4 JOINTS AND EMBEDDED ITEMS

- A. Locate construction joints as detailed at approved locations. Make construction joints with straight stops and continuous keys. Reinforcement shall be continuous thru construction joints unless otherwise indicated.
- B. Install embedded items accurately in position conforming to approved shop drawings.

### 3.5 VAPOR BARRIER

- A. Install polyethelene vapor barrier under all slabs on grade unless otherwise required by the drawings and/or specifications. Use greatest width available, lapping all joints a minimum of 6" and seal all joints. **SEAL AROUND ALL PENETRATIONS.**

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3.6 UNDER SLAB DRAINAGE COURSE

- A. Provide free draining porous fill, minimum of 6" deep over entire area of grade slab. Material shall be well compacted and placed true to line and grade. Material shall be as specified in Part 2 of this Section.

3.7 GROUTING

- A. Perform grouting operations under steel base and bearing plates using material as listed in Part 2 of this Section in strict accordance with manufacturers recommendations.

3.8 EXPANSION JOINT FILLERS

- A. Set non-extruding, bituminous type preformed joint fillers where indicated. Filler shall be stopped 1/2" below top of slab and filled with pourable sealant compound compatible with filler and non-staining in nature. NOTE - Option to use of self-expanding cork filler flush with top of concrete finish.

3.9 CONCRETE MATERIAL AND PLACEMENT

- A. Ready-mix concrete shall comply with the requirements of ASTM C-94 and ACI 614. All plant and transporting equipment shall comply with the concrete plant standards and truck mixer and agitator standards of the National Ready Mix Concrete Association.
- B. Cold weather mixing procedures shall be submitted to the Testing Laboratory and the Engineer of Record for approval.
- C. Notify the Engineer of Record and Testing Laboratory at least 36 hours (1.5 regular working day) before each pour so that forms and reinforcing may be examined. Do not place concrete until inspection has been made or waived.
- D. Deposit concrete in walls in layers less than 18 inches in height. Use internal vibrators penetrating both the top and proceeding layer. Provide at least 2 operating vibrators (and portable generators, if used) on the site prior to start of placing operations. Supplement vibration by wood spading as necessary to remove bubbles and prevent honeycombing.
- E. Do not place concrete in water or on snow, ice or frozen or water softened ground.
- F. When concrete is placed at or below a temperature of 40°F. or when this temperature is likely to occur within 24 hours of placement, protect in accordance with ACI 306, "Recommended Practice for Cold Weather Concreting".

**3.10 FINISHING**

- A. Finish horizontal concrete surfaces to established grades by means of strikeboard and pipe screeds. Power float and thoroughly compact the concrete to provide an even, level surface. Finish to tolerance and details in Chapter 11 of ACI 301 as follows:
1. Steel trowel all floors to receive applied resilient finish with a single pass.
  2. Double burnish all floors scheduled to remain exposed.
  3. Power float all floors designated to receive ceramic tile or other like material.
  4. Double burnish all areas scheduled to receive membrane waterproofing.
  5. Finish tops of walls, piers and the like by floating to a level and true surface.
  6. Site concrete - walks, broom after float with all edges and joints treated with smooth edging tool; curbs, faces and tops rubbed.
- B. Finish vertical surfaces exposed to view with "smooth form finish as defined in Chapter 10 of ACI 301.

**3.11 CURING AND PROTECTION**

- A. Provide auxiliary heat, spray on membrane, cover or leave forms in place as appropriate for the particular job conditions and weather.
- B. Submit for approval the methods, in detail, proposed for cold weather curing and protection prior to placement of any concrete when the temperature is at or below 40 degrees F.
- C. Cure all floors with an approved spray-on liquid membrane curing compound compatible with resilient flooring as/Part 2 of this Section. Apply immediately after finishing operations are complete.

**3.12 HARDENER**

- A. Apply surface hardener to all concrete floors not receiving resilient flooring, ceramic tile or membrane waterproofing. Clean surfaces and apply 3 coats of hardener as specified in Part 2 of this Section in accordance with the manufacturer's instructions.

**END OF SECTION**

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SECTION 03 49 00

GLASS FIBER REINFORCED CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Section includes glass-fiber-reinforced concrete (GFRC) components replicating historic terra cotta consisting of GFRC, anchors, and connection hardware.

1.3 DEFINITIONS

- A. Design Reference Sample: Sample of GFRC color, finish, and texture to match historic terra cotta elements.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.5 SUBMITTALS

- A. Product Data: For each type of product. Include GFRC design mixes.
- B. Shop Drawings: Show fabrication and installation details for GFRC components including the following:
1. Component elevations, sections, and dimensions.
  2. Thickness of facing mix, GFRC backing, and bonding pads.
  3. Finishes.
  4. Joint and connection details.
  5. Erection details.
  6. Locations and details of connection hardware attached to structure.

7. Sizes, locations, and details of flex, gravity, and seismic anchors for typical panels.
  8. Erection sequence for special conditions.
  9. Relationship to adjacent materials.
  10. Description of loose, cast-in, and field hardware.
- C. Samples for Verification: For each type of finish indicated on exposed GFRC surfaces, representative of finish, color, and texture variations expected, approximately 12 by 12 inches by actual thickness.
- D. Shop Drawings: For GFRC components, including analysis data signed and sealed by the licensed professional engineer responsible for their preparation.
- E. Qualification Data: For manufacturer.
- F. Source Quality-Control Program: For GFRC manufacturer.
- G. Source Quality-Control Test Reports: For GFRC, inserts, and anchors.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Designated a PCI-certified plant for Group G - Glass Fiber Reinforced Concrete or designated an APA-certified plant for GFRC production.
- B. Installer Qualifications: Manufacturer of GFRC components.
- C. Mockups: Build mockups to demonstrate aesthetic effects and to set quality standards for fabrication and installation.
1. Build mockup of GFRC component installation at the terra cotta cornice as shown on Drawings.
    - a. Include typical components, attachments to building structure, and methods of installation.
    - b. Include window opening with GFRC returns.
    - c. Include sealant-filled joint complying with requirements in Section 079200 "Joint Sealants."
  2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Handle and transport GFRC components supported on nonstaining material and with nonstaining resilient spacers between components.
- B. Store GFRC components off of ground on firm, level, and smooth surfaces supported on nonstaining material and with nonstaining resilient spacers between components. Place stored components so identification marks are clearly visible.

**PART 2 - PRODUCTS**

2.1 MANUFACTURERS

- A. Source Limitations: Obtain GFRC components from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. GFRC components, including panel frames, anchors, and connections to be submitted in Shop Drawings and stamped by Contractor's licensed professional engineer.
- B. Structural Performance: GFRC components, including anchors, and connections, shall withstand the following design loads as well as the effects of thermal- and moisture-induced dimensional changes within limits and under conditions indicated:
  - 1. Withstand positive and negative wind pressure caused by 30 psf winds without suffering structural failure, cracking, crazing, or displacement and without adverse effects on supporting structure, anchors, fasteners, and attachments.
  - 2. Withstand forces from thermal expansion and contraction caused by a 150 deg F temperature range in the GFRC components and in adjacent materials without suffering structural failure, cracking, crazing, or displacement and without adverse effects on supporting structure, anchors, fasteners, and attachments.
  - 3. Comply with all requirements of the New York City Building Code and with all requirements of other applicable laws, codes, and regulations.
- C. Design Considerations: Design GFRC components to account for the following:
  - 1. Loads
    - a. Dead Loads: Include the weight of the GFRC components and attached items.

- b. Live Loads: As required by New York City Building Code and other applicable regulations.
  - c. Wind Loads: As required by New York City Building Code and other applicable regulations. Consider wind loads as an inward pressure and as an outward suction.
  - d. Seismic Design Forces: As required New York City Building Code and other applicable regulations.
  - e. Load Combinations: Consider applicable load combinations. Do not combine wind loads with seismic loads.
2. Provisions for Movement
- a. Design and detail anchorages, connections, and joints to allow for dimensional changes of the GFRP components caused by thermal and similar effects.
  - b. Where GFRP components are restrained, allow for effects of restraint in design.
3. Anchorages and Connections: Consider tolerances and eccentricities of load applications in designing anchorages and connections. Provide proper edge and end distances for inserts.
- D. PCI Manuals: Comply with requirements and recommendations in the following PCI manuals unless more stringent requirements are indicated:
- 1. PCI MNL 128, "Recommended Practice for Glass Fiber Reinforced Concrete Components."
  - 2. PCI MNL 130, "Manual for Quality Control for Plants and Production of Glass Fiber Reinforced Concrete Products."
- E. AISI Specifications: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."

**2.3 MOLD MATERIALS**

- A. Molds: Rigid, dimensionally stable, non-absorptive material, warp and buckle free, that provides continuous GFRC surfaces within tolerances; nonreactive with GFRC and capable of producing required finish surfaces.
  - 1. Mold-Release Agent: Commercially produced liquid-release agent that does not bond with, stain, or adversely affect GFRC surfaces and does not impair subsequent surface or joint treatments of GFRC.
- B. Form Liners: Units of face design, texture, arrangement, and configuration indicated to match GFRC design reference sample. Provide solid backing and

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form supports to ensure that form liners remain in place during GFRC application. Use with manufacturer's recommended liquid-release agent that does not bond with, stain, or adversely affect GFRC surfaces and does not impair subsequent surface or joint treatments of GFRC.

- C. Surface Retarder: Chemical liquid-set retarder capable of temporarily delaying hardening of newly placed GFRC face mix to depth of reveal specified.

## 2.4 GFRC MATERIALS

- A. Portland Cement: ASTM C 150/C 150M; Type I, II, or III.
  - 1. For surfaces exposed to view in finished structure, use white of same type, brand, and source throughout GFRC production.
- B. Metakaolin: ASTM C 618, Class N.
- C. Glass Fibers: Alkali resistant, with a minimum zirconia content of 16 percent, 1 to 2 inches long, specifically produced for use in GFRC, and complying with ASTM C 1666/C 1666M.
- D. Sand: Washed and dried silica, complying with composition requirements in ASTM C 144; passing a No. 20 sieve with a maximum of 2 percent passing a No. 100 sieve.  
Retain "Facing Aggregate" Paragraph below if face mix is required.
- E. Facing Aggregate: ASTM C 33/C 33M, except for gradation, and PCI MNL 130, 1/4-inch maximum size.
  - 1. Aggregates: Selected, hard, and durable; free of material that reacts with cement or causes staining; to match sample.
  - 2. Fine Aggregate: Natural or manufactured sand with a maximum of 5 percent passing a No. 100 sieve and a maximum of 3 percent passing a No. 200 sieve.
- F. Coloring Admixture: ASTM C 979/C 979M, synthetic mineral-oxide pigments or colored water-reducing admixtures, temperature stable, nonfading, and alkali resistant.
- G. Water: Potable; free from deleterious material that may affect color stability, setting, or strength of GFRC and complying with chemical limits in PCI MNL 130.
- H. Polymer-Curing Admixture: Acrylic thermoplastic copolymer dispersion complying with PCI MNL 130.
- I. Air-Entraining Admixture: ASTM C 260/C 260M, containing not more than 0.1 percent chloride ions.

- J. Chemical Admixtures: ASTM C 494/C 494M, containing not more than 0.1 percent chloride ions.

2.5 ANCHORS, CONNECTORS, AND MISCELLANEOUS MATERIALS

- A. Stainless-Steel Plates: ASTM A 240/A 240M or ASTM A 666, Type 304.
- B. Carbon-Steel Shapes and Plates: ASTM A 36/A 36M, finished as follows:
  - 1. Finish: Zinc coated by hot-dip process according to ASTM A 123/A 123M, after fabrication, or ASTM A 153/A 153M, as applicable
  - 2. Finish: Shop primed with paint complying with MPI#79 on surfaces prepared to comply with SSPC-SP 2, "Hand Tool Cleaning," or better.
- C. Stainless-Steel Bars and Shapes: ASTM A 276, Type 316.  
Carbon-steel bars are used as flex, gravity, and seismic anchors.
- D. Carbon-Steel Bars: ASTM A 108, Grade 1018, not less than 1/4 inch in diameter, finished as follows:
  - 1. Finish: Zinc coated by hot-dip process according to ASTM A 123/A 123M, after fabrication, or ASTM A 153/A 153M, as applicable.
  - 2. Finish: Shop primed with paint complying with MPI#79 on surfaces prepared to comply with SSPC-SP 2, "Hand Tool Cleaning," or better.
- E. Malleable-Iron Castings: ASTM A 47/ A 47M, Grade 32510
- F. Carbon-Steel Castings: ASTM A 27/A 27M, Grade 60-30
- G. Bolts: ASTM A 307 or ASTM A 325, finished as follows:
  - 1. Finish: Stainless Steel, ASTM A 276 Type 316

2.6 GFRC MIXES

- A. Mist Coat: Portland cement, sand slurry, and admixtures; of same proportions as backing mix without glass fibers.
- B. Face Mix: Proportion face mix of portland cement, sand, facing aggregates, and admixtures to comply with design requirements.
- C. Backing Mix: Proportion backing mix of portland cement, glass fibers, sand, and admixtures to comply with design requirements. Provide nominal glass-fiber content of not less than 5 percent by weight of total mix.

- D. Polymer-Curing Admixture: 6 to 7 percent by weight of polymer-curing admixture solids to dry portland cement.
- E. Air Content: 8 to 10 percent; ASTM C 185.
- F. Coloring Admixture: Not to exceed 10 percent of cement weight.

2.7 **MOLD FABRICATION**

- A. Construct molds that result in finished GFRC complying with profiles, dimensions, and tolerances indicated, without damaging GFRC during stripping. Construct molds to prevent water leakage and loss of cement paste.
  - 1. Coat contact surfaces of molds with form-release agent.
  - 2. Coat contact surfaces of molds with surface retarder.
- B. Place form liners accurately to provide finished surface texture indicated. Provide solid backing and supports to maintain stability of liners during GFRC application. Coat form liner with form-release agent.
- C. Locate, place, and secure flashing reglets accurately.

2.8 **GFRC FABRICATION**

- A. Proportioning and Mixing: For backing mix, meter sand/cement slurry and glass fibers to spray head at rates to achieve design mix proportions and glass-fiber content according to PCI MNL 130 procedures.
- B. Spray Application: Comply with general procedures as follows:
  - Retain one of first two subparagraphs below unless neither is required.
  - 1. Spray mist coat over molds to a nominal thickness of 1/8 inch on planar surfaces.
  - 2. Spray or place face mix in thickness indicated on Shop Drawings.
  - 3. Proceed with spraying backing mix before face mix has set, using procedures that produce a uniform thickness and even distribution of glass fibers and matrix.
  - 4. Consolidate backing mix by rolling or other technique to achieve complete encapsulation of glass fibers and compaction.
  - 5. Measure thickness with a pin gage or other acceptable method at least once for every 1 sq. ft. of surface. Take no fewer than six measurements per panel.

- C. Hand form and consolidate intricate details, incorporate formers or infill materials, and overspray before material reaches initial set to ensure complete bonding.
- D. Inserts and Embedments: Build up homogeneous GFRC bosses or bonding pads over inserts and embedments to provide enough anchorage and embedment to comply with design requirements.
- E. Curing: Employ initial curing method that ensures sufficient strength for removing units from mold. Comply with PCI MNL 130 procedures.
  - 1. Keep moisture off of the surfaces of mixes with polymer curing admixtures during the first three hours of curing. Maintain temperature between 60 and 120 deg F during the first 16 hours.
  - 2. Prevent drying of moist curing mixes during the first 24 hours. Maintain units in surface-damp condition at a temperature above 60 deg F and 95 percent relative humidity for seven days.
- F. Identification: Mark each GFRC component to correspond with identification mark on Shop Drawings. Mark each panel with its casting date.

## 2.9 FABRICATION TOLERANCES

- A. Manufacturing Tolerances: Manufacture GFRC components so each finished unit complies with PCI MNL 130 for dimension, position, and tolerances.

## 2.10 FINISHES

- A. Exposed faces shall be free of joint marks, grain, and other obvious defects. Corners, including false joints, shall be uniform, straight, and sharp. Finish exposed-face surfaces of GFRC to match approved design reference sample and mockups and as follows:
  - 1. As-Cast-Surface Finish: Provide surfaces to match approved sample for acceptable surface, air voids, sand streaks, and honeycomb, with uniform color and texture.
  - 2. Textured-Surface Finish: Impart by form liners.
  - 3. Retarded Finish: Use chemical-retarding agents applied to concrete forms and washing and brushing procedures to expose aggregate and surrounding matrix surfaces after form removal.
  - 4. Sand- or Abrasive-Blast Finish: Use abrasive grit, equipment, application techniques, and cleaning procedures to expose aggregate and surrounding matrix surfaces.



5. Acid-Etched Finish: Use acid and hot-water solution equipment, application techniques, and cleaning procedures to expose aggregate and surrounding matrix surfaces.

2.11 SOURCE QUALITY CONTROL

- A. Quality-Control Testing: Establish and maintain a quality-control program for manufacturing GFRC components according to PCI MNL 130.
  1. Test materials and inspect production techniques.
  2. Quality-control program shall monitor glass-fiber content, spray rate, unit weight, product physical properties, anchor pull-off and shear strength, and curing period and conditions.
  3. Prepare test specimens and test according to ASTM C 1228, PCI MNL 130, and PCI MNL 128 procedures.
  4. Test GFRC anchors according to ASTM C 1230 to validate design values.
  5. Produce test boards at a rate of no fewer than one per work shift per operator for each spray machine and for each mix design.
    - a. For each test board, determine glass-fiber content according to ASTM C 1229 and flexural yield and ultimate strength according to ASTM C 947.

**PART 3 - EXECUTION**

3.1 EXAMINATION

- A. Examine structure and conditions for compliance with requirements for installation tolerances, bearing surfaces, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 ERECTION

- A. Install clips, hangers, and other accessories required for connecting GFRC components to supporting members and backup materials.
- B. Install GFRC components level, plumb, square, and in alignment. Provide temporary supports and bracing as required to maintain position, stability, and alignment until permanent connections are completed.
  1. Maintain horizontal and vertical joint alignment and uniform joint width.

2. Remove projecting hoisting devices.

3.3 **REPAIRS**

- A. Repairs are permitted provided structural adequacy of GFRC component and appearance are not impaired, as approved by Commissioner.
- B. Mix patching materials and repair GFRC so cured patches blend with color, texture, and uniformity of adjacent exposed surfaces.
- C. Prepare and repair accessible damaged galvanized coatings with galvanizing repair paint according to ASTM A 780/A 780M.
- D. Wire brush and clean accessible weld areas on prime-painted components and paint with same type of shop primer.
- E. Remove and replace damaged GFRC components when repairs do not comply with requirements.

3.4 **CLEANING AND PROTECTION**

- A. Perform cleaning procedures, if necessary, according to GFRC manufacturer's written instructions. Clean soiled GFRC surfaces with detergent and water, using soft fiber brushes and sponges, and rinse with clean water. Prevent damage to GFRC surfaces and staining of adjacent materials.

END OF SECTION

SECTION 04 05 13.91

MASONRY RESTORATION MORTARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the work of mortar as shown on the Drawings and specified herein, including, but not limited to, the following:
1. Mortar for setting brick and stone masonry.
  2. Custom mortars for pointing existing and new masonry.
  3. Removing existing mortar, preparing joint surfaces, installing new mortar, and tooling joints to match original mortar color and texture and profile of adjacent joints as indicated on Drawings.
  4. Cleaning excess mortar from masonry surfaces

1.3 QUALITY ASSURANCE

- A. Source of Materials: Obtain mortar ingredients from a single source for each type of material required to ensure uniform quality, performance, and appearance.
- B. Field Supervised Construction: Notify Commissioner before beginning mortar preparation.
- C. Source of Materials: Obtain materials for masonry pointing from a single source for each type of material required to ensure a match in quality, performance, and appearance.
- D. Familiarity with Site Conditions: Bidders shall visit site and carefully examine project scope and conditions that may affect proper execution of work of this Section and determine or verify dimensions and quantities.
- E. Repair or replace all masonry units damaged during masonry pointing to satisfaction of Commissioner at no additional cost to the City of New York.

**1.4**     **SUBMITTALS**

- A.    **General:** Submit each item in this Article in compliance with the Conditions of the Contract and General Conditions. Revise and resubmit each item as required to obtain Commissioner's approval.
  
- B.    **Qualification Data:** Submit qualification data for firm specified in "Quality Assurance" Article that demonstrates that firm has capabilities and experience complying with requirements specified. For firm, provide a list of at least three (3) completed projects similar in size and scope to work required on this project. For each project list project name, address, architect, conservator, supervising preservation agency, scope of contractor's work, and other relevant information.
  
- C.    **Product Literature:** Manufacturer's published technical data for each product to be used in work of this Section including recommendations for application and use. Include test reports and certificates verifying that product complies with specified requirements.
  
- D.    **Samples:**
  - 1.    **Pointing Mortar:** Cured samples set in 1/2 in. by 6 in. plastic or aluminum channels for each type of masonry listed below for approval of color and texture. Samples shall match cleaned existing mortar, unless otherwise indicated.
    - a.    Brick masonry.
    - b.    Rubble stone masonry.
  - 2.    **Sand:** One-pound sample of each type and grade of sand proposed for use. Include sieve analysis.
  
- E.    **Product Literature:** Manufacturer's published technical data for each product to be used in work of this Section including recommendations for application and use. Include test reports and certificates verifying that product complies with specified requirements.
  
- F.    **Program of Work:** Written program for joint preparation and pointing of each masonry material and condition.
  - 1.    Include detailed description of proposed materials, methods, tools, and equipment.
  - 2.    Include descriptions, drawings, and diagrams, outlining proposed methods and procedures for protection of personnel, public, and existing construction during work of this Section.
  - 3.    If alternate methods and materials to those specified are proposed for any phase of masonry pointing work, provide written description. Provide evidence of successful use on comparable projects and demonstrate effectiveness for use on this project.
  
- G.    **Prepare mockups as specified in Article "Mockups," below.**

**1.5 MOCKUPS**

A. General: Before beginning general masonry pointing work, prepare mockups to provide standards for work of this Section. Do not proceed with masonry pointing until Commissioner has approved mockups.

1. Locate mockups as directed by Commissioner.
2. Provide 48 hours' notice to Commissioner prior to start of each mockup.
3. Commissioner will monitor mockups. No mockup done in absence of Commissioner will be accepted.
4. Perform mockups using crew that will be executing the work and following requirements of this Section.
5. Allow each mockup involving mortar to stand until mortar is thoroughly dry and has reached its natural color. Notify Commissioner that panel is ready for inspection.
6. Repeat mockups as necessary to obtain Commissioner's approval.
7. Protect approved mockups to ensure that they are without damage, deterioration, or alteration at time of Substantial Completion.
8. Approved mockups in undamaged condition at time of Substantial Completion may be incorporated into the Work.
9. Approved mockups will represent the minimum acceptable standard for masonry pointing work. Subsequent work that does not meet standard of approved mockups will be rejected.

B. Mockups: Provide the following mockups:

1. Joint Preparation in Stone Masonry: One unit including at least 8 linear feet of joint.
2. Pointing of Joints in Stone Masonry: One unit including at least 8 linear feet of joint.
3. Joint Preparation in Brick Masonry: One panel including at least 12 linear feet of joint for each type of brick masonry to be pointed.
4. Pointing of Joints in Brick Masonry: One panel including at least 12 linear feet of joint for each type of brick masonry to be pointed.

**1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING**

A. Deliver and store materials in manufacturer's original sealed containers or packaging, clearly labeled with manufacturer's name, address and product

identification, including grade, type, and color. Immediately reseal containers after partial use.

- B. Store materials in spaces designated by the Commissioner. Such spaces shall comply with pertinent federal, state, and local laws, codes, and regulations.
  - 1. Maintain temperatures in storage spaces within range recommended by manufacturer of material being stored in each case. Protect liquid components from freezing.
  - 2. Store products and materials at least 4 in. above floor and protect them from water, dampness, or high humidity.
- C. Deliver, store, and handle all products and materials to prevent damage, deterioration, or degradation and intrusion of foreign material.
- D. Discard and remove from site deteriorated or contaminated materials and products that have exceeded their expiration dates. Replace with fresh materials.

1.7 PROJECT CONDITIONS

- A. Applicable Regulations: Perform work of this Section in accordance with federal, state, and local laws and regulations.
- B. Prohibited Materials: No masonry cements or masonry mortars will be permitted.
- C. Coordination: Coordinate preparation of restoration mortars with work of Division 4 sections requiring mortar to ensure proper completion of all work.
- D. Safety: Provide all measures necessary to protect all persons, whether or not involved with work of this Section, from risk or harm caused by work of this Section.
- E. Protection of Building and Property:
  - 1. Protect all adjacent elements and materials from damage or deterioration during work of this Section. Provide all necessary protection and procedures to protect masonry not being pointed and all other elements and materials.
  - 2. Repair damage to elements and materials caused by masonry pointing work, using mechanics experienced in the respective type of work, to satisfaction of Commissioner at no additional cost to City of New York.
  - 3. Protect all components of storm drainage systems against damage and blockage caused or accelerated by work of this Section.

4. **Protection from Weather:** Protect all exposed areas of building, including areas of masonry from which mortar has been removed, from penetration by wind, water, or other forces at all times when work is not in progress.
- F. **Protection of Environment:** Provide all precautions necessary to protect site, site features, surrounding buildings, streets and sidewalks, air, water, and other elements of the environment from damage or deterioration caused by work of this Section.
- G. **Dust:** Minimize dissemination of dust to greatest extent possible.
- H. **Protection of Masonry Being Pointed:** Use all necessary care to protect existing masonry from damage during work of this Section. Take special care in removing existing mortar to ensure that no arrises are damaged, chipped, or broken. Contractor shall replace or repair masonry units damaged by work of this Section as directed by and to complete satisfaction of Commissioner at no additional cost to City of New York.
- I. **Staining:** Prevent grout or mortar from staining face of masonry to be left exposed. Protect sills, ledges, and projections from mortar droppings. Immediately remove grout or mortar in contact with such masonry. Protect base of walls from rain splashed mud and mortar splatter by means of coverings spread on ground and over wall surface.
- J. **Protection from Rain:** Protect pointed joints with heavy waterproof sheeting from direct attack by rain or other precipitation for at least 24 hours after mortar has been applied.
- K. **Coordination:** Coordinate work of this Section with work of other Division 4 sections and with work of Division 7 sections to ensure proper completion of Work.
- L. **Contract Drawings:** Drawings are two-dimensional representations of three-dimensional objects and do not show all surfaces. Perform work on surfaces of projections, reveals, ornament, and other elements associated with areas on which work is indicated.
- M. **Access for Inspection and Approvals:** Provide Commissioner access on a regular basis to locations on which testing or mockups are being carried out, on which work is ongoing, and where work has been completed to allow for inspections and approvals. Provide means of access and safety precautions required to facilitate inspections and approvals.

1.8 **ENVIRONMENTAL CONDITIONS**

- A. **General:** Perform work only when temperature of products being used and air temperature and humidity comply with manufacturer's requirements and requirements of this Section. In case of conflict, the most stringent requirements shall govern.

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- B. **Proprietary Materials:** Do not use proprietary patching materials and mortars unless temperatures are between 50 degrees Fahrenheit and 80 degrees Fahrenheit and will remain within that range for at least 48 hours after work has been completed unless work at other temperatures is specifically approved by manufacturer and Commissioner.
- C. **Mortars:** Do not mix or use mortars when air or masonry temperature is below 40 deg. Fahrenheit or when it is expected to drop below 40 deg. Fahrenheit within 48 hours of mortar application unless Commissioner has approved both Contractor's work proposal for cold-weather masonry work and specific masonry work to be performed in each instance.
  - 1. Remove masonry work determined by Commissioner to have been damaged by freezing conditions and replace following these specifications to Commissioner's satisfaction.
- D. **Hot Weather Pointing:** During hot weather, protect work from premature or too-rapid curing by use of dampened fabric coverings.

**PART 2 - PRODUCTS**

**2.1 MATERIALS, GENERAL**

- A. **Grade and Quality:** Materials shall conform to requirements of this Section and shall be new, free from defects, and of recent manufacture.
- B. **Ready-Mixed Products:** Wherever a ready-mixed product is specified for use, containers shall bear labels giving exact formula of mixture. Manufacture shall guarantee formula.
- C. **Manufacturer's Instructions:** Comply with material manufacturer's instructions for use of products (including surface preparation, mixing, applying, drying, etc.). In case of conflict with requirements of this Section, the more stringent requirements shall govern.

**2.2 TOOLS**

- A. **Hand Tools for Joint Preparation:** Chisels, hammers, and mallets.
  - 1. **Thickness of Chisels:** Chisels used in masonry joints shall have a maximum thickness of 5/8 times joint width extending back from tip of chisel at least twice depth at which chisel will be inserted into joint.
  - 2. **Special Tools:** Provide special knives or special thin cutter blades for use in joints less than 1/8 in. wide.
- B. **Power Tools for Joint Preparation:** Small, hand-held electric grinders with diamond or abrasive blades no greater than 3/32 in. thick and a maximum of 4-1/2 in. diameter may be used to cut joints only under certain conditions as described in Part 3, below and if specifically approved by Commissioner.



- C. Brushes: Stiff, natural bristle brushes.
- D. Trowels for Pointing: Long, thin pointing trowels narrower than joints being pointed.
  - 1. Fabricate special trowels for pointing if necessary to provide for proper insertion and compaction of mortar.

**2.3 MORTAR MATERIALS**

- A. White Portland Cement: Type I, ASTM C 150.
- B. Portland Cement: Type I or Type II, ASTM C 150, non-staining. Do not use masonry cement.
- C. Hydrated Lime: ASTM C 207, Type S.
- D. Sand: Clean sharp sand, free of loam, silt, soluble salts, organic matter, and other deleterious substances and graded in compliance with ASTM C 144. Where mortar is to match existing mortar, sand or other aggregate shall be selected to provide mortar matching color and texture of original mortar (with minimum addition of pigment).
- E. Water: Clean, potable, from city mains, and free of materials detrimental to mortar, masonry units, or masonry accessories.
- F. Pigments: Stable, non-fading, alkali resistant oxide pigments.
- G. Additives: Do not use additives or admixtures other than those specified. Do not use chlorides or aggressive corrosive chemicals.

**2.4 MORTAR MIXES**

- A. Mortars for Setting and Pointing Masonry: Mortars specified hereinafter shall comply with ASTM C 270, "Standard Specification for Mortar for Unit Masonry." Type "N" Mortar strength, in general, shall be consistent with a low standard deviation, and a 28 day cube compressive strength of a minimum of 750 psi and a maximum of 1799 psi. Mortar mixes may change and may require adjustment before and during construction in accordance with analysis of existing historic mortars, pre-construction conformance testing, field testing, and evaluation thereof by Commissioner.
  - 1. Type "N" Mortar for Pointing and Rebuilding Brick, Stone and Unit Masonry:
    - a. 1 part by volume Portland cement (Type I)
    - b. 1 part by volume hydrated lime (Type S)
    - c. 5 parts sand (Selected to match sand in original mortar)
    - d. Oxide pigments as needed to match adjacent mortar color.
  - 2. Type "N" Mortar for Pointing Brick, Stone and Unit Masonry:
    - a. 1 part by volume white Portland cement (Type I)
    - b. 1 part by volume hydrated lime (Type S)
    - c. 5 parts "00" sand (Selected to match sand in original mortar)

**MASONRY RESTORATION MORTARING**

- d. Oxide pigments as needed to match adjacent masonry color.

## 2.5 MIXING OF MORTAR

- A. Measure mortar ingredients carefully so that proportions are controlled and maintained throughout all work periods.
- B. Mix mortar in an approved type of power operated batch mixer. Mix for time required to produce a homogeneous plastic mortar but not be less than five minutes: approximately two minutes for mixing dry materials and not less than three minutes for mixing after water has been added.
- C. Use minimum amount of water to produce a workable consistency for mortar's intended purpose.
  1. Mortar for Pointing: As dry a consistency as will produce a mortar sufficiently plastic to be worked into joints.
- D. Where mortar or grout is required in small batches of less than one cubic yard and Commissioner specifically approves, mortar may be mixed by hand in clean wooden or metal boxes prepared for that purpose provided that Commissioner approves mixing boxes and methods of mixing and transferring mortar.
- E. After mixing, mortars for pointing or setting shall sit for 20 minutes prior to use to allow for initial shrinkage. Mortar shall be placed in final position within two hours of mixing. Re-tempering of partially hardened material is not permitted.

## PART 3 - EXECUTION

### 3.1 GENERAL PREPARATION

- A. Examine areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of work. Do not proceed until unsatisfactory conditions have been corrected.
- B. Before using power grinders or hand methods that generate airborne dust, erect dust impervious barriers and take other measures necessary to prevent dust from traveling beyond work platform.

### 3.2 JOINT PREPARATION

- A. Remove mortar from joints to a depth of 3/4 in. or to sound mortar, whichever is greater. In all cases remove all deteriorated, weathered, and loose material.
- B. Do not damage faces and arrises of masonry units in any way during joint preparation.
- C. Joint preparation shall cease if, in Commissioner's judgment, Contractor's methods are damaging masonry units. Work shall not resume until tools,

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technicians, and methodology have been corrected to meet quality standard of approved mockup.

- D. Remove completely mortar from surfaces of masonry units adjoining joint to allow new mortar to bond directly with masonry units. Surface at rear of joint shall be uniform and roughly perpendicular to sides of joint.
- E. Mortar Removal:
  - 1. Hand Tools: Use hand tools for removal of mortar from all joints less than 6 in. long and from other joints in which use of power tools might damage masonry units. Use hand tools to complete mortar removal from joints where power tools have been used to partially remove mortar.
    - a. For narrow joints of 1/8 in. or less in width, rake mortar from joints manually with a sharp knife blade or cutter made for this purpose. Cutter may be used with or without aid of a hammer.
    - b. Sharpen chisels hourly to minimize chipping.
  - 2. Power Tools: With specific prior approval from Commissioner following successful demonstrations of skill by mechanics, power grinders may be used to partially remove mortar from horizontal joints in brick masonry and from joints longer than 6 in. in stone masonry where there is no danger of cutting into adjacent masonry units.
    - a. Demonstrated Ability of Mechanics: Prior to beginning work, demonstrate that technicians using power tools are proficient in use of power tools for joint preparation. Failure to demonstrate to satisfaction of Commissioner that each worker is proficient, and that power tool joint preparation does not result in damage to masonry to remain shall result in prohibition of use of power tools for joint preparation. If proficiency is not demonstrated, or if work in progress results in damage to masonry to remain, all power tool work shall cease, and joints shall be prepared using hand tools.
    - b. Limitations on Use of Power Tools:
      - 1) Do not use power grinders on joints less than 3/16 in. wide or less than 6 in. long or where ornament or other surface irregularity might make damage to masonry units likely.
      - 2) Use power grinder only to score one kerf cut in center of each joint to depth of mortar removal required. Remove remaining mortar using hand tools.
      - 3) Stop kerf at least 4 in. from inside corners and projecting elements. Remove remaining mortar using hand tools.
      - 4) Construct jigs to guide power tools as required to prevent damage to adjacent masonry units.

- F. **Cleaning:** Remove loose mortar and foreign material from raked joints using a fine, stiff natural bristle brush. Remove remaining particles, dust, and dirt using filtered, oil-free compressed air. Ensure that dust and dirt are not blown back into joints that have previously been cleaned.
- G. **Repair or replace masonry units damaged during joint preparation process to satisfaction of Commissioner at no additional cost to City of New York.**

**3.3 MORTAR APPLICATION**

- A. **Wetting:** Thoroughly wet masonry 24 hours prior to and again immediately before pointing. Let surfaces dry slightly. At time of pointing, surfaces shall be damp, so that they do not rapidly absorb moisture, but free of standing water.
- B. **Pointing:** Point joints as follows.
  - 1. Using a long, thin pointing trowel, tightly pack mortar into joints in layers not exceeding 3/8 in. thick to fill joint to match original sound joints.
  - 2. Begin by filling areas from which mortar is missing to a depth greater than 3/4 in. in 3/8-in.-thick layers to within 3/4 in. of wall surface to provide a uniform substrate for final pointing. Fill final 3/4-in.-depth continuously and uniformly in 1/4-in.-thick layers.
  - 3. Firmly iron each layer to compact mortar to ensure full bond between mortar and masonry units and a firm, solid joint.
  - 4. Allow each layer to reach thumbprint hardness before applying succeeding layer. Do not let previous layer dry out before applying succeeding layer. Construct uniform joints.
  - 5. Do not spread mortar over edges onto exposed surfaces of masonry units. Do not featheredge mortar.
  - 6. When stopping work at end of each day or for other reasons, stagger layers of mortar so that there will be no through joints in pointing. Stagger joints in layers so that they are at least 3 in. from each other.
  - 7. Where one day's work joins that of previous day, dampen previous work to ensure good bond.

**3.4 JOINT TOOLING**

- A. **Tooling:** After final layer of mortar is "leather hard," tool joints with a flat rule jointer, or as directed by Commissioner.
- B. **Profile:** Tool joints to profile as shown on Drawings or to match original joint profiles as directed by Commissioner. Solidly compress mortar so that it adheres well to masonry on both sides and forms a dense surface. Premature or late tooling will result in unacceptable finishes, which will be rejected.

- C. Duplicate existing finish on adjacent historic joints by brushing newly pointed joints with a nonmetallic bristle brush to produce a slight texture.

**3.5 CURING**

- A. Keep newly pointed joints damp for at least 48 hours after mortar has been inserted. Do not apply a direct stream of water to joints for at least 24 hours after mortar has been placed.
- B. Ensure masonry temperature remains as required by specifications until mortar is thoroughly cured.

**3.6 CLEANING AND REPAIR OF MORTAR JOINTS**

- A. Water Washing: Wash pointed masonry with clean filtered water and nonabrasive hand tools to remove mortar debris from masonry surfaces.
  - 1. Wash within 48 hours following completion of pointing.
  - 2. Use blunt-edged wood scrapers, stiff natural bristle brushes, and rough towels along with water to remove mortar debris. Do not use wire brushes.
- B. Repair of Pointed Joints: As cleaning progresses, examine joints to locate cracks, holes and other defects. Carefully point up and fill such defects with mortar. Where necessary in opinion of Commissioner, cut out joints and refill with pointing mortar exercising extreme care to ensure that color matches that of original pointing work. Exposed joint surfaces shall be free from protruding mortar, holes, pits, depressions, and other defects.

**3.7 CORRECTIVE MEASURES**

- A. Should a crack occur in any joint surface or should mortar pull away from masonry unit, cut out mortar and repoint following requirements of this Section to satisfaction of Commissioner.
- B. Should Commissioner determine that any masonry pointing work does not equal or exceed minimum standard established by approved mockup, cut out mortar to a depth of 3/4 in. and repoint following requirements of this Section to Commissioner's satisfaction.

END OF SECTION

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**January 5, 2015**

**MASONRY RESTORATION MORTARING**  
**04 05 13.91-12**

SECTION 04 21 13

BRICK MASONRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the work of brick masonry restoration as shown on the Drawings and specified herein, including, but not limited to, the following:
1. Dismantle areas of brick masonry as indicated on Drawings. Salvage brick for reuse. Rebuild areas of brick masonry using salvaged bricks where possible and new bricks matching existing original bricks where salvaged bricks are not available and where use of new matching brick is indicated. Provide ties, anchors, and flashing required to ensure structurally sound, solidly anchored masonry with flashing to direct water to exterior of wall above all openings.
  2. Repair damaged brick masonry as indicated.

1.3 QUALITY ASSURANCE

- A. Source of Materials: Obtain each type of material required for brick masonry restoration from a single source to ensure a match in quality, performance, and appearance.
- B. Familiarity with Site Conditions: Bidders shall visit site and carefully examine project scope and conditions that may affect proper execution of work of this Section and determine or verify dimensions and quantities.
- C. Replace all broken and damaged brick masonry resulting from work of this Section to satisfaction of Commissioner, at no additional cost to the City of New York.

1.4 SUBMITTALS

- A. General: Submit each item in this Article in compliance with the Conditions of the Contract and General Conditions. Revise and resubmit each item as required to obtain Commissioner's approval.

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- B. **Qualification Data:** Submit qualification data for firm specified in "Quality Assurance" Article that demonstrates that firm has capabilities and experience complying with requirements specified. For firm, provide a list of at least three (3) completed similar in size and scope to work required on this project. For each project list project name, address, architect, conservator, supervising preservation agency, scope of contractor's work, and other relevant information.
- C. **Program of Work:** Submit a written program for each type of brick masonry restoration required by this Section.
1. Include detailed description of materials, methods, and equipment to be used for each type of work.
  2. Include written descriptions, drawings, and diagrams, outlining proposed methods and procedures for protection of personnel, the public, and the existing construction during work of this Section.
  3. If alternate methods and materials to those specified are proposed for any phase of brick masonry restoration, provide written description. Show evidence of successful use on comparable projects and demonstrate effectiveness for use on this project.
- D. **Product Literature:** Submit manufacturer's published technical data for each product to be used in work of this Section including recommendations for application and use. Include test reports and certificates verifying that product complies with specified requirements.
- E. **Samples**
1. **Bricks:** Sets of each type of brick required to match existing brick including sufficient numbers of brick to show full range of colors and textures to be expected in completed work.
  2. **Anchors and Fasteners:** Each type and configuration specified and/or required for work of this Section.
  3. **Flashing:** Each type and configuration specified and/or required for work of this Section.
- F. **Shop Drawings:** Detailed drawings showing installation of the following:
1. **Anchors and Reinforcements:** Each type and condition at 3 in. equals 1 ft. minimum scale.
  2. **Flashings:** Each condition at 1 in. equals 1 ft. minimum scale.
- G. **Prepare mockups as specified in Article "Mockups," below.**



1.5 MOCKUPS

- A. General: Before beginning general brick masonry restoration work, prepare mockups to provide standards for work of this Section. Do not proceed with brick masonry restoration until Commissioner has approved mockups.
1. Locate mockups as directed by Commissioner.
  2. Provide 48 hours notice to Commissioner prior to start of each mockup.
  3. Commissioner will monitor mockups.
  4. Perform mockups using crew that will be executing the work and following requirements of this Section.
  5. Allow each mockup involving mortar to stand until mortar is thoroughly dry and has reached its natural color. Notify Commissioner that panel is ready for inspection.
  6. Repeat mockups as necessary to obtain Commissioner's approval.
  7. Protect approved mockups to ensure that they are without damage, deterioration, or alteration at time of Substantial Completion.
  8. Approved mockups in undamaged condition at time of Substantial Completion may be incorporated into the Work.
  9. Approved mockups will represent minimum acceptable standard for brick masonry restoration work. Subsequent work that does not meet standard of approved mockups will be rejected.
- B. Mockups: Provide the following mockups:
1. In-Place Removal and Rebuilding Brick Masonry: One location, minimum full height of masonry to be rebuilt by 4-feet long.
  2. Brick Replacement: One area, including replacing deteriorated bricks and pointing.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store materials in manufacturers' original sealed containers or packaging, clearly labeled with manufacturer's name, address, and product identification, including grade, type, and color. Immediately reseal containers after partial use.
- B. Store materials in spaces designated by Construction Manager. Such spaces shall comply with applicable federal, state, and local laws, codes, and regulations.

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1. Maintain temperatures in storage spaces within range recommended by manufacturer of material being stored in each case. Protect liquid components from freezing.
  2. Store products and materials at least 4 in. above floor and protect them from water, dampness, or high humidity.
- C. Deliver, store, and handle all products and materials to prevent damage, deterioration, or degradation and intrusion of foreign material.
- D. Discard and remove from site deteriorated or contaminated materials and products that have exceeded their expiration dates. Replace with fresh materials.

**1.7 PROJECT CONDITIONS**

- A. **Laws and Regulations:** Perform work of this Section in compliance with applicable federal, state, and local laws and regulations.
- B. **Protection of Persons:** Take necessary measures to protect persons, whether or not they are involved with work of this Section, from harm resulting from work of this Section.
- C. **Protection of Building:** Protect building elements and finishes from damage or deterioration resulting from work of this Section. Repair damage to materials or finishes to satisfaction of Commissioner at no additional cost to City of New York.
- D. **Coordination:** Coordinate work of this Section with work of other Division 4 Sections to ensure proper completion of all work.
- E. **Contract Drawings:**
1. Drawings are two-dimensional representations of three-dimensional objects and do not show all surfaces. Perform work on surfaces of projections, reveals, ornament, and other elements associated with areas on which work is indicated.
  2. Field measure dimensions before preparing shop drawings or beginning work. Contractor is responsible for all dimensions.
- F. **Access for Inspection and Approvals:** Provide Commissioner access on a regular basis to all locations on which quality control panels are being carried out, on which work is ongoing, and where work has been completed to allow for inspections and approvals. Provide means of access and safety precautions required to facilitate inspections and approvals.

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**04 21 13-4**

1.8 ENVIRONMENTAL REQUIREMENTS

- A. Do not use any material in brick masonry restoration work unless air and masonry temperatures are within range recommended by material manufacturer.
  - 1. Masonry work shall not proceed when temperatures are below 40 degrees Fahrenheit
  - 2. Remove masonry work determined by Commissioner to have been damaged by freezing and replace with new work following these specifications to Commissioner's satisfaction.
- B. Hot Weather Masonry Work: Protect work during hot weather from premature or rapid curing by use of dampened fabric coverings.

**PART 2 - PRODUCTS**

2.1 MATERIALS, GENERAL

- A. Grade and Quality: Materials shall conform to requirements of this Section and shall be new, free from defects, and of recent manufacture.
- B. Ready-Mixed Products: Wherever a ready-mixed product is specified for use, containers shall bear labels giving exact formula of mixture. Manufacturer shall guarantee formula, and product shall be subject to chemical analysis by laboratory selected by Commissioner at Contractor's expense.
- C. Manufacturer's Instructions: Comply with material manufacturer's instructions for use of products (including surface preparation, mixing, applying, drying, etc.). In case of conflict with requirements of this Section, the more stringent requirements shall govern.

2.2 BRICK

- A. Common Brick: Replacement brick for back-up construction shall match existing bricks as closely as possible, and shall conform to ASTM C 216, grade SW, Type FBS.
- B. Face Brick: Replacement face brick shall match existing face brick in hardness and weatherability, size, color, and surface texture and reflectance. Provide replacement face brick custom made to match existing bricks if required to provide an exact match to existing units to Commissioner's satisfaction.
- C. Provide Brick from one of the following:
  - 1. The Belden Brick Company  
PO Box 20910  
Canton, Ohio 44701-0910

1-330-451-2031

2. Glen-Gery Brick  
1166 Spring Street  
P.O. Box 7001  
Wyomissing, PA 19610-6001  
1-610-562-3076
3. General Shale  
P.O. Box 3547  
Johnson City, TN 37602  
1-800-414-4661

### 2.3 TIES, ANCHORS AND REINFORCING ROD

- A. General: All ties, anchors, and similar accessories shall be of AISI Type 316 stainless steel. All elements to be welded shall be of AISI Type 316L stainless steel.
- B. Wire Anchors: 1/8-in. diameter wire.
- C. Brick Ties: 18 gage corrugated stainless steel.
- D. Brick Tie Anchors: 1/4 in. diameter, 1 in. long Hilti Hit Anchors, or approved equal.
- E. All other ties, anchors, and reinforcing rods shall be of form required to provide secure attachment and as approved by Commissioner.

### 2.4 MISCELLANEOUS MATERIALS

- A. Flashing: Sheet copper, minimum 20-oz./sq. ft. weight and of heavier weight as indicated on Drawings.
- B. Round Plastic Weep Tubing: Medium-density polyethylene, 3/8 in. O.D. by 4 inches long.
- C. Masonry Cleaner to Remove Excess Mortar: Job-mixed detergent solution of 1/2-cup dry measure tetrasodium polyphosphate and 1/2-cup dry measure laundry detergent dissolved in 1 gal. of water.

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. Preparation: Inspect conditions before beginning brick masonry restoration. Correct any conditions that might adversely affect work of this Section. Contractor shall be fully responsible for proper execution and performance of work described herein.

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- B. Protection: Before leaving fresh or unfinished work, fully cover and protect wall against rain and wind in an approved manner. Before continuing, sweep clean previously laid work.
- C. Wetting Bricks and Existing Masonry: Thoroughly wet brick and existing masonry prior to installation to ensure that brick and masonry are nearly saturated but free of surface water when laid.
- D. Full Joints: Ensure that all bed, head, and collar joints in brick masonry are shoved full so that there are no voids in brickwork.

### 3.2 DISMANTLING BRICK MASONRY

- A. General: Carefully dismantle brick masonry to be rebuilt. Avoid damaging masonry to remain.
- B. Remove mortar from joints before removing bricks. Remove bricks once mortar has been removed from accessible joints and gentle tapping has broken bond at other joints.
- C. Salvage bricks for reuse. Clean mortar from bricks using care to avoid damaging bricks. Remove all mortar.

### 3.3 REBUILDING BRICK MASONRY

- A. General: Lay brick plumb, level, and true to line in full beds of mortar with bond pattern matching original bond pattern and joints meeting those of adjacent remaining brickwork. Provide supports, anchors, and reinforcing to ensure solid, stable construction and flashing to ensure that water is directed to exterior of wall above openings and penetrations.
- B. Fill all joints in brick masonry and joints between brick masonry and other materials with mortar as each course is laid.
  - 1. Bed Joints: Form bed joints in one of the following ways:
    - a. Apply a thick layer of smooth or slightly furrowed mortar on top of units previously laid and shove brick in place.
    - b. Apply a full coat of mortar to bottom of brick and shove it into place.
  - 2. Head and Collar Joints: Form head and collar joints by applying a full coat of mortar to entire end or entire side as case requires and then shoving mortar covered end and/or side of brick tightly against bricks previously laid. Apply 3/8-in.-coat of mortar to back of facing brick before brick is installed.
- C. Build in supports, anchors and fasteners as shown on approved shop drawings. Anchor fasteners solidly into sound masonry.

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- D. Install flashing as shown on Drawings and approved shop drawings. Provide flashing with end dams to ensure water is directed to exterior wall surface.
- E. Install weep tubes in head joints of first course above flashing, spaced at 16 inches o.c.
- F. Jointing of rebuilt masonry shall match that of existing masonry. Each course shall align with and be flush with existing work.
- G. Where brick is to be cut to size, make cuts neatly with a power-driven saw. Do not expose cut face to weather.
- H. Joints shall be uniform and shall match pointing sample approved by Commissioner. Tool with stainless steel jointer after becoming "leather" hard. Enlarge any holes or voids, except weep holes, and completely fill with mortar.
- I. Remove masonry units disturbed after laying and relay in fresh mortar. If adjustments are required, do not pound brick ends but remove and reset in fresh mortar.
- J. Remove and replace brick that are loose, chipped, broken, stained, or damaged by freezing or for any other reason, or if units do not match adjoining units as intended. Furnish new units to match adjoining units and install in fresh mortar, pointed to eliminate evidence of replacement.

**3.4 ADJUST AND CLEAN**

- A. Clean masonry prior to final setting of mortar. Remove mortar and stains from face of brickwork with dry, stiff bristle brushes. Additional cleaning procedures may be required by Commissioner, if masonry staining occurs. Keep walls clean as work progresses. After mortar has cured, perform final cleaning, using clean water only and stiff fiber brushes.
- B. Remove work of this Section that does not comply with requirements of this Section or does not match approved mockup as determined by Commissioner. Provide new work matching requirements of this Section and approved mockup to Commissioner's satisfaction at no additional cost to City of New York.

END OF SECTION

SECTION 04 21 29

TERRA COTTA MASONRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the work of Terra Cotta masonry restoration as shown on the Drawings and specified herein, including, but not limited to, the following:
1. Remove units of terra cotta masonry as indicated on Drawings. Salvage terra cotta for re-use and/or as model for new reproduction units in GFRC.
  2. Repoint mortar joints.
  3. Repair damaged terra cotta masonry as indicated.

1.3 QUALITY ASSURANCE

- A. Source of Materials: Obtain each type of material required for terra cotta masonry restoration from a single source to ensure a match in quality, performance, and appearance.
- B. Familiarity with Site Conditions: Bidders shall visit site and carefully examine project scope and conditions that may affect proper execution of work of this Section and determine or verify dimensions and quantities.
- C. Replace all broken and damaged terra cotta masonry units resulting from work of this Section to satisfaction of Commissioner, at no additional cost to the City of New York.

1.4 SUBMITTALS

- A. General: Submit each item in this Article in compliance with the Conditions of the Contract and General Conditions. Revise and resubmit each item as required to obtain Commissioner's approval.

- B. **Qualification Data:** Submit qualification data for firm specified in "Quality Assurance" Article that demonstrates that firm has capabilities and experience complying with requirements specified. For firm, provide a list of at least three (3) completed projects similar in size and scope to work required on this project. For each project list project name, address, architect, conservator, supervising preservation agency, scope of contractor's work, and other relevant information.
  
- C. **Program of Work:** Submit a written program for each type of terra cotta masonry restoration required by this Section.
  - 1. Include detailed description of materials, methods, and equipment to be used for each type of work.
  - 2. Include written descriptions, drawings, and diagrams, outlining proposed methods and procedures for protection of personnel, the public, and the existing construction during work of this Section.
  - 3. If alternate methods and materials to those specified are proposed for any phase of brick masonry restoration, provide written description. Show evidence of successful use on comparable projects and demonstrate effectiveness for use on this project.
  
- D. **Product Literature:** Submit manufacturer's published technical data for each product to be used in work of this Section including recommendations for application and use. Include test reports and certificates verifying that product complies with specified requirements.
  
- E. **Cleaning Program:** Describe cleaning process in detail, including materials, methods, and equipment to be used and protection of surrounding materials on building and Project site, and control of runoff during operations
  
- F. **Samples**
  - 1. **Anchors and Fasteners:** Each type and configuration specified and/or required for work of this Section.
  
- G. **Shop Drawings:** Detailed drawings showing installation of the following:
  - 1. **Anchors and Reinforcements:** Each type and condition at 3 in. equals 1 ft. minimum scale.
  
- H. **Prepare mockups as specified in Article "Mockups," below.**

**1.5 MOCKUPS**

- A. **General:** Before beginning general brick masonry restoration work, prepare mockups to provide standards for work of this Section. Do not proceed with terra cotta masonry restoration until Commissioner has approved mockups.



1. Locate mockups as directed by Commissioner.
2. Provide 48 hours notice to Commissioner prior to start of each mockup.
3. Commissioner will monitor mockups.
4. Perform mockups using crew that will be executing the work and following requirements of this Section.
5. Allow each mockup involving mortar to stand until mortar is thoroughly dry and has reached its natural color. Notify Commissioner that panel is ready for inspection.
6. Repeat mockups as necessary to obtain Commissioner's approval.
7. Protect approved mockups to ensure that they are without damage, deterioration, or alteration at time of Substantial Completion.
8. Approved mockups in undamaged condition at time of Substantial Completion may be incorporated into the Work.
9. Approved mockups will represent minimum acceptable standard for terra cotta masonry restoration work. Subsequent work that does not meet standard of approved mockups will be rejected.

**B. Mockups: Provide the following mockups:**

1. In-Place Removal and Reinstallation of Terra Cotta Unit Masonry: One location, 1 unit.
2. Re-pointing terra cotta masonry – 4 linear feet.

**1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver and store materials in manufacturers' original sealed containers or packaging, clearly labeled with manufacturer's name, address, and product identification, including grade, type, and color. Immediately reseal containers after partial use.
- B. Store materials in spaces designated by Construction Manager. Such spaces shall comply with applicable federal, state, and local laws, codes, and regulations.
  1. Maintain temperatures in storage spaces within range recommended by manufacturer of material being stored in each case. Protect liquid components from freezing.
  2. Store products and materials at least 4 in. above floor and protect them from water, dampness, or high humidity.

- C. Deliver, store, and handle all products and materials to prevent damage, deterioration, or degradation and intrusion of foreign material.
- D. Discard and remove from site deteriorated or contaminated materials and products that have exceeded their expiration dates. Replace with fresh materials.

**1.7 PROJECT CONDITIONS**

- A. **Laws and Regulations:** Perform work of this Section in compliance with applicable federal, state, and local laws and regulations.
- B. **Protection of Persons:** Take necessary measures to protect persons, whether or not they are involved with work of this Section, from harm resulting from work of this Section.
- C. **Protection of Building:** Protect building elements and finishes from damage or deterioration resulting from work of this Section. Repair damage to materials or finishes to satisfaction of Commissioner at no additional cost to City of New York.
- D. **Coordination:** Coordinate work of this Section with work of other Division 4 Sections to ensure proper completion of all work.
- E. **Contract Drawings:**
  - 1. Drawings are two-dimensional representations of three-dimensional objects and do not show all surfaces. Perform work on surfaces of projections, reveals, ornament, and other elements associated with areas on which work is indicated.
  - 2. Field measure dimensions before preparing shop drawings or beginning work. Contractor is responsible for all dimensions.
- F. **Access for Inspection and Approvals:** Provide Commissioner access on a regular basis to all locations on which quality control panels are being carried out, on which work is ongoing, and where work has been completed to allow for inspections and approvals. Provide means of access and safety precautions required to facilitate inspections and approvals.

**1.8 ENVIRONMENTAL REQUIREMENTS**

- A. Do not use any material in terra cotta masonry restoration work unless air and masonry temperatures are within range recommended by material manufacturer.
- B. **Cold Weather Masonry Work:** Do not proceed with masonry work when air or masonry temperature is below 40 degrees Fahrenheit or when it is expected to drop below 40 degrees Fahrenheit within 48 hours of use of mortar unless Architect has approved both Contractor's work proposal for cold-weather masonry work and specific masonry work to be done.

1. Masonry work shall not proceed when temperatures are below 40 degrees Fahrenheit
  2. Remove masonry work determined by Commissioner to have been damaged by freezing and replace with new work following these specifications to Commissioner's satisfaction.
- C. Hot Weather Masonry Work: Protect work during hot weather from premature or rapid curing by use of dampened fabric coverings.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS, GENERAL**

- A. Grade and Quality: Materials shall conform to requirements of this Section and shall be new, free from defects, and of recent manufacture.
- B. Ready-Mixed Products: Wherever a ready-mixed product is specified for use, containers shall bear labels giving exact formula of mixture. Manufacturer shall guarantee formula, and product shall be subject to chemical analysis by laboratory selected by Commissioner at Contractor's expense.
- C. Manufacturer's Instructions: Comply with material manufacturer's instructions for use of products (including surface preparation, mixing, applying, drying, etc.). In case of conflict with requirements of this Section, the more stringent requirements shall govern.

### **2.2 TIES, ANCHORS AND REINFORCING ROD**

- A. General: All ties, anchors, and similar accessories shall be of AISI Type 304 or 316 stainless steel. All elements to be welded shall be of AISI Type 316L stainless steel.
- B. All other ties, anchors, and reinforcing rods shall be of form required to provide secure attachment and as approved by Commissioner.

### **2.3 MISCELLANEOUS MATERIALS**

- A. Masonry Cleaner to Remove Excess Mortar: Job-mixed detergent solution of 1/2-cup dry measure tetrasodium polyphosphate and 1/2-cup dry measure laundry detergent dissolved in 1 gal. of water.

## **PART 3 - EXECUTION**

### **3.1 GENERAL**

- A. Preparation: Inspect conditions before beginning brick masonry restoration. Correct any conditions that might adversely affect work of this Section.

Contractor shall be fully responsible for proper execution and performance of work described herein.

- B. Protection: Before leaving fresh or unfinished work, fully cover and protect wall against rain and wind in an approved manner. Before continuing, sweep clean previously laid work.
- C. Wetting terra cotta and Existing Masonry: Thoroughly wet terra cotta units and existing masonry prior to installation to ensure that brick and masonry are nearly saturated but free of surface water when laid.
- D. Full Joints: Ensure that all bed, head, and collar joints in terra cotta masonry are shoved full so that there are no voids in brickwork.

### 3.2 DISMANTLING TERRA COTTA MASONRY

- A. General: Carefully remove terra cotta masonry units to be replaced. Avoid damaging masonry to remain.
- B. Remove mortar from joints before removing terra cotta units. Remove masonry units once mortar has been removed from accessible joints and gentle tapping has broken bond at other joints.

### 3.3 REBUILDING TERRA COTTA MASONRY

- A. General: Lay terra cotta units plumb, level, and true to line in full beds of mortar with joints meeting those of adjacent remaining masonry. Provide supports, anchors, and reinforcing to ensure solid, stable construction and flashing to ensure that water is directed to exterior of wall above openings and penetrations.
- B. Fill all joints in terra cotta masonry and joints between brick masonry and other materials with mortar as each course is laid.
  - 1. Bed Joints: Form bed joints in one of the following ways:
    - a. Apply a thick layer of smooth or slightly furrowed mortar on top of units previously laid and shove brick in place.
    - b. Apply a full coat of mortar to bottom of unit and shove it into place.
  - 2. Head and Collar Joints: Form head and collar joints by applying a full coat of mortar to entire end or entire side as case requires and then shoving mortar covered end and/or side of unit tightly against bricks previously laid. Apply 3/8-in.-coat of mortar to back of facing brick before brick is installed.
  - 3. Build in supports, anchors and fasteners as shown on approved shop drawings. Anchor fasteners solidly into sound masonry.

- C. Jointing of rebuilt masonry shall match that of existing masonry. Each course shall align with and be flush with existing work.
- D. Joints shall be uniform and shall match pointing sample approved by Commissioner. Tool with stainless steel jointer after becoming "leather" hard. Enlarge any holes or voids, except weep holes, and completely fill with mortar. Wash surface joints to be fitted with lead "T" caps set in elastomeric sealant.
- E. Remove masonry units disturbed after laying and relay in fresh mortar. If adjustments are required, do not pound brick ends but remove and reset in fresh mortar.
- F. Remove and replace terra cotta units that are loose, chipped, broken, stained, or damaged by freezing or for any other reason, or if units do not match adjoining units as intended. Furnish new units to match adjoining units and install in fresh mortar, pointed to eliminate evidence of replacement.

3.4 ADJUST AND CLEAN

- A. Clean masonry prior to final setting of mortar. Remove mortar and stains from face of masonry with dry, stiff bristle brushes. Additional cleaning procedures may be required by Commissioner, if masonry staining occurs. Keep walls clean as work progresses. After mortar has cured, perform final cleaning, using clean water only and stiff fiber brushes.
- B. Remove work of this Section that does not comply with requirements of this Section or does not match approved mockup as determined by Commissioner. Provide new work matching requirements of this Section and approved mockup to Commissioner's satisfaction at no additional cost to City of New York.

END OF SECTION

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**January 5, 2015**

**TERRA COTTA MASONRY**  
**04 21 29-8**

SECTION 04 22 00

CONCRETE UNIT MASONRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Section Includes:

1. Concrete masonry units, including concrete paving units.

1.3 DEFINITIONS

- A. CMU(s): Concrete masonry unit(s).

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.5 SUBMITTALS

- A. Product Data: For each type of product.

- B. Shop Drawings: For the following:

1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.

- C. Samples for Verification: For each type and color of the following:

1. Masonry Units

- D. Qualification Data: For testing agency.

- E. Material Certificates: For each type and size of the following:

1. Masonry units.

- a. Include data on material properties and material test reports substantiating compliance with requirements.

- b. For masonry units, include data and calculations establishing average net-area compressive strength of units.
- 2. Cementitious materials. Include name of manufacturer, brand name, and type.
- 3. Anchors, ties, and metal accessories.
- F. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to TMS 602/ACI 530.1/ASCE 6.
- G. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

#### 1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM C 1093 for testing indicated.
- B. Sample Panels: Build sample panels to verify selections made under Sample submittals and to demonstrate aesthetic effects.
  - 1. Build sample panels for each type of exposed unit masonry construction. To match proposed sizes.
  - 2. Where masonry is to match existing, build panels adjacent and parallel to existing surface.
  - 3. Approval of sample panels is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; aesthetic qualities of workmanship; and other material and construction qualities specifically approved by Commissioner in writing.
    - a. Approval of sample panels does not constitute approval of deviations from the Contract Documents contained in sample panels unless Commissioner specifically approves such deviations in writing.
- C. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
  - 1. Build mockup of typical CMU installation as shown on Drawings.
  - 2. Build mockups for each type of exposed unit masonry construction, including face and backup wythes and accessories.



3. Approval of mockups is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; and aesthetic qualities of workmanship.
  - a. Approval of mockups is also for other material and construction qualities specifically approved by Commissioner in writing.
  - b. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Commissioner specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

**1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Concrete pavers shall be delivered to site in steel-banded, plastic-banded, or plastic-wrapped cubes on wooden pallets capable of transfer by fork lift.
- B. Pavers shall be unloaded at job site in such a manner that no damage occurs to the product.
- C. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- D. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

**1.8 FIELD CONDITIONS**

- A. Protection of Masonry: During construction, cover tops of work with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
  1. Extend cover down both sides of work, and hold cover securely in place.
- B. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.
  1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.

- C. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.

### **2.2 PERFORMANCE REQUIREMENTS**

- A. Provide unit masonry that develops indicated net-area compressive strengths at 28 days.
1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to TMS 602/ACI 530.1/ASCE 6.

### **2.3 UNIT MASONRY, GENERAL**

- A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6 except as modified by requirements in the Contract Documents.
- B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work.
- C. Fire-Resistance Ratings: Comply with requirements for fire-resistance-rated assembly designs indicated.
1. Where fire-resistance-rated construction is indicated, units shall be listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction.

### **2.4 CONCRETE MASONRY UNITS**

- A. CMUs: ASTM C 90.
1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2800 psi.
  2. Density Classification: Normal weight.
  3. Size (Width): Manufactured to dimensions 3/8 inch less-than-nominal dimensions.

4. Exposed Faces: Provide color and texture matching the range represented by Commissioner's sample.

## 2.5 TIES AND ANCHORS

- A. General: Ties and anchors shall extend at least 1-1/2 inches into masonry but with at least a 5/8-inch cover on outside face.
- B. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:
  1. Mill-Galvanized, Carbon-Steel Wire: ASTM A 82/A 82M, with ASTM A 641/ A 641M, Class 1 coating.
  2. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82/A 82M, with ASTM A 153/ A 153M, Class B-2 coating.
  3. Stainless-Steel Wire: ASTM A 580/A 580M, Type 316.
  4. Stainless-Steel Sheet: ASTM A 240/A 240M or ASTM A 666, Type 316.
- C. Adjustable Anchors for Connecting to Concrete: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces.

## **PART 3 - EXECUTION**

### 3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
  1. Verify that substrates are free of substances that would impair mortar bond.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION, GENERAL

- A. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

### 3.3 TOLERANCES

- A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation, do not vary by more than plus or minus 1/4" inch.
2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/4 inch.

**B. Lines and Levels:**

1. For lines and surfaces, do not vary from straight by more than 1/16 inch in 4 feet maximum.
2. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch.

**C. Joints:**

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 3/8 inch.
2. For head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch.

**3.4 LAYING MASONRY WALLS**

- A. Lay out CMU in advance for accurate spacing of surface bond patterns with uniform joint thicknesses. Avoid using less-than-half-size units where possible.**

Pattern is usually running bond. If other bond patterns are required, specify in "Bond Pattern for Exposed Masonry" Paragraph below or indicate on Drawings.

- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less-than-nominal 4-inch horizontal face dimensions.**

- C. Stopping and Resuming Work: Stop work by stepping back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.**

**3.5 MORTAR BEDDING AND JOINTING**

- A. Lay hollow CMUs as follows:**

1. Bed face shells in mortar and make head joints of depth equal to bed joints.
2. Bed webs in mortar in all courses.

- B. Lay solid CMUs with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.
- D. Cut joints flush.

**3.6 ANCHORING MASONRY TO STRUCTURAL STEEL AND CONCRETE**

- A. Anchor masonry to structural steel and concrete, where masonry abuts or faces structural steel or concrete, to comply with the following:
  - 1. Provide an open space not less than 1/2 inch wide between masonry and structural steel or concrete unless otherwise indicated. Keep open space free of mortar and other rigid materials.
  - 2. Anchor masonry with anchors embedded in masonry joints and attached to structure.

**3.7 LAYING MASONRY PAVERS**

- 1. Concrete pavers to be loose laid as ballast material at flashing pan.

**3.8 FIELD QUALITY CONTROL**

- A. Testing and Inspecting: Commissioner will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to work areas as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.
- B. Testing Prior to Construction: One set of tests.
- C. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C 140 for compressive strength.

**3.9 REPAIRING, POINTING, AND CLEANING**

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

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- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
  2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Commissioner's approval of sample cleaning before proceeding with cleaning of masonry.
  3. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
  4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
  5. Clean concrete masonry by applicable cleaning methods indicated in NCMA TEK 8-4A.

END OF SECTION

SECTION 04 41 13

STONE MASONRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the work of stone masonry restoration as shown on the Drawings and specified herein, including, but not limited to, the following:
1. Remove and reset stone units as indicated on Drawings.

1.3 QUALITY ASSURANCE

- A. Source of Materials: Obtain each type of material required for stone masonry restoration from a single source to ensure a match in quality, performance, and appearance.
- B. Familiarity with Site Conditions: Bidders shall visit site and carefully examine project scope and conditions that may affect proper execution of work of this Section and determine or verify dimensions and quantities.
- C. Repair or replace all broken, lost, and damaged masonry resulting from work of this Section to Commissioner's satisfaction of at no additional cost to the City of New York.

1.4 SUBMITTALS

- A. General: Submit each item in this Article in compliance with the Conditions of the Contract and General Conditions. Revise and resubmit each item as required to obtain Commissioner's approval.
- B. Qualification Data: Submit qualification data for firm specified in "Quality Assurance" Article that demonstrates that firm has capabilities and experience complying with requirements specified. For firm, provide a list of at least three (3) completed projects similar in size and scope to work required on this project. For each project list project name, address, architect, supervising preservation agency, scope of contractor's work, and other relevant information.

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- C. Program of Work: Prior to any stone masonry restoration work on site, submit program for proposed restoration work for each condition. Do not begin work on site until program of work has been approved in writing. Program for each condition shall include, but not be limited to:
  - 1. Materials and Procedure: Detailed description of materials, methods, tools, and equipment for each phase of work.
  - 2. Protection: Detailed description, including drawings and diagrams, of proposed materials and methods of protection for preventing harm, damage, or deterioration caused by work of this Section to all persons (whether involved in the Work or not), building elements, materials, and finishes, surrounding landscape and site, and the environment (including air and water).
  - 3. Alternate Methods and Materials: Proposed alternate methods and materials to those specified for stone masonry restoration work. Provide evidence of successful use on comparable projects and demonstrate effectiveness for use on this project.
- D. Product Literature: Manufacturer's published technical data for each product to be used in work of this Section including recommendations for application and use. Include test reports and certificates verifying that product complies with specified requirements. Include Material Safety Data Sheets (MSDS).
- E. Shop Drawings
  - 1. Existing Units: Each condition for reinstallation. Include details of anchors and fasteners.
  - 2. New Units: Each condition for installation. Include details of anchors and fasteners.
- F. Samples
  - 1. Anchors and Fasteners: Each type of anchor or fastener specified and/or proposed for use.
- G. Prepare mockups as specified in Article "Mockups," below.

1.5 MOCKUPS

- A. General: Before beginning general stone masonry restoration work, prepare mockups to provide standards for work of this Section. Do not proceed with stone masonry restoration until Commissioner has approved mockups.
  - 1. Locate mockups as directed by Commissioner.
  - 2. Provide 48 hours notice to Commissioner prior to start of each mockup.
  - 3. Commissioner will monitor mockups.



4. Perform mockups using crew that will be executing the work and following requirements of this Section.
  5. Allow each mockup involving mortar to stand until mortar is thoroughly dry and has reached its natural color. Notify Commissioner that panel is ready for inspection.
  6. Repeat mockups as necessary to obtain Commissioner's approval.
  7. Protect approved mockups to ensure that they are without damage, deterioration, or alteration at time of Substantial Completion.
  8. Approved mockups in undamaged condition at time of Substantial Completion may be incorporated into the Work.
  9. Approved mockups will represent the minimum acceptable standard for stone masonry restoration work. Subsequent work that does not meet standard of approved mockups will be rejected.
- B. Mockups: Provide the following mockups:
1. Reinstalling Stone Units: Min four (4) copings.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store materials in manufacturers' original sealed containers or packaging, clearly labeled with manufacturer's name, address and product identification, including grade, type, and color. Immediately reseal containers after partial use.
- B. Store all materials in spaces designated by Construction Manager. Spaces shall comply with pertinent federal, state, and local laws, codes, and regulations.
  1. Maintain temperatures in storage spaces within range recommended by manufacturer of material being stored in each case. Protect liquid components from freezing.
  2. Store products and materials at least 4 in. above floor and protect them from water, dampness, or high humidity.
- C. Deliver, store, and handle all products and materials to prevent damage, deterioration, or degradation and intrusion of foreign material.
- D. Discard and remove from site deteriorated or contaminated materials and products that have exceeded their expiration dates. Replace with fresh materials.

**1.7 PROJECT CONDITIONS**

- A. **Laws and Regulations:** Perform work of this Section in compliance with applicable federal, state, and local laws and regulations.
- B. **Protection of Persons:** Take all necessary measures to protect persons, whether or not they are involved with work of this Section, from harm caused by work of this Section.
- C. **Protection of Building:** Protect building elements and finishes from damage or deterioration caused by work of this Section using all means necessary. Repair any damage to materials or finishes to Commissioner's satisfaction at no additional cost to City of New York.
- D. **Coordination:** Coordinate work of this Section with work of other sections to ensure proper completion of all work.
- E. **Access for Inspection and Approvals:** Provide Commissioner access on a regular basis to locations on which mockups are being carried out, on which work is ongoing, and where work has been completed to allow for inspections and approvals. Provide means of access and safety precautions required to facilitate inspections and approvals.

**1.8 ENVIRONMENTAL REQUIREMENTS**

- A. **Use materials only within manufacturers' recommended temperature ranges.**
  - 1. Do not perform stone masonry restoration when air or masonry temperature is below 40 deg. Fahrenheit or when it is expected to drop below 40 deg. Fahrenheit within 48 hours of mortar application.
  - 2. Remove stone masonry restoration determined by Commissioner to have been damaged by freezing. Provide new work as specified to Commissioner's satisfaction at no additional cost to City of New York.
- B. **Hot Weather Masonry Work:** During hot weather, protect work from premature or too-rapid curing by use of dampened fabric coverings.

**PART 2 - PRODUCTS**

**2.1 MATERIALS, GENERAL**

- A. **Grade and Quality:** Materials shall conform to requirements of this Section and shall be new, free from defects, and of recent manufacture, except where salvaged materials are indicated.
- B. **Manufacturer's Instructions:** Comply with material manufacturer's instructions for use of products (including surface preparation, mixing, applying, drying, etc.). In case of conflict with requirements of this Section, the more stringent requirements shall govern.

2.2 ANCHORS AND FASTENERS

A. General

1. Anchors and fasteners shall be stainless steel, AISI Type 302 or 304. All elements to be welded shall be AISI Type 316L stainless steel.
2. Expansion bolts, cinch bolts, and plugs are not acceptable.

B. Dowels: 3/8-in.- or 1/2-in.-diameter stainless steel rod.

C. Straps: 1-in.-wide by 1/8-in.-thick stainless steel strap anchors in configuration shown on approved shop drawings.

2.3 ADHESIVES

- A. Epoxy Adhesive for Dowel Installation: High modulus, high strength, moisture-insensitive, high-viscosity two-part epoxy adhesive complying with ACI 318-08 Appendix D (ACI 318).

**PART 3 - EXECUTION**

3.1 GENERAL

- A. Contractor shall be fully responsible for proper execution and performance of work described herein. Contractor shall inspect all surface conditions and correct any conditions that may adversely affect his work.

3.2 REMOVING STONE UNITS AND REPAIRING ADJACENT MASONRY

- A. General: Remove stone blocks and salvage for reuse. Repair and rebuild backup as required to provide sound substrate.
- B. Removal: Carefully remove stone elements without damaging blocks or adjacent masonry. Remove mortar from joints before attempting to remove stone blocks.
- C. Repair of Backup Masonry: Repair or replace adjacent brick masonry and flash brick masonry as indicated on Drawings and as required to provide sound substrate for stone units.
- D. Preparation: Remove mortar from stone block. Clean block using water and stiff natural bristle brushes. Provide mortises for new anchors if shown on Drawings or if required for sound attachment.

3.3 INSTALLING SALVAGED AND NEW STONE UNITS

- A. General: Install salvaged stone units and new stone units as indicated on Drawings.

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- B. Anchors: Prepare stone and brick masonry substrate and install anchors and dowels as indicated.
- C. Flashing: Install flashings as noted on the drawings.
- D. Installation: Wet masonry and stone block to be set thoroughly to ensure that masonry is damp but free of standing water at time of setting. Apply mortar to surfaces of substrate and to all surfaces of block to be installed to ensure that there are no voids in masonry. Mortar shall be squeezed out of joints when block is inserted. If mortar is not squeeze out of joints, remove block, apply additional mortar, and reinstall.
- E. Pointing Joints: Rake out mortar to a depth of 3/4 in.

3.4 ADJUSTMENT

- A. Correct any work of this Section that does not meet requirements of this Specification to satisfaction of Commissioner at no additional cost to City of New York.

END OF SECTION

SECTION 05 10 00

STRUCTURAL STEEL

PART 1 - GENERAL

1.1 Work of this Section shall conform to the requirements of the General Conditions, Supplementary General Conditions and Special Requirements.

1.2 SCOPE OF WORK

A. Provide all labor, materials, equipment and services required to complete all Structural Steel work shown on Drawings and as specified herein; but not limited to the following items:

1. Furnish and deliver for installation by others, anchor bolts, bearing plates and leveling plates with complete instructions and templates to facilitate installation.
2. Furnish and erect all struts, columns, bearing plates, beams, girders, bracing, hangers and all related connections (bolted and welded).
3. Openings (unreinforced and reinforced) in structural steel to accommodate mechanical and electrical work.
4. Shop painting and field touch-up painting.
5. Erection bracing and supports.
6. Angles attached to structural steel as shown on Drawings.
7. Unless specifically excluded, furnish and install all other items for structural steel work indicated on the Drawings, specified, or obviously needed to make the work of this Section complete.

B. Related Work Specified Elsewhere:

1. Cast-in Place Concrete (03 30 00).
2. Metal Decking (05 30 00).
3. Structural Steel (05 10 00).

1.3 QUALITY ASSURANCE

A. Requirements given herein may be affected by other related requirements of the project specification. Correlation of contract requirements is the responsibility of the Contractor.

B. Coordinate work with that of all other trades affecting, or affected by work of this Section. Cooperate with such trades to assure steady progress of all

work under Contract.

- C. The work under this Section shall be performed by a Fabricator and Erector acceptable to the Architect. The Fabricator and Erector shall submit conclusive evidence of having satisfactory completed work of similar scope and of having the necessary skill, equipment, facilities and capacity to fabricate the structural steel and to perform the erection in accordance with construction schedules and in full compliance with all requirements of the Contract Documents.

#### 1.4 REFERENCE STANDARDS

- A. Building Code of the City of New York.
- B. Latest edition of AISC, AWS, SSPC and ASTM.

#### 1.5 SUBMITTALS REQUIRED

- A. The Contractor shall retain an Engineer licensed in the State of New York to prepare design computations and detailing data regarding all connection. The computations shall be signed and sealed by such engineer who shall certify that the individual shop drawings are in conformance with such computations.
- B. From the design drawings the Contractor shall submit to the Commissioner from approval prior to fabrication full dimensioned drawings of all items in this Section.
- C. Meet the requirements of applicable portion of "Structural Shop Drafting" by AISC.
  - 1. Show locations, markings, quantities, materials, sizes and shapes, bolting, welding and erection procedures.
  - 2. Indicate methods of connecting, anchoring, fastening, bracing and attaching work of other trades.
  - 3. Note and mark sufficiently, to indicate compliance with requirements of these Specifications.
  - 4. Assume all responsibility for dimensions and fit. Approval will be for size and arrangement of members and connection strength. Make all necessary field observations and measurements of existing conditions.
  - 5. Certification of Specifications compliance.
  - 6. Shop drawings shall be coordinated well in advance with Mechanical and Electrical trades by this Contractor. It shall be this Contractor's sole responsibility to obtain all necessary information from other trades.

- B. Mill certificates of chemical composition and physical properties of steel in project, properly certified and attested to.
- C. Deviations: Should the Contractor desire a deviation from the Drawings or Specifications, or both, he shall call the specific deviation to the Commissioner's attention in writing prior to the submittal of shop drawings showing the subject deviation. Requests for deviations shall be submitted on the Contractor's letterhead. Deviations not identified, or identified only in letters of transmittal or in shop drawings or both, without the required written description on the Contractor's letterhead may not be accepted and shall be sufficient cause for the Commissioner to return shop drawing including such deviations, rejected, without further action. Acceptance of shop drawings including deviations not detected by the Commissioner during shop drawing review shall not relieve the Contractor from responsibility to conform strictly to the Contractor Documents. Deviations will be allowed only where permitted by the Commissioner in writing.

#### **1.6 RESPONSIBILITY OF CONTRACTOR**

- A. The Contractor shall be fully responsible for the design, strength, safety and adequacy of all temporary bracing and all methods of construction. The specifying herein of requirements for bracing or construction methods, preliminary approvals by the Engineer of Record, or any other requirements of the Specifications shall be construed as the minimum acceptable; and shall not eliminate, lessen or restrict in any manner the responsibility of the Contractor for all construction methods and for the safety and stability of the structural steel work at all stages of erection, until such time as the permanent bracing system becomes effective.
- B. All costs in connection with correcting and/or replacing improperly fabricated, improperly erected or otherwise unacceptable work, including additional engineering and other out of pocket expenses to the Engineer of Record, shall be at the Contractor's expense.

#### **1.7 TESTING AND INSPECTION**

- A. Structural steel shall be inspected in the shop and field by an Inspection Agency designated jointly by the Commissioners and Engineer of Record. The Inspection Agency shall work under the direction of the Commissioner.
- B. The Contractor shall submit the name and location of fabricator, give notice of commencement of fabrication, allow full facilities for inspection, and shall provide such assistance to inspector as may be required for proper inspection. Ten days' written notice shall be given to Commissioner prior to delivery of steel to job and start of erection.
- C. Shop inspection includes but is not limited to:
  - 1. Verification of material.

2. Check of members as to size, shape and weight.
  3. Check of connections including welding.
  4. Check that paint is of proper material and is applied to properly prepared surfaces.
- D. Field inspection includes but is not limited to ascertaining that:
1. Billets and plates are level and properly placed.
  2. Connections fit.
  3. Frame is plumb.
  4. High strength bolts are properly torqued.
  5. Welding is properly executed by qualified welders.
  6. Proper paint is used and properly applied.
  7. Welding of metal deck to structural steel complies with specified requirements and to Metal Deck Specification.
- E. Apparatus and procedure for measuring torque and tension and for calibrating wrenches shall be furnished, maintained by Contractor, and shall be approved by testing laboratory. Wrenches shall be calibrated each day of the beginning of the work, each time the bolts size or length of pressure hose is changed, and at such other times as the testing laboratory may direct. Periodic checks of high strength steel bolts connections will be made in the field by the testing laboratory. The Contractor shall maintain at all times during erection a manual torque wrench, and shall provide a laborer and scaffolding as required for the testing and connection by testing laboratory, and shall at his own expense, furnish such facilities and provide such assistance as may be required for proper inspection.
- F. Work that has been completed and inspected shall be identified with a distinguishing mark. Material or work that is not acceptable shall be designated by works such as "rejected" or repair" marked directly on the material or the work.
- G. Butt welds shall be tested by the Ultrasonic method at location determined by the Engineer of Record.
- H. Any weld, which upon examination or inspection is found to be defective, shall be removed to the satisfaction of the Inspector and weld shall be remade. Contractor shall remake the welds at no additional cost to the Commissioner and shall in addition bear all costs of examination and inspection of the welds that have been remade.
- I. Contractor shall, at his own expense, furnish such facilities and provide such



assistance as may be required for proper inspection.

- J. Reports shall be made of each inspection and shall be distributed in accordance with directions issued by the Commissioner.
- K. Inspection is for the protection of the City of New York and does not relieve the Contractor of responsibility relative to producing the specified results.

## **PART 2 - PRODUCTS**

### 2.1 STANDARDS

- A. Structural Steel: W Sections ASTM A992  
Plates, Angles & Channels ASTM A36.
- B. Bolts:
  - 1. Anchor Type - ASTM A-307
  - 2. All others - ASTM A-325
- C. Filler Metal ASTM A-233, Class E 70 series.

### 2.2 PAINT

- A. Paint for shop coating of steel not exposed to the exterior shall be Themec 88 H.S. or Sherwin Williams steel Spec Heavy Duty Primer and for exposed exterior structural steel Themec Series 27 FC or Sherwin Williams Recoatable Epoxy Primer or approved equal.

## **PART 3 - EXECUTION**

### 3.1 EXAMINATION OF EXISTING WORK

- A. Examine all work prepared by others to receive work of this Section and report any defects affecting installation to the Contractor for correction. Commencement of work will be construed as complete acceptance of preparatory work by others.

### 3.2 WELDING

- A. Welding must be performed by welders who have been certified by an approved Testing Laboratory within previous two year period. Submit proof of such certification to Commissioner before work is performed. Comply with AWS D1-1 "Structural Welding Code".
- B. All welders must be licensed by the Commissioner of Buildings.

### 3.3 FABRICATION

- A. Meet applicable requirements of "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings" by AISC. Comply with AISC distortion tolerances.
- B. Fabricate work in shop in as large assemblies as practicable. Weld permanent shop connections. High-strength bolts permitted with specific approval of the Commissioner only.
- C. Mill column bearing connections. Protect from corrosion.
- D. Punch holes 1/16" larger than bolt diameter. If hole enlargement is required, ream, burning not permitted.
- E. Punch or drill for temporary field connections and for attachment of work by other trades.
- F. Coordinate with other trades all dimensions for fit of other trades to steel, particularly with reference to mechanical roof openings and mechanical roof top equipment.

### 3.4 ERECTION

- A. Meet applicable requirements of "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings" by AISC.
- B. Verify field measurements prior to start of erection.
- C. Provide temporary flooring, bracing, shoring, and secure partially erected steel during interruptions of work. Maintain frame alignment during all construction phases.
- D. Bolt field connections with standard washers under nuts (except high strength bolts).
- E. Flame cutting of structural steel on site not permitted except with specific approval.
- F. Field welding in accordance with AWS D1-1 "Structural Welding Code" and Commissioner's approval.
- G. Level steel plumb and true to a horizontal and vertical plane. Shim bearing plates with steel. Maintain AISC tolerance. Use full bearing shims at all lintel adjustment locations. Provide adjustability as required.
- H. Steel work in place, shall be approved by the Commissioner before being covered.
- I. Assemble high strength bolts in accordance with ASTM A-325. Calibrated

wrench is the only type of installation permitted. Locate high strength bolts where specified on plans. Calibrate wrench at start of each day's work.

3.5 PAINTING

A. Shop Coat:

1. Remove all rust, scale, grease and other detrimental foreign matter by any of the methods outlined in the Steel Structures Painting Council Specification as may be applicable for intended exposure and location and apply one coat of material as specified in Part 2.

**DO NOT PAINT SURFACES IN CONTACT WITH CONCRETE IN THE COMPLETED STRUCTURE, SURFACES TO BE WELDED AND SURFACES OF HIGH STRENGTH BOLTED CONNECTIONS.**

2. Apply 2 coats to steel that will be not accessible after erection.

B. Field Painting:

1. After erection, all damaged areas in shop coat, exposed surfaces of bolts, bolt heads, nuts and washers, and all field welds and unpainted areas adjacent to field welds and high strength bolts shall be painted with a "touch-up" application of same paint used used in the shop coat and then painted with same paint used for shop coat tinted another color
2. Retouch in field, any scraped abraded, and unpainted surfaces. Painting as specified for shop coats.

C. Painting specified herein does not count as a coat for finish painting.

END OF SECTION

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SECTION 05 30 00

METAL DECKING

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall conform to the requirements of the General Conditions, Supplementary General Conditions and Special Requirements.

1.2 SCOPE OF WORK

- A. All materials, labor, equipment and services necessary to furnish, deliver, and install all work for this section shall be provided as shown on the drawings, as specified, and as required by job conditions, including but not limited to the following:

1. All Steel Framed Areas: Composite steel decking (permanent formwork) as required for concrete arch construction, including all steel stud shear connectors, closures, deck support angles at columns, reinforcing as hereinafter specified and all accessories as may be required for a complete and properly erected installation. Decking shall be furnished and installed so as to require no shoring from below.
2. Welding: Including all welding required to properly fabricate and erect the steel decking.
3. Cutting of Openings: Steel decking (permanent formwork) shall be cut by the Contractor as required to fit pre-determined holes and structural steel framed openings which are located and dimensioned on the structural, architectural, mechanical and electrical drawings.
  - a. Other than predetermined holes, all holes required by other trades shall be provided by the trades requiring the holes (other than predetermined holes). Cutting shall be performed as hereinafter specified.
  - b. Shop and field cutting of steel decking (permanent formwork) as required to provide sufficient clearance for brackets and the work of other trades and all coping and welding of such members shall be included.
4. Reinforcing for Openings and Holes: The reinforcing required for all openings and holes passing through the steel decking shall be furnished and installed regardless of by whom the holes have been cut.

5. Accessory Items:
  - a. Continuous edge closures, closure plates, end closures, flashing and the like, as required to properly prepare the decking to receive the concrete, and the welding of all such work, as required.
  - b. Filler plates as may be required to close gaps between decking and structural concrete.
6. Hoisting of all materials required to be furnished and installed.
7. Painting: All touchup painting required for weld areas and damaged surfaces of steel decking and accessory items shall be performed.
8. Hanger tabs shall be furnished in place to receive suspended ceiling construction.
9. Safety Requirements: The Contractor shall be held responsible for compliance with the safety requirements of all city, state and federal agencies having jurisdiction, including the Occupational Safety and Health Administration.

**1.3 RELATED WORK DESCRIBED IN OTHER SECTIONS**

- A. Concrete Work - Section 033000.
- B. Structural Steel - Section 051000.

**1.4 QUALITY ASSURANCE**

- A. Structural adequacy of deck sections shall be established in accordance with the methods set forth in the latest edition of the AISI Specifications for the Design of Cold Formed Steel Structural Members. The "moment" and deflection coefficient used shall be in accordance with the Steel Deck Institute's recommendations. Metal decking shall sustain all dead loads plus live loads.
- B. Certification of Welders: All welding shall be performed by competent experienced welding mechanics. Furnish certification stating that all welders employed on the work have passed qualification tests using procedures specified in the American Welding Society's Standard B3.0, Part II, current edition, and that such welders have been performing satisfactory welding of the required type within the three month period immediately preceding this job.
  1. A certification shall be submitted for each welding mechanic stating date of examination, results of testing, name of welder, and name and title of person conducting the examination.
  2. All welders shall be licensed by the State of New York.

- C. Standards: All welding shall be performed in accordance with the applicable sections of the American Welding Society's Standard D1.0 for Welding In Building Construction.
- D. U.L. Approval: All welding shall be performed in strict accordance with the Underwriter's Laboratories' approvals in all cases, with no interchangeability or equivalent materials authorized.

#### 1.5 SUBMITTALS

- A. Drawings: Based on design drawings, the Contractor shall prepare fabrication and erection drawings of all steel deck work. In addition, shop drawings shall be prepared and submitted to the Engineer of Record for review.
- B. Shop drawings shall be submitted, sufficiently in advance of the start of the work to allow time for examination and review. No fabrication shall be started prior to review of the drawings.
  - 1. Modification of details and all deviations from the design drawings, and the reasons therefore, shall be submitted for review with the shop drawings. Each modification or deviation shall be brought to the Engineer of Record's attention.
  - 2. Responsibility for all errors in detailing, fabrication and fitting of the steel decking shall be the Contractor's. Care shall be taken to maintain all architectural clearances.
  - 3. Index sheets shall be submitted with all deck details at time of submission. Where field welding is required, details shall be submitted at same time as corresponding shop drawings.

#### 1.6 DELIVERY AND STORAGE

- A. All material shall be delivered to the construction site free from warpage, rust, dirt and shall be stored under protective covers on dunnage.

### **PART 2 - PRODUCTS**

#### 2.1 STEEL DECKING

- A. Steel deck panels shall be "United Steel Decking Lok-Flor" composite deck as manufactured by United Steel Deck Inc., New Jersey, or equivalent. Panels shall be 3" deep, 20 gauge unless otherwise noted on plans and shall be galvanized and formed from steel conforming to ASTM A-653 (current edition) Grade C.
- B. Shop Welding of Steel Decking: When two (2) or more units are assembled

by welding to form one unit, and the properties of that unit have been calculated in accordance with the AISC Specifications, the welds integrating the sheets into the unit shall be sufficient to develop the full horizontal shear at the plane where the sheets are jointed. The design strength per weld shall be in accordance with the aforementioned specifications.

- C. Spot welds shall be made using resistance spot-welders with electronic timers and heat controls, with uniformly applied pressure, and incorporating slope and temper controls to properly anneal the welds.

## 2.2 CLOSURES AND FLASHING

- A. The Contractor shall furnish and weld in place all sheet metal closures and fillers as required to close between floor units and columns, beams and girders, ends of runs, and in all other locations where shown and noted on the Structural and Architectural Drawings. Include metal flashing wherever shown. In addition include closures, fillers and flashing in all locations as required for proper installation whether or not indicated on the Drawings.
- B. Gauges: Except as otherwise indicated on the structural drawings, closures and fillers shall be not less than No. 18 gauge in thickness; flashings not less than No. 12 gauge.
- C. Deck support steel required to be furnished and installed shall conform to the requirements of ASTM A36, current edition. Sizes of steel angles shall be in accordance with the details at columns appearing on the Structural Drawings

## **PART 3 - EXECUTION**

### 3.1 SEQUENCE OF ERECTION

- A. Coordination With Other Trades: It shall be understood that certain portions of the steel decking installation may be delayed in order that other trades may complete their work in proper sequence.
- B. Manufacturer's Standard: All steel decking shall be erected in accordance with the manufacturer's standard methods. Steel deck shall be placed on the supporting steel frame work and adjusted to final position before being permanently fastened. Each unit shall be brought to proper bearing on the supporting beams. If the supporting beams are not in proper alignment, or at proper level, shall bring the matter (in writing) to the attention of the Engineer of Record for corrective action, and shall see that the correction is made before finally placing steel deck units.
- C. Erection: Panels shall be placed with edges up and flutes at right angles to structural steel supports. End laps shall always occur over supporting members. Minimum end lap shall be 2". Panels shall be lapped not less than 1/2" flute at side laps and welded at 3'- 0" on center. Panels shall be attached to top flange of steel beam supports by plug welding.



- D. Welding: Unless otherwise noted on the structural drawings, end laps shall be fastened using a weld washer at each side lap plus one intermediate weld (three welds per sheet). At intermediate supports weld sheets at side laps at each such support.
- E. Alignment and Span: The floor unit shall be placed in straight alignment for the entire length of the run of the peaks and valleys.
- F. Installation of steel decking shall closely follow the erection of the structural steel framing.
- G. Closures shall be fastened in place by tack welding not more than four feet on center for end closures and not more than three feet on center for side closures.
- H. Pour stops and closures along the perimeter of the building, around stairwells and around elevator shafts shall be located from actual survey lines and shall not be located via measurement from the perimeter beam locations.
- I. Column closures shall be cut and placed to suit the job conditions.
- J. After panels have been placed and aligned, they shall be immediately welded to the supporting steel.

### **3.2 HOLES AND OPENINGS**

- A. Openings: Steel decking shall be cut by the Contractor to fit all structurally framed openings as specified under the "Scope."
- B. Definitions for Openings: Openings shall be defined as the apertures through the steel decking such as openings for stairs, shafts, and the like, the framing of which will be furnished and installed, as indicated on the Drawings. Such structural steel framing shall provide adequate support with a minimum bearing of three inches, unless otherwise shown.
- C. Holes: Steel decking shall be cut by the respective trades as required to pass their work from floor to floor.
- D. Definition of Holes: Holes shall be defined as any aperture cut through the steel flooring in unframed areas to accommodate sleeves for pipes, ducts, conduits and the like.
- E. Reinforcing: All holes and openings cut through steel decking shall be reinforced as previously specified under the "Scope", except that holes 6" or less in diameter, and holes in which the distance cut across a flute is 6" or less, need not be reinforced, provided adjacent holes are not closer than 2'-6" on center. Required reinforcing shall be U.S.S. No. 14 gauge sheet steel and 4", 5.4 lbs. steel channels respectively as shown and noted on the

Structural Drawings. All welds shall be a minimum of 3/4" in length and spaced not more than 8" on center.

- F. In all locations where support of the floor units has not been provided by the steel framing, it shall be the Contractor's responsibility to furnish and install sufficient reinforcement and support the decking. Such support and reinforcing shall meet the Engineer of Record's approval.

**3.3 FIELD QUALITY CONTROL**

- A. Inspection of steel decking shall include the following:
  - 1. Verification that all steel decking is erected in accordance with approved drawings, Contract Documents and Code requirements.
  - 2. All field welding of metal deck to steel supporting members shall be inspected by visual means to ascertain that all welds conform with drawings and with the applicable code requirements.
- B. Testing and inspection of welding will be supervised and paid for by the Commissioner.

**END OF SECTION**

SECTION 05 50 00

METAL FABRICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the work of metal fabrications as shown on the Drawings, specified herein, and as required by conditions and authorities having jurisdiction, including, but not limited to, the following:
1. Steel Diamond Pattern Floor Plate to cover new piping trenches.
  2. Vertical Metal Ladders at access hatches and raised platform.

1.3 QUALITY ASSURANCE

- A. Fabricator Qualifications: A firm experienced in producing metal fabrications similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

1.4 SUBMITTALS

- A. General: Submit each item in this Article in compliance with the Conditions of the Contract and General Conditions. Revise and resubmit each item as required to obtain Commissioner's approval.
- B. Product Literature: Manufacturer's published technical data for each product to be used in work of this Section. Include test reports and certificates verifying that product complies with specified requirements.
- C. Shop Drawings: Detail fabrication and erection of each metal fabrication indicated. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
1. Provide templates for anchors specified for installation under other Sections.

- D. **Qualification Data:** For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other relevant information.

#### 1.5 PROJECT CONDITIONS

- A. **Field Measurements:** Where metal fabrications are indicated to fit walls and other construction, verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
  - 1. **Established Dimensions:** Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating metal fabrications without field measurements. Coordinate construction to ensure that actual dimensions correspond to established dimensions. Allow for trimming and fitting.

#### 1.6 COORDINATION

- A. Coordinate installation of anchorages for metal fabrications. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

### **PART 2 - PRODUCTS**

#### 2.1 METALS, GENERAL

- A. **Metal Surfaces, General:** For metal fabrications exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names or other impressions, roughness, or other imperfections.

#### 2.2 FERROUS METALS

- A. **Steel Plates, Shapes, and Bars:** ASTM A 36.

#### 2.3 METAL FLOOR PLATE

- A. Fabricate from rolled-stainless-steel floor plate of thickness indicated below:
  - 1. Thickness: 1/4 inch.
- B. Provide flush stainless-steel bar drop handles for lifting removable sections, one at each end of each section.

**2.4 PAINT**

- A. Shop Primers: Provide primers that comply with Section 09 96 00 – High Performance Coatings.
- B. Shop Primer for Ferrous Metal: Organic zinc-rich primer, complying with SSPC-Paint 20 and compatible with topcoat that comply with Section 09 96 00 – High Performance Coatings.
- C. Bituminous Paint: Cold-applied asphalt mastic complying with SSPC-Paint 12, except containing no asbestos fibers, or cold-applied asphalt emulsion complying with ASTM D 1187.

**2.5 FASTENERS**

- A. General: Provide Type 316 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, where built into exterior walls. Select fasteners for type, grade, and class required.
- B. Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A; with hex nuts, ASTM A 563; and, where indicated, flat washers.
- C. Anchor Bolts: ASTM F 1554, Grade 36.
- D. Plain Washers: Round, carbon steel, ASME B18.22.1.
- E. Lock Washers: Helical, spring type, carbon steel, ASME B18.21.1.

**2.6 FABRICATION, GENERAL**

- A. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Shear and punch metals cleanly and accurately. Remove burrs.
- C. Ease exposed edges to a radius of approximately 1/32 inch, unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
- E. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

- F. Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes where water may accumulate.
- G. Allow for thermal movement resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening up of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
  - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
- H. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.
- I. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous.

## 2.7 MISCELLANEOUS STEEL TRIM

- A. Unless otherwise indicated, fabricate units from structural-steel shapes, plates, and bars of profiles shown with continuously welded joints, and smooth exposed edges. Miter corners and use concealed field splices where possible.
- B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work. Provide anchors, welded to trim, for embedding in concrete or masonry construction, spaced not more than 6 inches from each end, 6 inches from corners, and 24 inches o.c., unless otherwise indicated.
- C. Galvanize miscellaneous steel

## 2.8 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish metal fabrications after assembly.

## 2.9 STEEL FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with applicable standard listed below:
  - 1. ASTM A 123, for galvanizing steel products.
- B. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface-

preparation specifications and environmental exposure conditions of installed metal fabrications:

1. SSPC-SP 6, "Commercial Blast Cleaning."
- C. Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1," for shop painting.
1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION, GENERAL**

- A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing metal fabrications to in-place construction. Include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts and other connectors.
- B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- C. Provide temporary bracing or anchors in formwork for items that are to be built into masonry or similar construction.

#### **3.2 ADJUSTING AND CLEANING**

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.
- B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Section 099600 – High Performance Coatings.
- C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION

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SECTION 05 52 13

PIPE AND TUBE RAILINGS

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

**1.2 SUMMARY**

- A. This Section includes the following:
1. Painted Steel pipe and tube railings.

**1.3 PERFORMANCE REQUIREMENTS**

- A. General: In engineering railings to withstand structural loads indicated, determine allowable design working stresses of railing materials based on the following:
1. Steel: 72 percent of minimum yield strength.
- B. Structural Performance: Provide railings capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
1. Handrails:
    - a. Uniform load of 50 lbf/ ft.applied in any direction.
    - b. Concentrated load of 200 lbf applied in any direction.
- C. Thermal Movements: Provide exterior railings that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. Temperature Change (Range): 120 deg F, ambient; 180 deg, material surfaces.

- D. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

#### 1.4 SUBMITTALS

- A. Product Data: For the following:
  - 1. Manufacturer's product lines of mechanically connected railings.
  - 2. Grout, anchoring cement, and paint products.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
  - 1. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- C. Samples for Initial Selection: For products involving selection of color, texture, or design.
- D. Samples for Verification: For each type of exposed finish required.
  - 1. Sections of each distinctly different linear railing member, including handrails, top rails, posts, and balusters.
  - 2. Fittings and brackets.
  - 3. Assembled Sample of railing system, made from full-size components, including top rail, post, handrail, and infill. Sample need not be full height.
    - a. Show method of finishing and connecting members at intersections.
- E. Welding certificates.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, according to ASTM E 894 and ASTM E 935.

#### 1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of railing through one source from a single manufacturer.
- B. Welding: Qualify procedures and personnel according to the following:
  - 1. AWS D1.1, "Structural Welding Code--Steel."

**1.6 PROJECT CONDITIONS**

- A. **Field Measurements:** Verify actual locations of walls and other construction contiguous with railings by field measurements before fabrication and indicate measurements on Shop Drawings.

**1.7 COORDINATION AND SCHEDULING**

- A. Coordinate installation of anchorages for railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- B. Schedule installation so wall attachments are made only to completed walls. Do not support railings temporarily by any means that do not satisfy structural performance requirements.

**PART 2 - PRODUCTS**

**2.1 MANUFACTURERS**

- A. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
  - 1. **Steel Pipe and Tube Railings:**
    - a. Pisor Industries, Inc.
    - b. Sharpe Products.
    - c. Wagner, R & B, Inc.; a division of the Wagner Companies.
    - d. Or Approved Equal

**2.2 METALS, GENERAL**

- A. **Metal Surfaces, General:** Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.
- B. **Brackets, Flanges, and Anchors:** Cast or formed metal of same type of material and finish as supported rails, unless otherwise indicated.

**2.3 STEEL AND IRON**

- A. **Recycled Content of Steel Products:** Provide products with an average recycled content of steel products so postconsumer recycled content plus one-half of preconsumer recycled content is not less than 25 percent.
- B. **Tubing:** ASTM A 500 (cold formed).

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- C. Pipe: ASTM A 53/A 53M, Type F or Type S, Grade A, Standard Weight (Schedule 40), unless another grade and weight are required by structural loads.
  - 1. Provide galvanized finish for exterior installations and where indicated.
- D. Plates, Shapes, and Bars: ASTM A 36/A 36M.
- E. Castings: Either gray or malleable iron, unless otherwise indicated.
  - 1. Gray Iron: ASTM A 48/A 48M, Class 30, unless another class is indicated or required by structural loads.
  - 2. Malleable Iron: ASTM A 47/A 47M.

## 2.4 FASTENERS

- A. General: Provide the following:
  - 1. Steel Railings: Type 316 stainless-steel fasteners.
- B. Fasteners for Interconnecting Railing Components:
  - 1. Provide concealed fasteners for interconnecting railing components and for attaching them to other work, unless otherwise indicated.
- C. Anchors: Provide torque-controlled expansion anchors, fabricated from corrosion-resistant materials with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.

## 2.5 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. Zinc-Rich Primer: Complying with SSPC-Paint 20 or SSPC-Paint 29 and compatible with topcoat.
  - 1. Use primer with a VOC content of 420 g/L (3.5 lb/gal.) or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

Retain above for nonproprietary or below for semiproprietary specification. Refer to Division 01 Section "Product Requirements."
  - 2. Products: Subject to compliance with requirements, provide one of the following:
    - a. Benjamin Moore & Co.; Epoxy Zinc-Rich Primer CM18/19.

b. Tnemec Company, Inc.; Theme-Zinc 90-97.

C. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

## 2.6 FABRICATION

- A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.
- B. Assemble railings in the shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.
- C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch, unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- D. Form work true to line and level with accurate angles and surfaces.
- E. Fabricate connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- F. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.
- G. Connections: Fabricate railings with welded connections, unless otherwise indicated.
- H. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  2. Obtain fusion without undercut or overlap.
  3. Remove flux immediately.
  4. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.
- I. Form changes in direction as follows:
1. By bending or by inserting prefabricated elbow fittings.

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- J. Retain first paragraph below unless all bends are made with elbow fittings.
- K. Close exposed ends of railing members with prefabricated end fittings.
- L. Provide wall returns at ends of wall-mounted handrails, unless otherwise indicated. Close ends of returns unless clearance between end of rail and wall is 1/4 inch or less.
- M. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work, unless otherwise indicated.
  - 1. At brackets and fittings fastened to plaster or gypsum board partitions, provide fillers made from crush-resistant material, or other means to transfer wall loads through wall finishes to structural supports and prevent bracket or fitting rotation and crushing of substrate.
- N. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by railings. Coordinate anchorage devices with supporting structure.

**2.7 FINISHES, GENERAL**

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Provide exposed fasteners with finish matching appearance, including color and texture, of railings.

**2.8 STEEL AND IRON FINISHES**

- A. Galvanized Railings:
  - 1. Hot-dip galvanize steel and iron railings, including hardware, after fabrication.
- B. Fill vent and drain holes that will be exposed in the finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.
- C. For galvanized railings, provide hot-dip galvanized fittings, brackets, fasteners, sleeves, and other ferrous components.

- D. Preparation for Shop Priming: After galvanizing, thoroughly clean railings of grease, dirt, oil, flux, and other foreign matter, and treat with metallic-phosphate process.

### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION, GENERAL**

- A. Fit exposed connections together to form tight, hairline joints.
- B. Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.
  - 1. Do not weld, cut, or abrade surfaces of railing components that have been coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
- C. Corrosion Protection: Coat concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.
- D. Adjust railings before anchoring to ensure matching alignment at abutting joints.
- E. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.

#### **3.2 RAILING CONNECTIONS**

- A. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in Part 2 "Fabrication" Article whether welding is performed in the shop or in the field.

#### **3.3 ANCHORING POSTS**

- A. Anchor posts with oval flanges, angle type, or floor type as required by conditions, connected to posts and to metal supporting members as follows:
  - 1. For steel pipe railings, weld flanges to post and bolt to metal supporting surfaces.

#### **3.4 ATTACHING HANDRAILS**

- A. Attach handrails to walls, floors and steps with pre-fabricated brackets. Provide brackets with 1-1/2-inch clearance from inside face of handrail and finished wall surface.
  - 1. Use type of bracket with predrilled hole for exposed bolt anchorage.

- B. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.
- C. Secure wall brackets to building construction as follows:
  - 1. For concrete and solid masonry anchorage, use drilled-in expansion shields and hanger or lag bolts.

**3.5 ADJUSTING AND CLEANING**

- A. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Division 09 painting Sections.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

**3.6 PROTECTION**

- A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.
- B. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

**END OF SECTION**



SECTION 07 13 26

SELF-ADHERING SHEET WATERPROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Section Includes:
1. Modified bituminous sheet waterproofing.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
1. Review waterproofing requirements including surface preparation, substrate condition and pretreatment, minimum curing period, forecasted weather conditions, special details and sheet flashings, installation procedures, testing and inspection procedures, and protection and repairs.

1.4 SUBMITTALS

- A. Product Data: For each type of product.
1. Include construction details, material descriptions, and tested physical and performance properties of waterproofing.
- B. Shop Drawings: Show locations and extent of waterproofing and details of substrate joints and cracks, sheet flashings, penetrations, inside and outside corners, tie-ins with adjoining waterproofing, and other termination conditions.
- C. Samples: For each exposed product and for each color and texture specified, including the following products:

Retain required Samples in subparagraphs below; revise to suit Project.

1. 8-by-8-inch square of waterproofing sheet.
- D. Qualification Data: For Installer.

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- E. Field quality-control reports.
- F. Sample Warranties: For special warranties.

**1.5 QUALITY ASSURANCE**

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained by waterproofing manufacturer.
- B. Mockups: Build mockups to verify selections made under Sample submittals and to set quality standards for installation.
  - 1. Build for each typical waterproofing installation.
    - a. Description: Each type of applied flashing to repaired steel framing installation.
  - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Commissioner specifically approves such deviations in writing.
  - 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

**1.6 FIELD CONDITIONS**

- A. Environmental Limitations: Apply waterproofing within the range of ambient and substrate temperatures recommended by waterproofing manufacturer. Do not apply waterproofing to a damp or wet substrate.
  - 1. Do not apply waterproofing in snow, rain, fog, or mist.

**1.7 WARRANTY**

- A. Manufacturer's Warranty: Manufacturer's standard materials-only warranty in which manufacturer agrees to furnish replacement waterproofing material for waterproofing that does not comply with requirements or that fails to remain watertight within specified warranty period.
  - 1. Warranty Period: Five years from date of Substantial Completion.

**PART 2 - PRODUCTS**

**2.1 MATERIALS, GENERAL**

- A. Source Limitations for Waterproofing System: Obtain waterproofing materials from single source from single manufacturer.

2.2 MODIFIED BITUMINOUS SHEET WATERPROOFING

A. Modified Bituminous Sheet: Minimum 60-mil nominal thickness, self-adhering sheet consisting of 56 mils of rubberized asphalt laminated on one side to a 4-mil-thick, polyethylene-film reinforcement, and with release liner on adhesive side.

1. Provide the following sheet waterproofing material:

a. Ice and Water Shield by:

Grace  
7500 Grace Drive  
Columbia, MD 21044  
410-531-4000

b. Deck Guard by:

Polyguard Products  
P.O. Box 755  
Ennis, TX 75120  
214-515-5000

c. CCW-707 by:

Carlisle Coatings & Waterproofing  
900 Hensley Lane  
Wylie, TX 75098  
800-527-7092

d. Or Approved Equal.

2. Physical Properties:

a. Tensile Strength, Membrane: 250 psi minimum; ASTM D 412, Die C, modified.

b. Ultimate Elongation: 300 percent minimum; ASTM D 412, Die C, modified.

c. Low-Temperature Flexibility: Pass at minus 20 deg F; ASTM D 1970.

d. Crack Cycling: Unaffected after 100 cycles of 1/8-inch movement; ASTM C 836.

e. Puncture Resistance: 40 lbf minimum; ASTM E 154.

f. Water Absorption: 0.2 percent weight-gain maximum after 48-hour immersion at 70 deg F; ASTM D 570.

g. Water Vapor Permeance: 0.05 perms maximum; ASTM E 96/E 96M, Water Method.

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Revise option in "Hydrostatic-Head Resistance" Subparagraph below if applicable. Named products exceed 200 feet (60 m) except for Nervastral and York, which report 150 feet (45 m).

- h. Hydrostatic-Head Resistance: 200 feet minimum; ASTM D 5385.
3. Sheet Strips: Self-adhering, rubberized-asphalt strips of same material and thickness as sheet waterproofing.

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the waterproofing.
  - 1. Verify that substrate is visibly dry and within the moisture limits recommended in writing by manufacturer. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

**3.2 SURFACE PREPARATION**

- A. Clean, prepare, and treat substrates according to manufacturer's written instructions. Provide clean, dust-free, and dry substrates for waterproofing application.

**3.3 MODIFIED BITUMINOUS SHEET-WATERPROOFING APPLICATION**

- A. Install modified bituminous sheets according to waterproofing manufacturer's written instructions and recommendations in ASTM D 6135.
- B. Apply and firmly adhere sheets over area to receive waterproofing. Accurately align sheets and maintain uniform 2-1/2-inch-minimum lap widths and end laps. Overlap and seal seams, and stagger end laps to ensure watertight installation.
  - 1. When ambient and substrate temperatures range between 25 and 40 deg F, install self-adhering, modified bituminous sheets produced for low-temperature application. Do not use low-temperature sheets if ambient or substrate temperature is higher than 60 deg F.

**3.4 PROTECTION, REPAIR, AND CLEANING**

- A. Protect waterproofing from damage and wear during remainder of construction period.

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- B. Protect installed waterproofing from damage due to UV light, harmful weather exposures, physical abuse, and other causes. Provide temporary coverings where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.
- C. Correct deficiencies in or remove waterproofing that does not comply with requirements; repair substrates, reapply waterproofing, and repair sheet flashings.
- D. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION

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SECTION 07 21 00

INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. This Section includes the following:
1. Rigid Insulation at roof decks
  2. Rigid Insulation at inoperable louvers
  3. Batt Insulation at fire-rated partitions

1.3 PERFORMANCE REQUIREMENTS

- A. Plenum Rating: Provide glass-fiber insulation where indicated in ceiling plenums whose test performance is rated as follows for use in plenums as determined by testing identical products per "Erosion Test" and "Mold Growth and Humidity Test" described in UL 181, or on comparable tests from another standard acceptable to authorities having jurisdiction.
1. Erosion Test Results: Insulation shows no visible evidence of cracking, flaking, peeling, or delamination of interior surface of duct assembly, after testing for 4 hours at 2500-fpm air velocity.
  2. Mold Growth and Humidity Test Results: Insulation shows no evidence of mold growth, delamination, or other deterioration due to the effects of high humidity, after inoculation with *Chaetomium globosum* on all surfaces and storing for 60 days at 100 percent relative humidity in the dark.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Verification: Full-size units for each type of exposed insulation indicated.

- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency for insulation products.
- D. Research/Evaluation Reports: For foam-plastic insulation.

1.5 **QUALITY ASSURANCE**

- A. Source Limitations: Obtain each type of building insulation through one source from a single manufacturer.
- B. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
  - 1. Surface-Burning Characteristics: ASTM E 84.
  - 2. Fire-Resistance Ratings: ASTM E 119.
  - 3. Combustion Characteristics: ASTM E 136.

1.6 **DELIVERY, STORAGE, AND HANDLING**

- A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.
- B. Protect plastic insulation as follows:
  - 1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
  - 2. Protect against ignition at all times. Do not deliver plastic insulating materials to Project site before installation time.
  - 3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

**PART 2 - PRODUCTS**

2.1 **EXTRUDED-POLYSTYRENE BOARD INSULATION**

- A. Extruded-Polystyrene Board Insulation at Roof Decks: ASTM C 578, of type and density indicated below, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, Type IV, 1.60 lb/cu. ft, unless otherwise indicated, minimum thickness of 4":



1. Foamular® Thermapink® XPS Rigid Insulation, by Owens Corning Insulating Systems, LLC, Toledo, OH 43659.
  2. Styrofoam™ Brand Deckmate™ Plus Extruded Polystyrene Foam Insulation, by The Dow Chemical Company, 200 Larkin, Midland, MI 48674.
  3. CertiFoam 25 SE Rigid Insulation, by DiversiFoam Products, 9091 County Road 50, Rockford, MN 55373.
  4. Or Approved Equal.
- B. Extruded-Polystyrene Board Insulation at Inoperable Louvers: ASTM C578 Type X, 1.3 pcf density, minimum thickness of 5":
1. Foamular® 150 Rigid Foam Insulation, by Owens Corning Insulating Systems, LLC, Toledo, OH 43659.
  2. Styrofoam™ Brand Cavitymate™ SC Insulation, by The Dow Chemical Company, 200 Larkin, Midland, MI 48674.
  3. CertiFoam 15 Rigid Insulation, by DiversiFoam Products, 9091 County Road 50, Rockford, MN 55373.
  4. Or Approved Equal.

## 2.2 GLASS-FIBER BLANKET INSULATION

- A. Manufacturers:
1. CertainTeed Corporation.
  2. Johns Manville.
  3. Owens Corning.
  4. Or Approved Equal.
- B. Faced, Glass-Fiber Blanket Insulation: ASTM C 665, Type III (blankets with reflective membrane facing), Class A (membrane-faced surface with a flame-spread index of 25 or less); Category 1 (membrane is a vapor barrier), faced with foil-scrim-kraft, foil-scrim, or foil-scrim-polyethylene vapor-retarder membrane on 1 face.
- C. Where glass-fiber blanket insulation is indicated by the following thicknesses, provide blankets in batt or roll form with thermal resistances indicated:
1. 3-1/2 inches thick with a thermal resistance of 13 deg F x h x sq. ft./Btu at 75 deg F.

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Examine substrates and conditions, with Installer present, for compliance with requirements of Sections in which substrates and related work are specified and for other conditions affecting performance.
  - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

**3.2 PREPARATION**

- A. Clean substrates of substances harmful to insulation, including removing projections capable of puncturing vapor retarders or of interfering with insulation attachment.

**3.3 INSTALLATION, GENERAL**

- A. Comply with insulation manufacturer's written instructions applicable to products and application indicated.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed at any time to ice, rain, and snow.
- C. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. For preformed insulating units, provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.

**3.4 INSTALLATION OF GENERAL BUILDING INSULATION**

- A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

**3.5 INSTALLATION OF VAPOR RETARDERS**

- A. General: Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage system as indicated. Extend vapor retarder to cover miscellaneous voids in insulated substrates, including those filled with loose-fiber insulation.

- B. Seal vertical joints in vapor retarders over framing by lapping not less than two wall studs. Fasten vapor retarders to wood framing at top, end, and bottom edges; at perimeter of wall openings; and at lap joints. Space fasteners 16 inches o.c.
- C. Repair tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarder.

**3.6 PROTECTION**

- A. Protect installed insulation and vapor retarders from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

**END OF SECTION**

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**January 5, 2015**

**INSULATION**  
**07 21 00-6**

SECTION 07 52 16

MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Section Includes:

1. Hybrid roofing system that combines built-up ply sheets with SBS-modified bituminous membrane roofing.

1.3 DEFINITIONS

- A. Roofing Terminology: See ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

1.4 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed membrane roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Membrane roofing and base flashings shall remain watertight.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by membrane roofing manufacturer based on testing and field experience.
- C. Roofing System Design: Provide membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to ASCE/SEI 7.
- D. FM Approvals Listing: Provide membrane roofing, base flashings, and component materials that comply with requirements in FM Approvals 4450 and FM Approvals 4470 as part of a membrane roofing system, and that are listed in FM Approvals' "RoofNav" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Approvals markings.

**Bellevue Men's Shelter Elevator Rehabilitation**  
**FMS# HH112BLEL**

1. Fire/Windstorm Classification: Class 1A-60
  2. Hail Resistance Rating: MH.
- E. Energy Performance: Provide roofing system with initial Solar Reflectance not less than 0.70 and Thermal Emittance not less than 0.75 when tested according to Cool Roof Rating Council's CRRC-1.

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work.
  1. Base flashings and membrane terminations.
- C. Samples for Verification: For the following products:
  1. Sheet roofing materials, including roofing membrane sheet and membrane cap sheet of color specified.
- D. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
  1. Submit evidence of complying with performance requirements.
- E. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of membrane roofing system.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer that is UL listed for membrane roofing system identical to that used for this Project.
- B. Installer Qualifications: A qualified firm that is trained, authorized, or licensed by membrane roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.
- C. Fire-Resistance Ratings: Where indicated, provide fire-resistance-rated roof assemblies identical to those of assemblies tested for fire resistance per ASTM E 119 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- D. Preinstallation Roofing Conference: Conduct conference at Project site

1. Review methods and procedures related to roof replacement, including manufacturer's written instructions.
2. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
3. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roof membrane installation.

**1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
  1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

**1.8 PROJECT CONDITIONS**

- A. **Weather Limitations:** Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
- B. Take all necessary precautions to prevent fire and spread of fire.
  1. At all times when soldering irons or other heat-generating tools or equipment are in use and for four hours thereafter, provide a worker with an approved fire extinguisher dedicated to preventing fire or spread of fire.
- C. Do not use open flames of any kind.

**1.9 WARRANTY**

- A. **Special Warranty:** Manufacturer's standard or customized form, without monetary limitation, in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period.
  1. Special warranty includes membrane roofing, base flashings, roof insulation, fasteners, roofing accessories, and other components of membrane roofing system.

2. Warranty Period: 15 years from date of Substantial Completion.
- B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of membrane roofing system such as membrane roofing, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, and walkway products, for the following warranty period:
1. Warranty Period: Two years from date of Substantial Completion.

## **PART 2 - PRODUCTS**

### **2.1 SBS-MODIFIED ASPHALT-SHEET MATERIALS**

- A. SBS-Modified Bituminous Membrane Roofing:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following
    - a. CertainTeed Corp.
    - b. Firestone Building Products.
    - c. GAF Materials Corporation.
    - d. Johns Manville.
- B. Roofing Membrane Sheet: ASTM D 6164, Grade S, Type I or II, SBS-modified asphalt sheet (reinforced with polyester fabric); smooth surfaced; suitable for application method specified.
- C. Granule-Surface Roofing Membrane Cap Sheet: ASTM D 6164, Grade G, Type I or II, SBS-modified asphalt sheet (reinforced with polyester fabric); granular surfaced; suitable for application method specified, and as follows:
1. Granule Color: Gray

### **2.2 AUXILIARY ROOFING MEMBRANE MATERIALS**

- A. Cold-Applied Adhesive: Roofing system manufacturer's standard asphalt-based, one- or two-part, asbestos-free, cold-applied adhesive specially formulated for compatibility and use with roofing membrane.
- B. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required by roofing system manufacturer for application.
- C. Mastic Sealant: Polyisobutylene, plain or modified bitumen; nonhardening, nonmigrating, nonskinning, and nondrying.

**MODIFIED MEMBRANE BITUMINOUS  
ROOFING  
07 52 16-4**



**2.3 ROOF INSULATION**

- A. General: Preformed roof insulation boards manufactured or approved by roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated and that produce FM Approvals-approved roof insulation.
- B. Extruded-Polystyrene Board Insulation: ASTM C 578, Type IV, 1.6-lb/cu. ft. minimum density, square edged.
- C. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches unless otherwise indicated.

Retain paragraph below with or without "Tapered Insulation" Paragraph above.

- D. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

**3.2 PREPARATION**

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

**3.3 ROOFING MEMBRANE INSTALLATION, GENERAL**

- A. Install roofing membrane system according to roofing system manufacturer's written instructions and applicable recommendations in ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing" and as follows:
- B. Start installation of roofing membrane in presence of roofing system manufacturer's technical personnel.

**3.4 SBS-MODIFIED BITUMINOUS MEMBRANE INSTALLATION**

- A. Install modified bituminous roofing membranecap sheet according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing membrane sheets over and terminate beyond cants, installing as follows:
  - 1. Adhere to substrate in cold-applied adhesive.
  - 2. Unroll roofing membrane sheets and allow them to relax for minimum time period required by manufacturer.
- B. Install roofing membrane sheets so side and end laps shed water.

**3.5 INSULATION INSTALLATION**

- A. Comply with roofing system manufacturer's written instructions for installing roof insulation.
- B. Install one lapped base-sheet course and mechanically fasten to substrate according to roofing system manufacturer's written instructions.
- C. Nailer Strips: Mechanically fasten 4-inch nominal-width wood nailer strips of same thickness as insulation perpendicular to sloped roof deck at the following spacing:
  - 1. 16 feet apart for roof slopes steeper than 1 inch per 12 inches but less than 3 inches per 12 inches
- D. Insulation Cant Strips: Install and secure preformed 45-degree insulation cant strips at junctures of roofing membrane system with vertical surfaces or angle changes more than 45 degrees.
- E. Install tapered insulation under area of roofing to conform to slopes indicated.
- F. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch with insulation.
  - 1. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
- G. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7 inches or more, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.
  - 1. Where installing composite and noncomposite insulation in two or more layers, install noncomposite board insulation for bottom layer and

intermediate layers, if applicable, and install composite board insulation for top layer.

- H. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- I. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.
- J. Mechanically Fastened Insulation: Install each layer of insulation and secure to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.
  - 1. Fasten insulation according to requirements in FM Approvals' "RoofNav" for specified Windstorm Resistance Classification.
  - 2. Fasten insulation to resist uplift pressure at corners, perimeter, and field of roof.

**3.6 FIELD QUALITY CONTROL**

- A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.
  - 1. Notify Commissioner and City of New York 48 hours in advance of date and time of inspection.

**END OF SECTION**

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**January 5, 2015**

**MODIFIED MEMBRANE BITUMINOUS  
ROOFING  
07 52 16-8**

SECTION 07 62 00

SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the work of sheet metal flashing and trim as shown on the Drawings, specified herein, and as required by conditions and authorities having jurisdiction, including, but not limited to, the following:
1. Lead Coated Copper sheet flashings and accessories.
  2. 20 oz. Flat Seam Sheet Copper flashing pan.

1.3 PERFORMANCE REQUIREMENTS

- A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing.
1. Provisions for Expansion and Contraction: Provide sheet metal flashing and trim that will accommodate without damage or deterioration expansion and contraction caused by air temperature changes over a range of 120 degrees Fahrenheit and metal temperature changes over a range of 180 degrees Fahrenheit.

1.4 QUALITY ASSURANCE

- A. Standards: Work of this Section shall comply with requirements and recommendations of the following standards, with requirements of this Section, and with requirements of sheet metal products manufacturers. In case of conflict, the most stringent and restrictive requirement shall govern.
1. Revere Copper Products, Inc., *Copper & Common Sense*.
  2. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA), *Architectural Sheet Metal Manual*.

3. Copper Development Association (CDA), *Copper in Architecture - Handbook*
- B. Source of Materials: Obtain each type of material required for work of this Section from a single source to ensure a match in quality, performance, and appearance.
- C. Knowledge of Site: Bidders shall visit site and make themselves thoroughly familiar with specific conditions relating to requirements of this Section.

**1.5**     **SUBMITTALS**

- A. General: Submit each item in this Article in compliance with the Conditions of the Contract and General Conditions. Revise and resubmit each item as required to obtain Commissioner's approval.
- B. Qualification Data: Qualification data for firm specified in "Quality Assurance" Article that demonstrates that firm has capabilities and experience complying with requirements specified. For firm, provide a list of at least three completed projects similar in size and scope to work required on this project. For each project list project name, address, architect, scope of contractor's work, and other relevant information.
- C. Product Literature: Manufacturer's published technical data for each product to be used in work of this Section including recommendations for application and use. Include test reports and certificates verifying that product complies with specified requirements. Include Material Safety Data Sheets (MSDS) for each chemical product proposed for use in work of this Section.
- D. Shop Drawings: Drawings of each item of work at appropriate scale sufficient to completely describe the work. Drawings shall include, but shall not be limited to:
  1. Plans and Elevations: Show extent of work and locations of leaders, expansion joints, and other relevant information.
  2. Sections: Show profiles, attachments, and interfaces with adjacent elements.
  3. Details: Each condition of jointing, anchoring, and connecting with adjacent elements and materials.
- E. Samples
  1. Lead Coated and Sheet Copper: Each weight to be used, 12 in. x 12 in. pieces.
  2. Cleats: Each type and configuration to be used in each type of metal where cleats are required.

3. Separation Membrane: 12 in. x 12 in. pieces.
4. Rosin-Sized Paper: 12 in. x 12 in. pieces.
5. Anchors, Fasteners, and Accessories: Each type and configuration in each material to be used in work.
6. Seams in Sheet Metal: 12-in. length of each type of seam in each type of sheet metal in which seam is to be used.
7. Soldered Seams in Sheet Metal: 12-in. length of each configuration in each type of sheet metal.
8. Intersections of Seams: Section of each condition of intersecting seams including 8-in. length of each seam meeting at intersection in each type of metal.
9. Expansion Joints and Expansion Provisions: Each type and configuration, minimum 12-in. long.

F. Mockups: Provide mockups as required in Article "Mockups," below.

1.6 MOCKUPS

- A. General: Before beginning general sheet metal flashing and trim, prepare mockups to provide standards for work of this Section. Do not proceed with sheet metal flashing and trim until Commissioner has approved mock-ups.
1. Locate mockups as directed by Commissioner.
  2. Notify Commissioner 48 hours prior to start of each mockup.
  3. Commissioner will monitor mockups.
  4. Perform mockups using crew that will be executing the work and following requirements of this Section to demonstrate full range of aesthetic effects and workmanship.
  5. Repeat mockups as necessary to obtain Commissioner's approval.
  6. Protect approved mockups to ensure that they are without damage, deterioration, or alteration at time of Substantial Completion.
  7. Approved mockups in undamaged condition at time of Substantial Completion may be incorporated into the Work.
  8. Approved mockups will represent minimum acceptable standards for sheet metal flashing and trim. Subsequent sheet metal flashing and trim work that does not meet standards of approved mockups will be rejected.

- B. Prepare the Following Mockups:
  - 1. Lead Coated Copper flashing: 4'-0" length minimum, each flashing condition.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. General: Deliver, store, and handle all materials to protect them from damage, moisture, dirt, and introduction of foreign matter. Store materials on raised platforms and under ventilated, waterproof cover. Store packaged materials in manufacturer's unopened containers, marked with manufacturer's name and product brand name. Immediately reseal containers after partial use. Remove and replace damaged materials.

1.8 PROJECT CONDITIONS

- A. Safety: Protect all persons, whether involved with work of this Section or not, from any harm resulting from work of this Section.
- B. Protection of Building: Protect building elements and finishes from damage or deterioration caused by work of this Section. Repair any damage to materials or finishes to satisfaction of Commissioner at no additional cost to the City of New York.
  - 1. Cover areas from which roofing has been removed and areas into which water might penetrate at all periods during which work is suspended to ensure materials or finishes are not damaged by water penetration.
  - 2. Take all necessary precautions to prevent fire and spread of fire.
    - a. At all times when there are open flames or when soldering irons or other heat-generating tools or equipment are in use and for four hours thereafter, provide a worker with an approved fire extinguisher dedicated to preventing fire or spread of fire.
- C. Contract Drawings: The Drawings are two-dimensional representations of three-dimensional objects and do not show all surfaces. Perform work on all surfaces of projections, reveals, parapets, and other elements associated with areas on which work is indicated.
  - 1. Where elements interface with existing work or work that is in place, field measure dimensions of existing and in-place elements before preparing shop drawings or beginning work.
- D. Coordinate work of this Section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance, durability of work, and protection of materials and finishes.



**PART 2 - PRODUCTS**

**2.1 SHEET METAL**

- A. General: Provide materials that have been selected for surface flatness, smoothness, and freedom from surface blemishes where exposed to view in finished Work. Exposed to view surfaces that exhibit pitting, seam marks, roller marks, rolled trade names or symbols, oil canning, stains, discoloration, or other imperfections will not be accepted.
- B. Lead Coated Copper Sheet: ASTM B 370; temper H00, cold rolled except where temper 060 is required for forming. Provide in weight indicated on Drawings but not less than 16-oz. per sq. ft.
- C. Copper Sheet: ASTM B 370, cold-rolled copper sheet, flat seam, 20 oz.
  - 1. Nonpatinated Exposed Finish: Mill.

**2.2 SHEET METAL ACCESSORIES**

- A. Cleats: Fabricate of metal being fastened in weight specified for metal, unless otherwise indicated. Cleats shall be at least 2-in. wide and of proper length for intended purpose (3-in. long minimum).
  - 1. Provide expansion cleats of same overall dimensions as fixed cleats formed as recommended by referenced standards and as on approved shop drawings.
- B. Solder for Copper: ASTM B 32, Grade Sn50, used with flux of muriatic acid neutralized with zinc.
- C. Fasteners: Of form and size as indicated or as required to provide secure attachment and as shown on approved shop drawings. Match finish of exposed heads with material being fastened.
  - 1. Material
    - a. Fasteners for Copper: Copper, brass, or bronze, as approved by metal manufacturer.
  - 2. Nails: Minimum No. 12 Stubs gauge (0.109 in. diameter), with large flat head. Provide nails of sufficient length to penetrate roof substrate not less than 3/4 in. Provide longer nails as indicated on Drawings.
  - 3. Rivets: 3/16-in.-diameter, minimum.
  - 4. Screws, Bolts, and Other Fasteners: Compatible with substrate, of type and form to provide secure anchorage.

- D. **Anchors for Masonry Substrates:** Anchors and inserts of ASTM A 165, 300 series stainless steel suitable for use intended.
  - 1. 1/8-Inch or Less in Diameter: Screws with lead expansion sleeves.
  - 2. Greater Than 1/8-Inch in Diameter: Chemical anchors or expansion anchors, as indicated, suitable for intended use, and as shown on approved shop drawings.
- E. **Metal Accessories:** Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of Work, matching or compatible with material being installed; noncorrosive; size and thickness required for performance.

### 2.3 UNDERLAYMENTS

- A. **Self-Sealing Membrane:** Polyethylene-sheet-backed rubberized asphalt membrane, 40 mils thick. Provide primer when recommended by underlayment manufacturer. Provide "Ice and Water Shield," by W.R. Grace & Co.; "Deck Guard," by Polyguard Products; "CCW-707," by Carlisle Coatings & Waterproofing; or Commissioner approved equal.
- B. **Separation Membrane:** EPDM sheet membrane, ASTM D 3253, 60 mils (0.060 in.) thick. Provide EPDM sheet membrane by Carlisle Syntec Systems, Carlisle, PA; Firestone Building Products, Indianapolis, IN; GAF Materials Corporation, Wayne, NJ; or Commissioner approved equal.
- C. **Paper Slip Sheet:** 5-lb/square red rosin-sized building paper conforming to FS UU-B-790, Type I, Style 1b.

### 2.4 COATINGS AND SEALANTS

- A. **Asphalt Mastic:** SSPC-Paint 12, solvent-type asphalt mastic, nominally free of sulfur and containing no asbestos fibers, compounded for 15-mil dry film thickness per coat.
- B. **Mastic Sealant:** Polyisobutylene; nonhardening, nonskinning, nondrying, nonmigrating sealant.
- C. **Elastomeric Sealant for Sheet Metal Joints:** Single-component, high-modulus, elastomeric silicone sealant complying with ASTM C 920, Type S, Grade NS, Class 25, Use O. See Specification 079200 "Joint Sealants" for additional information.

### 2.5 MISCELLANEOUS MATERIALS AND ACCESSORIES

- A. **Lead Wool:** Caulking lead formed from fine strands of lead twisted together to make a loose, rope-like yarn, complying with Federal Specification QQ-C-40, Grade C. Provide lead wool by:

1. Metalico, 740 Lambert Drive, NE, Atlanta, GA 30324;
  2. Mayco Industries, Inc., 18 West Oxmoor Road, Birmingham, AL 35209;
  3. MarShield, 4140 Morris Drive, Burlington, Ontario L7L 5L6, Canada;
  4. or Commissioner approved equal.
- B. Cleaning Solution to Remove Flux Residue: Solution of detergent and washing soda (10 percent) in water.
1. Detergents:
    - a. "Simple Green," as manufactured by Sunshine Makers, Inc., Huntington Harbour, California;
    - b. "Formula 409 Degreaser," as manufactured by The Clorox Company, 1221 Broadway, Oakland, CA 94612; \*
    - c. "Whistle All Purpose Cleander," as manufactured by JohnsonDiversey, 8310 16<sup>th</sup> Street, Surtevant, WI 53117-1964; \*
    - d. or Commissioner approved equal. \*
    - e. \*Note: Specified cleaning products items b, c, and possibly item d are the closest products to item a. However, there is no guarantee that any of these alternative products will perform and clean properly, and may stain the copper compared with item a. Any alternative product to item a will be accepted only if it is tested side by side with item a onsite and proven to perform satisfactorily compared to item a. The Contractor shall secure approval by the Commissioner for any alternative product to item a.
- C. Soldering Coppers: Heavy soldering coppers of blunt design, weighing not less than 10 lbs. per pair, heated evenly, and properly tinned before using. Keep clean and tinned during use.

## 2.6 FABRICATION, GENERAL

- A. General: Materials shall be fabricated by an experienced fabricator and installed by experienced craftsmen. Materials, methods of fabrication, fitting, assembly, bracing, supporting, fastening, and erection shall be according to Contract Documents, approved shop drawings, referenced standards, and best industry practices, using new and clean materials as specified, having structural properties sufficient to safely sustain or withstand stresses and strains to which materials and assembled work will be subjected. All work shall be accurately and neatly fabricated, assembled, and erected.
1. Sheet Metal Fabrication Standard: Fabricate sheet metal flashing and trim to comply with recommendations of SMACNA's "Architectural Sheet

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Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the item indicated, unless more restrictive requirements are indicated or required by other referenced standards or manufacturer's recommendations.

- B. Comply with details shown to fabricate sheet metal flashing and trim that fit substrates and result in waterproof and weather-resistant performance once installed. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
- C. Form exposed sheet metal Work that is without oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems.
- D. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- E. Expansion Provisions: Space movement joints as recommended by referenced standards. Do not place movement joints within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1-inch deep, filled with mastic sealant (concealed within joints).
- F. Sealed Joints: Form non-expansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.
- G. Separate metal from non-compatible metal or corrosive substrates using separation membrane, by coating concealed surfaces at locations of contact with asphalt mastic, or providing other permanent separation as recommended by metal manufacturer.
- H. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of sheet metal exposed to public view.
- I. Fabricate cleats and attachment devices from same material as sheet metal component being anchored or from compatible, non-corrosive metal recommended by sheet metal manufacturer.
  - 1. Gage: As recommended by SMACNA manual or sheet metal manufacturer for application but never less than thickness of metal being secured.

**2.7 SOLDERED JOINTS**

- A. Protection: Protect areas of metal not to be soldered from damage or deterioration caused by soldering, including but not limited to contact with flux, spattered solder, and spray caused by cleaning soldering coppers.

- B. Cleaning: Clean surfaces to be soldered, removing oils, coatings, foreign matter, and all other elements that might inhibit formation of optimum solder joint.
  - 1. Protect Coatings: Do not damage coatings on coated metal sheets.
  
- C. Tinning: Pretin edges of sheets to be soldered to a width of 1-1/2 inches, except where pretinned surface would show in finished Work. Where surface shows in finished work, tin metal so that no more than 1-inch width of solder will show. Clean and tin areas of metal on which cleats and other fabrications are to be soldered for a width not less than width of element to be applied plus 1/4 inch either side of element.
  - 1. Apply flux, to metal surfaces to receive solder. Use care to prevent flux from touching surfaces not to be soldered.
  
- D. Soldering: Solder slowly with well-heated coppers to heat sheet thoroughly and to sweat solder completely through full width and all layers of seam. Use ample solder. Seam shall show at least one full inch of evenly flowed solder. Solder shall flow parallel to joint; do not solder across joint. Wherever possible, all soldering shall be done in flat position. Solder seams on slopes steeper than 45 degrees and on vertical surfaces a second time. Flux all surfaces to be soldered. Joints that do not exhibit evidence of smooth, freely flowed solder in direction of joint will be rejected and shall be resoldered or metal shall be removed and new material shall be provided and soldered to comply with requirements of this Section.
  - 1. Do not use torches or flames of any kind for soldering.
  
- E. Cleaning: Completely remove flux residue from soldered surfaces using specified cleaner.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine substrates and conditions under which sheet metal flashing and trim are to be installed and verify that Work may properly commence. Do not proceed with installation until unsatisfactory conditions have been corrected.

#### **3.2 INSTALLATION**

- A. General: Unless otherwise indicated, install sheet metal flashing and trim to comply with performance requirements, referenced standards, and manufacturer's installation instructions. Anchor units of Work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level and matching existing construction as indicated. Install Work with laps, joints, and seams that will be permanently watertight and weatherproof.

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- B. Install exposed sheet metal Work that is without oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
- C. Coating Protection: Wear shoes with rubber soles or other soles that will not damage coating on sheet metal. Keep metal clear of sand, dirt, particles of roofing slate, and other substances that might damage coating.
- D. Expansion Provisions: Provide for thermal expansion of exposed sheet metal Work. Space movement joints as recommended by referenced standards and metal manufacturer's recommendations with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently waterproof, form expansion joints of intermeshing hooked flanges, not less than 1-1/2-inch deep, filled with mastic sealant (concealed within joints).
- E. Slip Sheet: Install paper slip sheet to separate sheet metal from wood substrate and from self-sealing membrane and separation membrane to ensure that metal is able to move freely without adhering to substrate.
- F. Soldered Joints: Solder joints to provide sound, weatherproof construction. Clean surfaces to be soldered, flux and tin surfaces, and solder. Follow requirements of Article "Soldered Joints" in Part 2, above.
  - 1. Separation Membrane: Provide separation membrane at least 12-inches wide to protect self-sealing membrane from heat of soldering. Do not damage self-sealing membrane during soldering of sheet metal above membrane.
- G. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards. Fill joint with sealant and form metal to completely conceal sealant.
- H. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- I. Separations: Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces, at locations of contact, with asphalt mastic, by providing separation gaskets, or by other permanent separation as recommended by manufacturer.
- J. Counterflashings: Coordinate installation of counterflashings with installation of roofing materials and base flashings. Install counterflashings in reglets. Secure in a waterproof manner by means of continuous lead wool pounded solid. Provide bond breaker tape or backer rod and sealant. Lap counterflashing joints a minimum of 2 inches and bed with sealant.

3.3 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.
- B. Provide final protection and maintain conditions that ensure sheet metal flashing and trim Work during construction is without damage or deterioration other than natural weathering at the time of Substantial Completion.

END OF SECTION

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**January 5, 2015**

**SHEET METAL FLASHING AND TRIM**  
**07 62 00-12**



SECTION 07 71 00

ROOF SPECIALTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

A. Section Includes:

1. Roof drainage systems.

B. Preinstallation Conference: Conduct conference at Project site.

1. Meet with Commissioner, Commissioner's insurer if applicable, roofing-system testing and inspecting agency representative, roofing Installer, roofing-system manufacturer's representative, Installer, structural-support Installer, and installers whose work interfaces with or affects roof specialties, including installers of roofing materials and accessories.
2. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
3. Review special roof details, roof drainage, and condition of other construction that will affect roof specialties.

1.3 SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: For roof specialties.

1. Include plans, elevations, expansion-joint locations, keyed details, and attachments to other work. Distinguish between plant- and field-assembled work.

C. Samples: For each type of roof specialty and for each color and texture specified.

- D. Samples for Verification:
  - 1. Include Samples of each type of roof specialty to verify finish and color selection, in manufacturer's standard sizes.
  - 2. Include roof drainage systems in full-size components in specified material, and including fasteners, cover joints, accessories, and attachments.
- E. Qualification Data: For manufacturer.
- F. Product Certificates: For each type of roof specialty.
- G. Maintenance Data: For roofing specialties to include in maintenance manuals.

#### 1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain roof specialties approved by manufacturer providing roofing-system warranty.
- B. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and set quality standards for fabrication and installation.
  - 1. Build mockup of typical roof drain, including supporting construction, seams, attachments, and accessories.
  - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Commissioner specifically approves such deviations in writing.
  - 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Do not store roof specialties in contact with other materials that might cause staining, denting, or other surface damage. Store roof specialties away from uncured concrete and masonry.

#### 1.6 FIELD CONDITIONS

- A. Field Measurements: Verify profiles and tolerances of roof-specialty substrates by field measurements before fabrication, and indicate measurements on Shop Drawings.
- B. Coordination: Coordinate roof specialties with flashing, trim, and roofing and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

**PART 2 - PRODUCTS**

**2.1 PERFORMANCE REQUIREMENTS**

- A. General Performance: Roof specialties shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.
- B. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of thermal movements. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
  - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

**2.2 ROOF DRAINAGE SYSTEMS**

- A. Provide roof drainage components from the following:
  - 1. Jay R. Smith Manufacturing Company  
PO Box 3237  
Montgomery, AL 36109-0237  
334-277-8520
  - 2. Zurn Industries, LLC  
1801 Pittsburgh Ave  
Erie, PA 16502
  - 3. Watts  
815 Chestnut Street  
North Andover, MA 01845  
978-689-6066
  - 4. Or approved equal.
- B. Roof Drains: Manufactured Roof Drains, each with low profile dome, and combined flashing clamp and gravel stop, and of dimensions and shape indicated, complete with outlet tube that nests into existing internal drainage system.
  - 1. Cast Iron drain body.

**2.3 FINISHES**

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

- B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of the Work.
- B. Examine roofing for suitable conditions for roof specialties.
- C. Verify that substrate is sound, dry, smooth, clean, sloped for drainage where applicable, and securely anchored.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

#### **3.2 INSTALLATION, GENERAL**

- A. General: Install roof specialties according to manufacturer's written instructions. Anchor roof specialties securely in place, with provisions for thermal and structural movement. Use fasteners, solder, protective coatings, separators, underlayments, sealants, and other miscellaneous items as required to complete roof-specialty systems.
  - 1. Install roof specialties level, plumb, true to line and elevation; with limited oil-canning and without warping, jogs in alignment, buckling, or tool marks.
  - 2. Install roof specialties to fit substrates and to result in weathertight performance. Verify shapes and dimensions of surfaces to be covered before manufacture.
  - 3. Torch cutting of roof specialties is not permitted.
- B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.
  - 1. Bed flanges in thick coat of asphalt roofing cement where required by manufacturers of roof specialties for waterproof performance.
- C. Expansion Provisions: Allow for thermal expansion of exposed roof specialties.

- D. Seal joints as required for weathertight construction. Place sealant to be completely concealed in joint. Do not install sealants at temperatures below 40 deg F.
- E. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of 1-1/2 inches.

**3.3 ROOF DRAINAGE-SYSTEM INSTALLATION**

- A. General: Install components to produce a complete roof drainage system according to manufacturer's written instructions. Coordinate installation of roof flashing with installation of roof drainage system.
- B. Drain units: Anchor securely to roof decking per manufacturers written recommendations.

**3.4 CLEANING AND PROTECTION**

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Replace roof specialties that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

**END OF SECTION**

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SECTION 07 81 00

APPLIED FIREPROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Section includes sprayed fire-resistive materials.

1.3 DEFINITIONS

- A. SFRM: Sprayed fire-resistive materials.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site
1. Review products, design ratings, restrained and unrestrained conditions, densities, thicknesses, bond strengths, and other performance requirements.

1.5 SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Framing plans or schedules, or both, indicating the following:
1. Extent of fireproofing for each construction and fire-resistance rating.
  2. Applicable fire-resistance design designations of a qualified testing and inspecting agency acceptable to authorities having jurisdiction.
  3. Minimum fireproofing thicknesses needed to achieve required fire-resistance rating of each structural component and assembly.
  4. Treatment of fireproofing after application.
- C. Samples: For each exposed product and for each color and texture specified, 4 inches square in size.
- D. Qualification Data: For Installer.

- E. Product Certificates: For each type of fireproofing.
- F. Evaluation Reports: For fireproofing, from ICC-ES.
- G. Preconstruction Test Reports: For fireproofing.
- H. Field quality-control reports.

**1.6 QUALITY ASSURANCE**

- A. Installer Qualifications: A firm or individual trained, licensed, or otherwise qualified by fireproofing manufacturer as experienced and with sufficient trained staff to install manufacturer's products according to specified requirements.
- B. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects, to set quality standards for materials and execution and for preconstruction testing.
  - 1. Build mockup of fireproofing as shown on Drawings.
  - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Commissioner specifically approves such deviations in writing.
  - 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

**1.7 PRECONSTRUCTION TESTING**

- A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on field mockups of fireproofing.
- B. Preconstruction Adhesion and Compatibility Testing: Test for compliance with requirements for specified performance and test methods.
  - 1. Bond Strength: Test for cohesive and adhesive strength according to ASTM E 736. Provide bond strength indicated in referenced fire-resistance design, but not less than minimum specified in Part 2.
  - 2. Density: Test for density according to ASTM E 605. Provide density indicated in referenced fire-resistance design, but not less than minimum specified in Part 2.
  - 3. Verify that manufacturer, through its own laboratory testing or field experience, attests that primers or coatings are compatible with fireproofing.
  - 4. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.



5. For materials failing tests, obtain applied-fireproofing manufacturer's written instructions for corrective measures including the use of specially formulated bonding agents or primers.

## 1.8 FIELD CONDITIONS

- A. Environmental Limitations: Do not apply fireproofing when ambient or substrate temperature is 44 deg F or lower unless temporary protection and heat are provided to maintain temperature at or above this level for 24 hours before, during, and for 24 hours after product application.
- B. Ventilation: Ventilate building spaces during and after application of fireproofing, providing complete air exchanges according to manufacturer's written instructions. Use natural means or, if they are inadequate, forced-air circulation until fireproofing dries thoroughly.

## **PART 2 - PRODUCTS**

### 2.1 PERFORMANCE REQUIREMENTS

- A. Assemblies: Provide fireproofing, including auxiliary materials, according to requirements of each fire-resistance design and manufacturer's written instructions.
- B. Source Limitations: Obtain fireproofing from single source.
- C. Fire-Resistance Design: Indicated on Drawings, tested according to ASTM E 119 or UL 263; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- D. VOC Content: Applied sealer and topcoat products shall comply with VOC content limits of authorities having jurisdiction.
- E. Asbestos: Provide products containing no detectable asbestos.

### 2.2 SPRAYED FIRE-RESISTIVE MATERIALS

- A. Sprayed Fire-Resistive Material: Manufacturer's standard, factory-mixed, lightweight, dry formulation, complying with indicated fire-resistance design, and mixed with water at Project site to form a slurry or mortar before conveyance and application.

1. Provide Sprayed Fire-Resistive Materials from one of the following:

- a. Grace Construction Products  
62 Whittemore Ave  
Cambridge, MA 02140-1623  
800-354-5414

- b. Pyrok Inc

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400 Colony Square  
Suite 1630  
Atlanta, GA 30361  
404-607-9765

- c. Isolatek International  
41 Furnace St  
Stanhope, NJ 07874  
800-631-9600
  - d. Or Commissioner approved equal.
2. Application: Designated for exterior use by a qualified testing agency acceptable to authorities having jurisdiction.
  3. Bond Strength: Minimum 150-lbf/sq. ft. cohesive and adhesive strength based on field testing according to ASTM E 736.
  4. Density: Not less than density specified in the approved fire-resistance design, according to ASTM E 605.
  5. Thickness: As required for fire-resistance design indicated, measured according to requirements of fire-resistance design or ASTM E 605, whichever is thicker, but not less than 0.375 inch
  6. Combustion Characteristics: ASTM E 136.
  7. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
    - a. Flame-Spread Index: 10 or less.
    - b. Smoke-Developed Index: 10 or less.
  8. Compressive Strength: Minimum 10 lbf/sq. in. according to ASTM E 761.
  9. Corrosion Resistance: No evidence of corrosion according to ASTM E 937.
  10. Deflection: No cracking, spalling, or delamination according to ASTM E 759.
  11. Effect of Impact on Bonding: No cracking, spalling, or delamination according to ASTM E 760.
  12. Air Erosion: Maximum weight loss of 0.025 g/sq. ft. in 24 hours according to ASTM E 859.
  13. Fungal Resistance: Treat products with manufacturer's standard antimicrobial formulation to result in no growth on specimens per ASTM G 21.

14. Finish: As selected by Commissioner from manufacturer's standard finishes

a. Color: As selected by Commissioner from manufacturer's full range

### 2.3 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that are compatible with fireproofing and substrates and are approved by UL or another testing and inspecting agency acceptable to authorities having jurisdiction for use in fire-resistance designs indicated.
- B. Substrate Primers: Primers approved by fireproofing manufacturer and complying with one or both of the following requirements:
  - 1. Primer and substrate are identical to those tested in required fire-resistance design by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
  - 2. Primer's bond strength in required fire-resistance design complies with specified bond strength for fireproofing and with requirements in UL's "Fire Resistance Directory" or in the listings of another qualified testing agency acceptable to authorities having jurisdiction, based on a series of bond tests according to ASTM E 736.
- C. Bonding Agent: Product approved by fireproofing manufacturer and complying with requirements in UL's "Fire Resistance Directory" or in the listings of another qualified testing agency acceptable to authorities having jurisdiction.
- D. Metal Lath: Expanded metal lath fabricated from material of weight, configuration, and finish required, according to fire-resistance designs indicated and fireproofing manufacturer's written instructions. Include clips, lathing accessories, corner beads, and other anchorage devices required to attach lath to substrates and to receive fireproofing.
- E. Reinforcing Fabric: Glass- or carbon-fiber fabric of type, weight, and form required to comply with fire-resistance designs indicated; approved and provided by fireproofing manufacturer.
- F. Reinforcing Mesh: Metallic mesh reinforcement of type, weight, and form required to comply with fire-resistance design indicated; approved and provided by fireproofing manufacturer. Include pins and attachment.
- G. Topcoat: Suitable for application over applied fireproofing; of type recommended in writing by fireproofing manufacturer for each fire-resistance design.
  - 1. Cement-Based Topcoat: Factory-mixed, cementitious hard-coat formulation for trowel or spray application over SFRM.

2. Water-Based Permeable Topcoat: Factory-mixed formulation for brush, roller, or spray application over applied SFRM. Provide application at a rate of 30 sq. ft./gal.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for substrates and other conditions affecting performance of the Work and according to each fire-resistance design.
  1. Verify that substrates are free of dirt, oil, grease, release agents, rolling compounds, mill scale, loose scale, incompatible primers, paints, and encapsulants, or other foreign substances capable of impairing bond of fireproofing with substrates under conditions of normal use or fire exposure.
  2. Verify that objects penetrating fireproofing, including clips, hangers, support sleeves, and similar items, are securely attached to substrates.
  3. Verify that substrates receiving fireproofing are not obstructed by ducts, piping, equipment, or other suspended construction that will interfere with fireproofing application.
- B. Conduct tests according to fireproofing manufacturer's written instructions to verify that substrates are free of substances capable of interfering with bond.
- C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

#### **3.2 PREPARATION**

- A. Cover other work subject to damage from fallout or overspray of fireproofing materials during application.
- B. Clean substrates of substances that could impair bond of fireproofing.
- C. Prime substrates where included in fire-resistance design and where recommended in writing by fireproofing manufacturer unless compatible shop primer has been applied and is in satisfactory condition to receive fireproofing.
- D. For applications visible on completion of Project, repair substrates to remove surface imperfections that could affect uniformity of texture and thickness in finished surface of fireproofing. Remove minor projections and fill voids that would telegraph through fire-resistive products after application.

**3.3 APPLICATION**

- A. Construct fireproofing assemblies that are identical to fire-resistance design indicated and products as specified, tested, and substantiated by test reports; for thickness, primers, sealers, topcoats, finishing, and other materials and procedures affecting fireproofing work.
- B. Comply with fireproofing manufacturer's written instructions for mixing materials, application procedures, and types of equipment used to mix, convey, and apply fireproofing; as applicable to particular conditions of installation and as required to achieve fire-resistance ratings indicated.
- C. Coordinate application of fireproofing with other construction to minimize need to cut or remove fireproofing.
  - 1. Do not begin applying fireproofing until clips, hangers, supports, sleeves, and other items penetrating fireproofing are in place.
  - 2. Defer installing ducts, piping, and other items that would interfere with applying fireproofing until application of fireproofing is completed.

**3.4 FIELD QUALITY CONTROL**

- A. Special Inspections: Contractor to coordinate Special Inspections with firm retained by the City of New York.
- B. Perform the tests and inspections of completed Work in successive stages. Do not proceed with application of fireproofing for the next area until test results for previously completed applications of fireproofing show compliance with requirements. Tested values must equal or exceed values as specified and as indicated and required for approved fire-resistance design.
- C. Fireproofing will be considered defective if it does not pass tests and inspections.
  - 1. Remove and replace fireproofing that does not pass tests and inspections, and retest.
  - 2. Apply additional fireproofing, per manufacturer's written instructions, where test results indicate insufficient thickness, and retest.
- D. Prepare test and inspection reports.

**3.5 CLEANING, PROTECTING, AND REPAIRING**

- A. Cleaning: Immediately after completing spraying operations in each containable area of Project, remove material overspray and fallout from surfaces of other construction and clean exposed surfaces to remove evidence of soiling.
- B. Protect fireproofing, according to advice of manufacturer and Installer, from damage resulting from construction operations or other causes, so fireproofing is without damage or deterioration at time of Substantial Completion.

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- C. As installation of other construction proceeds, inspect fireproofing and repair damaged areas and fireproofing removed due to work of other trades.
- D. Repair fireproofing damaged by other work before concealing it with other construction.
- E. Repair fireproofing by reapplying it using same method as original installation or using manufacturer's recommended trowel-applied product.

END OF SECTION

SECTION 07 92 00

JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the work of sealants as shown on the Drawings, specified herein, and as required by conditions and authorities having jurisdiction, including, but not limited to, sealants for the following applications:

1. Exterior joints in the following vertical surfaces:

- a. Joints between masonry materials.
- b. Joints between masonry and metal flashing.
- c. Other joints as indicated.

- B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Section 034900 – "Glass Fiber Reinforced Concrete"
2. Section 076200 – "Sheet Metal Flashing and Trim"
3. Section 089119 – "Fixed Louvers"
4. Other Sections which affect or are affected by the work of this section.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.

1. Perform sealing only with workers skilled in techniques of sealant installation who are completely familiar with current published recommendations of manufacturer of sealant being used.

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2. Indication of lack of skill on part of sealant installers shall be sufficient grounds for Commissioner to reject installed sealant and to require Contractor to remove all installed sealants, provide proper joint preparation acceptable to manufacturer, and reinstall sealants at no additional cost to the City of New York.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
- C. Product Testing: Obtain test results for "Product Test Reports" Paragraph in "Submittals" Article from a qualified testing agency based on testing current sealant formulations within a 36-month period.
1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated, as documented according to ASTM E 548.
  2. Test elastomeric joint sealants for compliance with requirements specified by reference to ASTM C 920, and where applicable, to other standard test methods.
- D. Preconstruction Field-Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to joint substrates as follows:
1. Locate test joints where indicated or, if not indicated, as directed by Commissioner.
  2. Conduct field tests for each application indicated below:
    - a. Each type of elastomeric sealant and joint substrate indicated.
  3. Notify Commissioner 48 hours in advance of dates and times when test joints will be erected.
  4. Arrange for tests to take place with joint sealant manufacturer's technical representative present.
  5. Test Method: Test joint sealants by hand-pull method described below:
    - a. Install joint sealants in 60-inch- long joints using same materials and methods for joint preparation and joint-sealant installation required for the completed Work. Allow sealants to cure fully before testing.
    - b. Make knife cuts from one side of joint to the other, followed by two cuts approximately 2 inches long at sides of joint and meeting cross cut at one end. Place a mark 1 inch from cross-cut end of 2-inch piece.
    - c. Use fingers to grasp 2-inch piece of sealant between cross-cut end and 1-inch mark; pull firmly at a 90-degree angle or more in direction of side cuts while holding a ruler along side of sealant. Pull sealant out of joint to distance recommended by sealant manufacturer for testing adhesive capability, but not less than that equaling specified maximum movement capability in extension; hold this position for 10 seconds.



- d. For joints with dissimilar substrates, check adhesion to each substrate separately. Do this by extending cut along one side, checking adhesion to opposite side, and then repeating this procedure for opposite side.
6. Report whether sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
7. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

#### **1.4 SUBMITTALS**

- A. **General:** Submit each item in this Article in compliance with the Conditions of the Contract and General Conditions. Revise and resubmit each item as required to obtain Commissioner's approval.
- B. **Qualification Data:** Qualification data for firm and personnel specified in "Quality Assurance" Article that demonstrates that both firm and personnel have capabilities and experience complying with requirements specified. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other relevant information.
- C. **Product Literature:** Manufacturer's published technical data for each product to be used in work of this Section including recommendations for application and use. Include test reports and certificates verifying that product complies with specified requirements.
- D. **Samples for Initial Selection:** Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- E. **Samples for Verification:** For each type and color of joint sealant required. Install joint sealants in 1/2-inch-wide joints formed between two 6-inch-long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- F. **Product Certificates:** Signed by manufacturers of joint sealants certifying that products furnished comply with requirements and are suitable for use indicated.
  1. Include certification that products are non-staining on substrates indicated.
- G. **Preconstruction Field Test Reports:** Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on preconstruction testing specified in "Quality Assurance" Article.

- H. **Field Test Report Log:** For each elastomeric sealant application. Include information specified in "Field Quality Control" Article.
- I. **Compatibility and Adhesion Test Reports:** From sealant manufacturer indicating the following:
  - 1. **Materials forming joint substrates and joint-sealant backings** have been tested for compatibility and adhesion with joint sealants.
  - 2. **Interpretation of test results and written recommendations** for primers and substrate preparation needed for adhesion.
- J. **Product Test Reports:** From a qualified testing agency indicating sealants comply with requirements, based on comprehensive testing of current product formulations.
- K. **Warranties:** Special warranties specified in this Section.
- L. **Preinstallation Conference:** Conduct conference at Project site to comply with requirements of the Contract Documents.

**1.5 MOCKUPS**

- A. **General:** Before beginning general joint sealant work, prepare mockups to verify selections made under sample Submittals, to demonstrate aesthetic effects and qualities of materials and execution, and to provide standards for work of this Section. Do not proceed with installation of joint sealants until Commissioner has accepted mockups.
  - 1. **Locate mockups as directed by Commissioner.**
  - 2. **Provide 48 hours notice to Commissioner prior to start of each mockup.**
  - 3. **Commissioner will monitor mockups.**
  - 4. **Perform mockups using crew that will be executing the work and following requirements of this Section.**
  - 5. **Repeat mockups as necessary to obtain Commissioner's approval.**
  - 6. **Protect approved mockups to ensure that they are without damage, deterioration, or alteration at time of Substantial Completion.**
  - 7. **Approved mockups in undamaged condition at time of Substantial Completion may be incorporated into the Work.**
  - 8. **Approved mockups will represent the minimum acceptable standard for joint sealant work. Subsequent joint sealant work that does not meet standard of approved mockups will be rejected.**
- B. **Mockups:** Provide the following mockups:
  - 1. **Joint in Flashing Reglet:** One joint, minimum 6 ft. long.
  - 2. **Joint in GFRC cornice and other GFRC components at cornice level as indicated, minimum 6. ft. long (each).**
  - 3. **Joint at surround of new window louvers, minimum one (1) full assembly.**

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multicomponent materials.
- B. Store and handle materials in compliance with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Install joint sealants only when sealant temperature, ambient temperature, and substrate temperatures are all within middle two-thirds of temperature range recommended for installation by sealant manufacturer or between 50 deg Fahrenheit and 85 deg Fahrenheit, whichever requirements are more restrictive, and are forecast to remain within this range until sealant has cured.
- B. Joint-Width Conditions: Install joint sealants only where joint widths are within the range recommended by joint sealant manufacturer for applications indicated.
- C. Joint-Substrate Conditions: Install joint sealants only under the following conditions:
  - 1. When joint substrates are free of contaminants capable of interfering with adhesion.
  - 2. When joint substrates are dry.

1.8 WARRANTY

- A. General: Special warranties specified in this Article shall not deprive City of New York of other rights the City of New York may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Installer's Warranty: Written warranty, signed by Installer agreeing to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
  - 1. Warranty Period: Two (2) years from date of Substantial Completion.
- C. Special Manufacturer's Warranty: Written warranty, signed by elastomeric sealant manufacturer agreeing to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
  - 1. Warranty Period: Twenty (20) years from date of Substantial Completion.

- D. Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:
1. Movement of structure resulting in stresses on sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.
  2. Disintegration of joint substrates from natural causes exceeding design specifications.
  3. Mechanical damage caused by individuals, tools, or other outside agents.
  4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS, GENERAL**

- A. **Compatibility:** Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
- B. **Colors of Exposed Joint Sealants:** As selected by Commissioner from manufacturer's full range of colors for this type of sealant.

### **2.2 ELASTOMERIC JOINT SEALANTS**

- A. **Elastomeric Sealant Standard:** Comply with ASTM C 920 and other requirements indicated.
- B. **Stain-Test-Response Characteristics:** Where elastomeric sealants are to be applied to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- C. **General Building Sealant (Exterior Joints, Unless Otherwise Indicated):** Low-modulus, high-performance, single-component, non-sag, gun-grade, non-staining, polyurethane-based elastomeric sealant complying with requirements of ASTM C 920, Type S, Grade NS, Class 25 (with movement capability of +100 percent/-50 percent), use T, NT, G, M. Provide in a standard color to match adjacent masonry or sheet metal produced by one of the following:
1. Sikaflex®-15 LM sealant, as manufactured by Sika Corporation, 201 Polito Avenue, Lyndhurst, NJ 07071.
  2. Dow Corning® 795 Silicone Building Sealant, as manufactured by Dow Corning Corporation, Corporate Center, PO Box 994, Midland, MI 48686-0994.

3. Sonolastic® NP 1™ sealant, as manufactured by BASF Construction Chemicals, LLC – Building Systems 889 Valley Park Drive Shakopee, MN, 55379.
4. Or Approved Equal.

- D. Primer: Provide primer where manufacturer recommends or preconstruction testing indicates for optimal adhesion of sealant.

## 2.3 LATEX JOINT SEALANTS

- A. Latex Sealant Standard: Comply with ASTM C 834.

## 2.4 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, Type C, closed-cell material with a surface skin, of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

## 2.5 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint sealant manufacturer where required for optimal adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants with joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

**3.2 PREPARATION**

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint sealant manufacturer's written instructions and the following requirements:
  - 1. Remove from joint substrates all foreign material that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, and surface dirt.
  - 2. Clean porous joint substrate surfaces by brushing, grinding, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
  - 3. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
- B. Joint Priming: Prime joint substrates where recommended in writing by joint sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

**3.3 INSTALLATION OF JOINT SEALANTS**

- A. General: Comply with requirements specified herein and joint sealant manufacturer's written installation instructions for products and applications indicated. In case of conflict, the more stringent and restrictive requirement shall govern.

- B. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  - 1. Do not leave gaps between ends of sealant backings.
  - 2. Do not stretch, twist, puncture, or tear sealant backings.
  - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and back of joints.
- E. Install sealants by proven techniques to comply with the following and at the same time backings are installed:
  - 1. Place sealants so they directly contact and fully wet joint substrates.
  - 2. Completely fill recesses provided for each joint configuration.
  - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
  - 1. Remove excess sealants from surfaces adjacent to joint.
  - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
  - 3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
  - 4. Provide flush joint configuration, per Figure 5B in ASTM C 1193, where indicated.

### 3.4 CLEANING

- A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

### 3.5 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes

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so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from the original work.

END OF SECTION

January 5, 2015

**JOINT SEALANTS  
07 92 00-10**



SECTION 08 11 13

HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the work of steel doors and frames as shown on the Drawings, specified herein, and as required by conditions and authorities having jurisdiction, including, but not limited to, the following:
1. Fire-rated door and frame assemblies.

1.3 DEFINITIONS

- A. Steel Sheet Thicknesses: Thickness dimensions, including those referenced in ANSI A250.8, are minimums as defined in referenced ASTM standards for both uncoated steel sheet and the uncoated base metal of metallic-coated steel sheets.

1.4 SUBMITTALS

- A. General: Submit each item in this Article in compliance with the Conditions of the Contract and General Conditions. Revise and resubmit each item as required to obtain Commissioner's approval.
- B. Product Data: For each type of door and frame indicated, include door designation, type, level and model, material description, core description, construction details, label compliance, sound and fire-resistance ratings, and finishes.
- C. Shop Drawings: Show the following:
1. Elevations of each door design.
  2. Details of doors including vertical and horizontal edge details.
  3. Frame details for each frame type including dimensioned profiles.

4. Details and locations of reinforcement and preparations for hardware.
  5. Details of each different wall opening condition.
  6. Details of anchorages, accessories, joints, and connections.
- D. Door Schedule: Use same reference designations indicated on Drawings in preparing schedule for doors and frames.

#### 1.5 QUALITY ASSURANCE

- A. Steel Door and Frame Standard: Comply with ANSI A 250.8, unless more stringent requirements are indicated.
- B. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 252.
1. Test Pressure: Test at pressure as required by authorities having jurisdiction.
  2. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a testing agency acceptable to authorities having jurisdiction that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
  3. Temperature-Rise Rating: Where indicated, provide doors that have a temperature-rise rating of 450 deg F maximum in 30 minutes of fire exposure.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and job storage. Provide additional protection to prevent damage to finish of factory-finished doors and frames.
- B. Inspect doors and frames on delivery for damage, and notify shipper and supplier if damage is found. Minor damages may be repaired provided refinished items match new work and are acceptable to Commissioner. Remove and replace damaged items that cannot be repaired as directed.
- C. Store doors and frames at building site under cover. Place units on minimum 4-inch-high wood blocking. Avoid using nonvented plastic or canvas shelters that could create a humidity chamber. If door packaging becomes wet, remove cartons immediately. Provide minimum 1/2-inch spaces between stacked doors to permit air circulation.

**PART 2 - PRODUCTS**

**2.1 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, provide steel doors and frames by one of the following or Commissioner approved equal:
1. Amweld Building Products, Inc.
  2. Ceco Door Products; a United Dominion Company.
  3. Curries Company.
  4. Kewanee Corporation (The).
  5. Republic Builders Products.
  6. Steelcraft; a division of Ingersoll-Rand.

**2.2 MATERIALS**

- A. Hot-Rolled Steel Sheets: ASTM A 569, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- B. Cold-Rolled Steel Sheets: ASTM A 366, Commercial Steel (CS), or ASTM A 620, Drawing Steel (DS), Type B; stretcher-leveled standard of flatness.
- C. Metallic-Coated Steel Sheets: ASTM A 653, Commercial Steel (CS), Type B, with an A40 zinc-iron-alloy (galvannealed) coating; stretcher-leveled standard of flatness.

**2.3 DOORS**

- A. General: Provide doors of sizes, thicknesses, and designs indicated.

**2.4 FRAMES**

- A. General: Provide steel frames for doors and other openings that comply with ANSI A250.8 and with details indicated for type and profile. Conceal fastenings, unless otherwise indicated.
- B. Frames of 0.053-inch- thick steel sheet for Level 2 steel doors.
- C. Frames of 0.067-inch- thick steel sheet for Level 3 steel doors.
- D. Panels: Provide same material and gage as adjacent door.

- E. Supports and Anchors: Fabricated from not less than 0.042-inch-thick, electrolytic zinc-coated steel sheet.
  - 1. Wall Anchors in Masonry Construction: 0.177-inch-diameter, steel wire complying with ASTM A 510 may be used in place of steel sheet.
- F. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where zinc-coated items are to be built into exterior walls, comply with ASTM A 153, Class C or D as applicable.

## 2.5 FABRICATION

- A. General: Fabricate steel door and frame units to comply with ANSI A250.8 and to be rigid, neat in appearance, and free from defects including warp and buckle. Where practical, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at Project site.
- B. Core Construction: Manufacturer's standard core construction that produces a door complying with SDI standards.
- C. Clearances for Fire-Rated Doors: As required by NFPA 80.
- D. Door-Edge Profile: Bevel edge at strike side.
- E. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."
- F. Fabricate concealed stiffeners, reinforcement, edge channels, louvers, and moldings from either cold- or hot-rolled steel sheet.
- G. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.
- H. Thermal-Rated (Insulating) Assemblies: At exterior locations, provide doors fabricated as thermal-insulating door and frame assemblies and tested according to ASTM C 236 or ASTM C 976 on fully operable door assemblies.
  - 1. Unless otherwise indicated, provide thermal-rated assemblies with U-value of 0.41 Btu/sq. ft. x h x deg F or better.
- I. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements in ANSI A250.6 and ANSI A115 Series specifications for door and frame preparation for hardware.
- J. Frame Construction: Fabricate frames to shape shown.

1. Fabricate frames with mitered or coped and continuously welded corners and seamless face joints, unless otherwise indicated.
  2. Provide welded frames with temporary spreader bars.
  3. Provide terminated stops, unless otherwise indicated.
- K. Locate hardware as indicated on Shop Drawings or, if not indicated, according to ANSI A250.8.

**2.6 FINISHES**

- A. Prime Finish: Manufacturer's standard, factory-applied coat of rust-inhibiting primer complying with ANSI A250.10 for acceptance criteria.

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

- A. General: Install steel doors, frames, and accessories according to Shop Drawings, manufacturer's data, and as specified.
- B. Placing Frames: Comply with provisions in SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set.
1. Provide at least three completed opening anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Set frames and secure to adjacent construction with bolts and masonry anchorage devices.
  2. Install fire-rated frames according to NFPA 80.
  3. For openings 90 inches or more in height, install an additional anchor at hinge and strike jambs.
- C. Door Installation: Comply with ANSI A250.8. Fit hollow-metal doors accurately in frames, within clearances specified in ANSI A250.8. Shim as necessary to comply with SDI 122 and ANSI/DHI A115.1G.
1. Fire-Rated Doors: Install within clearances specified in NFPA 80.

**3.2 ADJUSTING AND CLEANING**

- A. Prime-Coat Touchup: Immediately after installation, sand smooth any rusted or damaged areas of prime coat and apply touch up of compatible air-drying primer.

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- B. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

**END OF SECTION**

**January 5, 2015**

**HOLLOW METAL DOORS AND FRAMES**  
**08 11 13-6**

SECTION 08 51 13

ALUMINUM WINDOWS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Section includes aluminum windows for exterior locations.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at the Project site.
1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  2. Review and discuss the finishing of aluminum windows that is required to be coordinated with the finishing of other aluminum work for color and finish matching.
  3. Review, discuss, and coordinate the interrelationship of aluminum windows with other exterior wall components. Include provisions for anchorage, flashing, sealing perimeters, and protecting finishes.
  4. Review and discuss the sequence of work required to construct a watertight and weathertight exterior building envelope.
  5. Inspect and discuss the condition of substrate and other preparatory work performed by other trades.

1.4 SUBMITTALS

- A. Product Data: For each type of product.
1. Include construction details, material descriptions, glazing and fabrication methods, dimensions of individual components and profiles, hardware, and finishes for aluminum windows.

- B. Shop Drawings: Include plans, elevations, sections, hardware, accessories, insect screens, operational clearances, and details of installation, including anchor, flashing, and sealant installation.
- C. Samples: For each exposed product and for each color specified, 2 by 4 inches in size.
- D. Samples for Initial Selection: For units with factory-applied color finishes.
  - 1. Include similar Samples of hardware and accessories involving color selection.
- E. Samples for Verification: For aluminum windows and components required, showing full range of color variations for finishes, and prepared on Samples of size indicated below:
  - 1. Exposed Finishes: 2 by 4 inches.
  - 2. Exposed Hardware: Full-size units.
- F. Product Schedule: For aluminum windows. Use same designations indicated on Drawings.
- G. Qualification Data: For manufacturer and Installer.
- H. Product Test Reports: For each type of aluminum window, for tests performed by a qualified testing agency.
- I. Field quality-control reports.
- J. Sample Warranties: For manufacturer's warranties.

**1.5 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: A manufacturer capable of fabricating aluminum windows that meet or exceed performance requirements indicated and of documenting this performance by test reports, and calculations.
- B. Installer Qualifications: An installer trained to aluminum window manufacturer for installation of units required for this Project.
- C. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  - 1. Build mockup of typical wall area as shown on Drawings.



2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Commissioner specifically approves such deviations in writing.

1.6 WARRANTY

A. **Manufacturer's Warranty:** Manufacturer agrees to repair or replace aluminum windows that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
  - a. Failure to meet performance requirements.
  - b. Structural failures including excessive deflection, water leakage, condensation, and air infiltration.
  - c. Faulty operation of movable sash and hardware.
  - d. Deterioration of materials and finishes beyond normal weathering.
  - e. Failure of insulating glass.
2. Warranty Period:
  - a. Window: 10 years from date of Substantial Completion.
  - b. Glazing Units: Five years from date of Substantial Completion.
  - c. Aluminum Finish: 20 years from date of Substantial Completion.

**PART 2 - PRODUCTS**

2.1 MANUFACTURERS

- A. Custom Window  
2727 S Santa Fe Dr.  
Englewood, CO 80110  
303-722-0822
- B. Graham Architectural Products  
105 Mahoning Ave.  
New Castle, PA 16102  
724-658-0500
- C. Kawneer North America  
555 Guthridge Ct.  
Technology Park/Atlanta  
Norcross, GA 30092

770-449-5555

- D. Or Approved Equal
- E. Source Limitations: Obtain aluminum windows from single source from single manufacturer.

## 2.2 WINDOW PERFORMANCE REQUIREMENTS

- A. Product Standard: Comply with AAMA/WDMA/CSA 101/I.S.2/A440 for definitions and minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.
  - 1. Window Certification: AMMA certified with label attached to each window.
- B. Performance Class and Grade: AAMA/WDMA/CSA 101/I.S.2/A440 as follows:
  - 1. Minimum Performance Class: AW.
  - 2. Minimum Performance Grade: 50.
- C. Thermal Transmittance: NFRC 100 maximum whole-window U-factor of 0.60 Btu/sq. ft. x h x deg F.
- D. Solar Heat-Gain Coefficient (SHGC): NFRC 200 maximum whole-window SHGC of 0.27
- E. Condensation-Resistance Factor (CRF): Provide aluminum windows tested for thermal performance according to AAMA 1503, showing a CRF of 52
- F. Thermal Movements: Provide aluminum windows, including anchorage, that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
  - 1. Temperature Change: 120 deg F, ambient; 180 deg F material surfaces.
- G. Sound Transmission Class (STC): Rated for not less than 30 STC when tested for laboratory sound transmission loss according to ASTM E 90 and determined by ASTM E 413.
- H. Outside-Inside Transmission Class (OITC): Rated for not less than 30 OITC when tested for laboratory sound transmission loss according to ASTM E 90 and determined by ASTM E 1332.

- I. Windborne-Debris Resistance: Capable of resisting impact from windborne debris based on testing glazed windows identical to those specified, according to ASTM E 1886 and testing information in ASTM E 1996 and requirements of authorities having jurisdiction.

### 2.3 ALUMINUM WINDOWS

- A. Operating Types: Provide the following operating types in locations indicated on Drawings:
  1. Fixed.
- B. Frames and Sashes: Aluminum extrusions complying with AAMA/WDMA/CSA 101/I.S.2/A440.
  1. Thermally Improved Construction: Fabricate frames, sashes, and muntins with an integral, concealed, low-conductance thermal barrier located between exterior materials and window members exposed on interior side in a manner that eliminates direct metal-to-metal contact.
- C. Glass: Clear annealed glass, ASTM C 1036, Type 1, Class 1, q3.
  1. Kind: Fully tempered.
- D. Insulating-Glass Units: ASTM E 2190, certified through IGCC as complying with requirements of IGCC.
  1. Glass: ASTM C 1036, Type 1, Class 1, q3.
    - a. Tint: Clear
    - b. Kind: Fully tempered.
  2. Lites: To match original.
  3. Filling: Fill space between glass lites with argon.
- E. Glazing System: Manufacturer's standard factory-glazing system that produces weathertight seal.

### 2.4 ACCESSORIES

- A. Subsills: Thermally broken, extruded-aluminum subsills in configurations indicated on Drawings.
- B. Column Covers: Extruded-aluminum profiles in sizes and configurations indicated on Drawings.

- C. Interior Trim: Extruded-aluminum profiles in sizes and configurations indicated on Drawings.
- D. Panning Trim: Extruded-aluminum profiles in sizes and configurations indicated on Drawings.

## 2.5 FABRICATION

- A. Fabricate aluminum windows in sizes indicated. Include a complete system for assembling components and anchoring windows.
- B. Glaze aluminum windows in the factory.
- C. Weather strip each operable sash to provide weathertight installation.
- D. Weep Holes: Provide weep holes and internal passages to conduct infiltrating water to exterior.
- E. Provide water-shed members above side-hinged sashes and similar lines of natural water penetration.
- F. Mullions: Provide mullions and cover plates, matching window units, complete with anchors for support to structure and installation of window units. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections, as indicated. Provide mullions and cover plates capable of withstanding design wind loads of window units.
- G. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation.

## 2.6 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## 2.7 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

- B. Class I, Color Anodic Finish: AA-M12C22A42/A44 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, integrally colored or electrolytically deposited color coating 0.018 mm or thicker) complying with AAMA 611.
  - 1. Color: As selected by Commissioner from full range of industry colors and color densities

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Verify rough opening dimensions, levelness of sill plate, and operational clearances.
- C. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure weathertight window installation.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

#### **3.2 INSTALLATION**

- A. Comply with manufacturer's written instructions for installing windows, hardware, accessories, and other components. For installation procedures and requirements not addressed in manufacturer's written instructions, comply with installation requirements in ASTM E 2112.
- B. Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction to produce weathertight construction.
- C. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to the exterior.
- D. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

#### **3.3 FIELD QUALITY CONTROL**

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

1. Testing and inspecting agency will interpret tests and state in each report whether tested work complies with or deviates from requirements.
- B. Testing Services: Testing and inspecting of installed windows shall take place as follows:
  1. Testing Methodology: Testing of windows for air infiltration and water resistance shall be performed according to AAMA 502.
  2. Air-Infiltration Testing:
    - a. Test Pressure: That required to determine compliance with AAMA/WDMA/CSA 101/I.S.2/A440 performance class indicated.
    - b. Allowable Air-Leakage Rate: 1.5 times the applicable AAMA/WDMA/CSA 101/I.S.2/A440 rate for product type and performance class rounded down to one decimal place.
  3. Water-Resistance Testing:
    - a. Test Pressure: Two-thirds times test pressure required to determine compliance with AAMA/WDMA/CSA 101/I.S.2/A440 performance grade indicated.
    - b. Allowable Water Infiltration: No water penetration.
  4. Testing Extent: One window of each type as selected by Commissioner and a qualified independent testing and inspecting agency. Windows shall be tested after perimeter sealants have cured.
  5. Test Reports: Prepared according to AAMA 502.
- C. Remove and replace noncomplying windows and retest as specified above.
- D. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- E. Prepare test and inspection reports.

#### 3.4 ADJUSTING, CLEANING, AND PROTECTION

- A. Adjust operating sashes and hardware for a tight fit at contact points and weather stripping for smooth operation and weathertight closure.
- B. Clean exposed surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
  1. Keep protective films and coverings in place until final cleaning.

- C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.
- D. Protect window surfaces from contact with contaminating substances resulting from construction operations. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written instructions.

END OF SECTION

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**January 5, 2015**

**ALUMINUM WINDOWS**  
**08 51 13-10**



SECTION 08 52 00

METAL CLAD WOOD WINDOW RESTORATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the work of metal clad wood window restoration as shown on the Drawings, specified herein, and as required by conditions and authorities having jurisdiction, including, but not limited to, the following:

1. Restoring existing metal clad wood windows frames and related hardware. Restore existing windows indicated to be restored to as new appearance and operating condition with new weather-stripping.

- B. Intent of Metal Clad Wood Window Restoration Work: It is the specific intent of this Section that all elements of existing windows to remain (including frames, sashes, trim, glass and glazing, and hardware) shall be completely restored to first class operating condition and original appearance. All metal clad wood frames, sashes, and trim shall be restored to sound condition and original planes and profiles. All hardware shall be restored to as new condition or replaced with new hardware matching original existing hardware. Where indicated on Drawings or schedules, modify existing elements as required to accommodate new elements.

1.3 QUALITY ASSURANCE

- A. Window Restoration Specialist: The Contractor must show that within previous three (3) years, it has successfully performed and completed in a timely manner projects similar in scope and type to required work involving facilities designated as Historic Landmarks by local governmental authorities; or buildings listed on the National Register of Historic Places or on a State Register of Historic Places.

1. Foreman: Metal clad wood window restoration shall be directly supervised by a full-time foreman with experience equal to or greater than that required of Restoration Specialist. Foreman shall read and speak English fluently. Foreman shall be on site daily for duration of

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work of this Section. Same foreman shall remain on project throughout work unless his performance is deemed unacceptable.

2. **Mechanics:** Metal clad wood window restoration shall be carried out by a Contractor who is thoroughly experienced with materials and methods specified and have a minimum of three (3) years experience with work on historic buildings similar to that required by this Section. In acceptance or rejection of work of this Section, no allowance will be made for workers' incompetence or lack of skill.
- B. **Standards:** Comply with the requirements specified herein and with requirements of the following standards. In case of conflict between requirements, the most stringent requirement shall apply in each case.
1. **Architectural Woodwork Institute, *Architectural Woodwork Quality Standards*.** Except as otherwise indicated comply with requirements for "Premium Grade" materials and workmanship for each restoration activity in which requirements are applicable.
- C. **Knowledge of Site:** Bidders shall visit site and make themselves thoroughly familiar with specific conditions relating to requirements of this Section.

#### 1.4 SUBMITTALS

- A. **General:** Submit each item in this Article in compliance with the Conditions of the Contract and General Conditions. Revise and resubmit each item as required to obtain Commissioner's approval.
- B. **Qualification Data:** Qualification data for firm specified in "Quality Assurance" Article that demonstrates that firm has capabilities and experience complying with requirements specified. For firm, provide a list of at least three (3) completed projects similar in size and scope to work required on this project. For each project list project name, address, architect, scope of contractor's work, and other relevant information.
- C. **Product Literature:** Manufacturer's published technical data for each product to be used in work of this Section including recommendations for application and use. Include test reports and certificates verifying that product complies with specified requirements. Include Material Safety Data Sheets (MSDS) for each chemical product proposed for use in work of this Section.
- D. **Metal Clad Window Restoration Schedule:** Submit schedule listing each window to be restored outlining in detail proposed restoration work and proposed alteration work to be performed on each component of window. Key schedule to window numbers on Drawings.

#### 1.5 MOCKUPS

- A. General: Before beginning general metal clad wood window restoration work, prepare mockups to provide standards for work of this Section. Do not proceed with metal clad wood window restoration until Commissioner has approved mockups.
1. Locate mockups as directed by Commissioner.
  2. Notify Commissioner 48 hours prior to start of each mockup.
  3. Commissioner will monitor mockups.
  4. Perform mockups using crew that will be executing the work and following requirements of this Section.
  5. Repeat mockups as necessary to obtain Commissioner's approval.
  6. Protect approved mockups to ensure that they are without damage, deterioration, or alteration at time of Substantial Completion.
  7. Approved mockups in undamaged condition at time of Substantial Completion may be incorporated into the Work.
  8. Approved mockups will represent minimum acceptable standards for metal clad wood window restoration. Subsequent metal clad wood window restoration work that does not meet standards of approved mockups will be rejected.
- B. Prepare the Following Mockups:
1. Restored Window: One complete metal clad window including; frame, sash, glazing, hardware, weather stripping and trim.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original unopened containers labeled with manufacturer's name, brand name, item name, expiration date, and instructions for use.
- B. Store materials in spaces designated by Construction Manager. Such spaces shall comply with pertinent federal, state, and local laws, codes, and regulations.
- C. Store materials in compliance with manufacturer's requirements for temperature and other conditions. Keep materials under cover and dry. Protect against exposure to weather.
- D. Discard and remove from project site any materials damaged in handling or storage, any materials that have been subjected to conditions contrary to manufacturer's recommendations, and any materials whose maximum shelf life has expired.

1.7 PROJECT CONDITIONS

- A. Safety: Take all means necessary to ensure that no person (whether involved with work of this Section or not) is harmed or injured as a result of work of this Section.
- B. Protection:
  - 1. Use all necessary means to protect interior of building from all damage caused by precipitation and other environmental conditions during work of this Section.
  - 2. Protect all adjacent building surfaces from damage or deterioration resulting from metal clad wood window restoration work.
- C. Security: Coordinate work with Construction Manager to ensure that building is secured at end of each work period.
- D. Temporary Protection: Provide secure plywood panels over all locations where windows are to be removed for repair/restoration work.
- E. Measurements: Field measure all dimensions before preparing shop drawings or beginning window restoration. Contractor is responsible for all dimensions.
- F. Coordination: Coordinate work of this Section with work specified in Paint and Coatings Removal to ensure proper completion of all work. Complete paint removal before beginning patching and repair of wood members.

**PART 2 - PRODUCTS**

2.1 REPLACEMENT MATERIALS

- A. Wood, General
  - 1. Identification: Lumber shall bear grade and trademark of association under whose rules it is produced and a mill identification mark.
  - 2. Moisture Content: Kiln-dry lumber to a moisture content not exceeding 12 percent or as required by AWI, *Architectural Woodwork Quality Standards*, whichever is lower.
- B. Wood for Replacement Members and Dutchman Repair: Provide preservative treated solid lumber of species and cut to match wood of existing window element to be repaired or replaced. Provide wood matching grade of existing element or grade required for "Premium Quality" work as specified by AWI *Architectural Woodwork Quality Standards*, whichever is higher.
  - 1. Replacement wood to be mahogany

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C. Wood Trim and Glazing Stops: Material and finish to match frame members.

1. Wood Members: Provide for trim and accessory moldings as indicated.
2. Brick Molding: Provide custom molding to match existing.

**2.2 METAL CLADDING**

A. Existing metal cladding to be Retained wherever possible with soldered repairs. New Kalamein cladding to match existing in gauge, corrugations, detailing. All new components are to have new metal cladding to match the original.

**2.3 GLASS AND GLAZING MATERIALS**

A. Existing Glass to be Reused: Clean glass removed from windows and reinstall in same locations as removed.

**2.4 HARDWARE**

A. Hardware for Windows with Restored Sash: Label and remove existing hardware. Remove all finishes, clean, refinish and lubricate operating hardware. All hardware to be restored to full operating condition.

B. Missing hardware to be replaced with new assemblies that match originals in every detail. Provide replacement hardware from one of the following:

1. PE Guerin
2. Rejuvenation
3. Renovators' Supply
4. Or Commissioner Approved Equal

**2.5 MISCELLANEOUS MATERIALS**

A. Weather Stripping for Windows with Restored Operating Sash: New bronze spring type weather stripping as indicated on Drawings. Provide weather stripping by Zero International, Inc., Bronx, New York, or approved equal.

**2.6 FABRICATION**

A. General: Fabricate window components to match existing and as shown on Drawings.

B. Fabrication of Restoration Elements

1. Fabricate components from solid lumber stock to exactly match original components unless otherwise detailed.

2. Fabricate replacement elements to match original elements in all respects, including size, profile, jointing, and surface finish.

### **PART 3 - EXECUTION**

#### **3.1 PREPARATION AND REMOVAL**

- A. Remove each sash from frame carefully, recording location of removed sash to ensure sash is replaced in same original location.
- B. Remove all existing panes of glass and all hardware from sash to be restored, recording location of each removed piece of glass that is to be reused and each hardware item. Carefully remove glazing compound (using heat to soften) and glass panes. Do not break existing panes that are intact and are to be reused. Do not damage existing sash members when removing glass or hardware.
- C. Remove all paint from sashes following requirements of Paint and Coatings Removal. Scrape all loose, flaking, and otherwise deteriorated paint from frames. Remove completely paint from areas of frames requiring epoxy consolidation and repair, dutchman repair, member replacement, and joint repair.
- D. Window restoration is to include all interior windows finishes including sash, frames, stops and interior trim. Extent of window restoration is to be from outer edge of window trim.

#### **3.2 REPAIR OF WOOD ELEMENTS**

- A. General: Repair frames, sashes, sills, and trim indicated to remain using epoxy consolidation and patching, dutchman repairs, and/or member replacement as appropriate to each individual member to ensure that as much sound existing material as possible is saved and also that at completion of work, all elements of frames, sashes, sills, and exterior and interior trim are free of rotted and deteriorated wood and solid and true to original profiles with all arrises sharp and square. All joints shall be rigid and well-glued and/or pegged.
- B. Existing Windows To Be Restored: Typical restoration of wood elements at each window shall include, but is not necessarily limited to, the following:
  1. Remove miscellaneous non-original hardware not to be retained from frames, sashes, sills, and trim.
  2. Re-peg and wedge or glue sash joints to ensure sound, rigid joints.
  3. Fill minor holes and cracks in frames, sashes, sills, and trim.

4. Provide epoxy consolidation and patching for deteriorated wood areas less than 4 cubic inches to provide sound wood members of original profile.
5. Provide dutchman repair of deteriorated wood areas larger than 4 cubic inches but less than one-third length of member to provide sound wood members of original profile.
6. Replace severely deteriorated members or members with less deterioration where deterioration occurs at joints.
7. Fill depressions and areas of missing wood in sills.
8. Fill and glue cracks.
9. Patch holes.

**3.3 RESTORATION OF METAL CLADDING**

- A. Restoration of metal cladding to include soldered repairs for holes less than ¼" dia and minor damage. New Kalamein cladding to match existing in gauge, corrugations, detailing to be provided in locations of damage in excess of ¼". Refer to Sheet Metal Flashing and Trim section for soldering and repair methods.

**3.4 RESTORATION AND REPLACEMENT OF HARDWARE**

- A. Recondition hardware to smooth, even operating condition. Replace missing elements of hardware with new hardware to match original.
- B. Restore latches, and other hardware elements. Provide new hardware to match original where existing is missing or deteriorated or damaged beyond restoration.
- C. Install hardware.

**3.5 GLAZING**

- A. General: Reinstall removed glass panes into original openings of restored sashes. Provide new glass where original is missing or broken.

**3.6 WEATHERSTRIPPING**

- A. General: Provide weather stripping at all edges of each operating sash.

**3.7 REINSTALLATION**

- A. Reinstall sash in original location.

- B. Clean, adjust and lubricate all window hardware and operating mechanisms as may be required to ensure smooth operation.

3.8 ADJUSTMENTS

- A. Repair or replace all metal clad wood window restoration work that does not meet requirements of this Section or does not result in complete restoration of window to its original condition to satisfaction of Commissioner at no additional cost to City of New York.

END OF SECTION



SECTION 08 71 00

DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Section includes:
1. Mechanical door hardware for the following:
    - a. Swinging doors.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction and installation details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Samples for Initial Selection: For plastic protective trim units in each finish, color, and texture required for each type of trim unit indicated.
- C. Samples for Verification: For exposed door hardware of each type required, in each finish specified, prepared on Samples of size indicated below. Tag Samples with full description for coordination with the door hardware schedule. Submit Samples before, or concurrent with, submission of door hardware schedule.
1. Sample Size: Full-size units.
    - a. Full-size Samples will be returned to Contractor. Units that are acceptable and remain undamaged through submittal, review, and field comparison process may, after final check of operation, be incorporated into the Work, within limitations of keying requirements.
- D. Other Submittals:
1. Door Hardware Schedule: Prepared by or under the supervision of Installer, detailing fabrication and assembly of door hardware, as well as installation procedures and diagrams. Coordinate final door hardware

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schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

- a. **Submittal Sequence:** Submit door hardware schedule concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate the fabrication of other work that is critical in Project construction schedule.
  - b. **Format:** Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule." Double space entries, and number and date each page.
  - c. **Content:** Include the following information:
    - 1) Identification number, location, hand, fire rating, size, and material of each door and frame.
    - 2) Locations of each door hardware set, cross-referenced to Drawings on floor plans and to door and frame schedule.
    - 3) Complete designations, including name and manufacturer, type, style, function, size, quantity, function, and finish of each door hardware product.
    - 4) Fastenings and other pertinent information.
    - 5) Explanation of abbreviations, symbols, and codes contained in schedule.
    - 6) Mounting locations for door hardware.
2. **Keying Schedule:** Prepared by or under the supervision of Installer, detailing City of New York's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations that are coordinated with the Contract Documents.

E. **Qualification Data:** For Installer.

F. **Warranty:** Special warranty specified in this Section.

G. **Maintenance Data:** For each type of door hardware to include in maintenance manuals. Include final hardware and keying schedule.

#### 1.4 QUALITY ASSURANCE

A. **Installer Qualifications:** Supplier of products and an employer of workers trained and approved by product manufacturers.

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1. Scheduling Responsibility: Preparation of door hardware and keying schedules.
- B. Source Limitations: Obtain each type of door hardware from a single manufacturer.
- C. Fire-Rated Door Assemblies: Where fire-rated door assemblies are indicated, provide door hardware rated for use in assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C, unless otherwise indicated.
- D. Smoke-and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meet requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
  1. Air Leakage Rate: Maximum air leakage of 0.3 cfm/sq. ft. at the tested pressure differential of 0.3-inch wg of water.
- E. Accessibility Requirements: Comply with applicable provisions in the DOJ's 2010 ADA Standards for Accessible Design for door hardware on doors in an accessible route.
  1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf
  2. Comply with the following maximum opening-force requirements:
    - a. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
  3. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch high
  4. Closers: Adjust door and gate closer sweep periods so that, from an open position of 90 degrees, the time required to move the door to a position of 12 degrees from the latch is 5 seconds minimum.
- F. Keying Conference: Conduct conference at Project site. In addition to Commissioners, and Contractor, conference participants shall also include Commissioner's security consultant. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including, but not limited to, the following:
  1. Requirements for key control system.
  2. Requirements for access control.
- G. Preinstallation Conference: Conduct conference at Project site.

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1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
2. Inspect and discuss preparatory work performed by other trades.

**1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site.
- B. Tag each item or package separately with identification coordinated with the final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.
- C. Deliver keys to manufacturer of key control system for subsequent delivery to Commissioner.
- D. Deliver keys and permanent cores to Commissioner by registered mail or overnight package service.

**1.6 COORDINATION**

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Set anchoring inserts into concrete.
- B. Installation Templates: Distribute for doors, frames, and other work specified to be factory prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- C. Security: Coordinate installation of door hardware, keying, and access control with Commissioner's security consultant.

**1.7 WARRANTY**

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.
  1. Failures include, but are not limited to, the following:
    - a. Structural failures including excessive deflection, cracking, or breakage.
    - b. Faulty operation of doors and door hardware.
    - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.

2. Warranty Period: Three years from date of Substantial Completion, unless otherwise indicated.

**1.8 MAINTENANCE GUARANTEE**

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions for City of New York's continued adjustment, maintenance, and removal and replacement of door hardware.
- B. Maintenance Guarantee: Beginning at Substantial Completion, provide six months' full maintenance by skilled employees of door hardware installer. Include quarterly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door and door hardware operation. Provide parts and supplies that are the same as those used in the manufacture and installation of original products.

**PART 2 - PRODUCTS**

**2.1 SCHEDULED DOOR HARDWARE**

- A. Provide door hardware for each door as scheduled in Part 3 "Door Hardware Schedule" Article to comply with requirements in this Section.
  1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and products equivalent in function and comparable in quality to named products.
- B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in Part 3 "Door Hardware Schedule" Article. Products are identified by using door hardware designations, as follows:
  1. Named Manufacturers' Products: Manufacturer and product designation are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated in Part 3 "Door Hardware Schedule" Article.

**2.2 HINGES**

- A. Hinges: BHMA A156.1. Provide template-produced hinges for hinges installed on hollow-metal doors and hollow-metal frames.
  1. Provide Hinges from one of the following:
    - a. Stanley Commercial Hardware  
480 Myrtle St  
New Britain, CT 06053  
800-622-493

- b. Baldwin Hardware Corp.  
841 E. Wyomissing Blvd  
Reading, PA 19612  
215-777-7811
- c. Hager Companies  
139 Victor St  
St. Louis, MO 63157-0300  
800-325-9995
- d. Or Commissioner approved equal.

**2.3 MECHANICAL LOCKS AND LATCHES**

- A. Lock Functions: As indicated in door hardware schedule.
- B. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:
  - 1. Bored Locks: Minimum 1/2-inch latchbolt throw.
  - 2. Mortise Locks: Minimum 3/4-inch latchbolt throw.
- C. Lock Backset: 2-3/4 inches, unless otherwise indicated.
- D. Lock Trim:
  - 1. Description: As indicated on the hardware schedule in Part 3.
  - 2. Levers: Cast.
  - 3. Escutcheons (Roses): Cast.
  - 4. Operating Device: Lever with escutcheons (roses).
- E. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.
  - 1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
- F. Mortise Locks: BHMA A156.13; Security Grade 1; stamped steel case with steel or brass parts; Series 1000.
  - 1. Provide Locks from one of the following:
    - a. Sargent Manufacturing  
100 Sargent Drive  
New Haven, CT 06563-0915

800-727-5477

- b. Corbin Russwin Inc.  
PO Box 25288  
Charlotte, NC 28229-8010  
704-283-2101
- c. Best Access Systems  
6161 East 75<sup>th</sup> Street  
Indianapolis, IN 46250  
317-849-2250
- d. Or Commissioner approved equal.

#### **2.4 LOCK CYLINDERS**

- A. Lock Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver.
  - 1. Manufacturer: Same manufacturer as for locking devices.
- B. High-Security Lock Cylinders: BHMA A156.30; Grade 1; Type M, mechanical; permanent cores that are removable; face finished to match lockset.

#### **2.5 KEYING**

- A. Keying System: Factory registered, complying with guidelines in BHMA A156.28, Appendix A. Incorporate decisions made in keying conference.
  - 1. Existing System:
    - a. Master key locks to City of New York's existing system.
- B. Keys: Brass.
  - 1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:
    - a. Notation: "DO NOT DUPLICATE."
  - 2. Quantity: In addition to one extra key blank for each lock, provide the following:
    - a. Cylinder Change Keys: Three.
    - b. Master Keys: Five.

#### **2.6 OPERATING TRIM**

- A. Operating Trim: BHMA A156.6; stainless steel, unless otherwise indicated.

**2.7 SURFACE CLOSERS**

- A. Surface Closers: BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm. Comply with manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.

1. Provide Closers from one of the following:

- a. Stanley Commercial Hardware  
480 Myrtle St  
New Britain, CT 06053  
800-622-493
- b. Rixson Specialty Door Controls  
Monroe, NC  
800-457-5670
- c. Corbin Russwin Inc.  
PO Box 25288  
Charlotte, NC 28229-8010  
704-283-2101
- d. Or Commissioner approved equal.

**2.8 EXIT DEVICES AND AUXILIARY ITEMS**

- A. Exit Devices and Auxiliary Items: BHMA A156.3.

1. Provide Touch Bar Exit Device from one of the following:

- a. SARGENT® Manufacturing Company  
100 Sargent Drive  
P.O. Box 9725  
New Haven, CT 06536-0915
- b. Yale Security Inc; an ASSA ABLOY Group company  
P.O. Box 25288  
Charlotte NC 28229-8010
- c. Stanley Commercial Hardware  
480 Myrtle St  
New Britain, CT 06053  
800-622-493



2. All exit devices shall be of touch bar design and be operative over 2/3 of the door's clear opening width
3. All exit devices must be listed under "panic Hardware" in the Accident Equipment List of Underwriter's Laboratories, Inc. Where labeled doors are used as exits, they must be equipped with labeled Fire Exit Hardware
4. All springs shall be of stainless steel.
5. All exit devices shall be of chassis mounted until construction with removable cover.

## **2.9 FABRICATION**

- A. **Manufacturer's Nameplate:** Do not provide products that have manufacturer's name or trade name displayed in a visible location except in conjunction with required fire-rated labels and as otherwise approved by Commissioner.
  1. Manufacturer's identification is permitted on rim of lock cylinders only.
- B. **Base Metals:** Produce door hardware units of base metal indicated, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18.
- C. **Fasteners:** Provide door hardware manufactured to comply with published templates prepared for machine, wood, and sheet metal screws. Provide screws that comply with commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.
  1. **Concealed Fasteners:** For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
  2. **Fire-Rated Applications:**
    - a. **Wood or Machine Screws:** For the following:
      - 1) Hinges mortised to doors or frames
      - 2) Strike plates to frames.
      - 3) Closers to doors and frames.

- b. **Steel Through Bolts:** For the following unless door blocking is provided:
  - 1) Surface hinges to doors.
  - 2) Closers to doors and frames.
  - 3) Surface-mounted exit devices.
- 3. **Spacers or Sex Bolts:** For through bolting of hollow-metal doors.
- 4. **Fasteners for Wood Doors:** Comply with requirements in DHI WDHS.2, "Recommended Fasteners for Wood Doors."
- 5. **Gasketing Fasteners:** Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

## 2.10 FINISHES

- A. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. **Appearance of Finished Work:** Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## **PART 3 - EXECUTION**

### 3.1 EXAMINATION

- A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. **Steel Doors and Frames:** For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.

### **3.3 INSTALLATION**

- A. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.
  - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
  - 2. Custom Steel Doors and Frames: HMMA 831.
- B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing. Do not install surface-mounted items until finishes have been completed on substrates involved.
  - 1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
  - 2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- C. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.
- D. Lock Cylinders: Install construction cores to secure building and areas during construction period.
  - 1. Replace construction cores with permanent cores as directed by Commissioner.
  - 2. Furnish permanent cores to Commissioner for installation.
- E. Thresholds: Set thresholds for exterior doors and other doors indicated in full bed of sealant
- F. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

### **3.4 ADJUSTING**

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
  - 1. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.

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- B. Occupancy Adjustment: Approximately six months after date of Substantial Completion, Installer shall examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors, door hardware, and electrified door hardware.

**3.5 CLEANING AND PROTECTION**

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of Substantial Completion.

**3.6 DEMONSTRATION**

- A. Engage a factory-authorized service representative to train Commissioner's maintenance personnel to adjust, operate, and maintain door hardware and door hardware finishes.

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**3.7 DOOR HARDWARE SCHEDULE**

DOOR NO.	TYPE	ACTION	DOOR MAT.	FRAME MAT.	HARDWARE				
					LOCKSET	HINGE	SADDLE	WEATHER-STRIPPING	MISC.
<b>10th FLOOR</b>									
1	NON RATED	DOUBLE LEAF	HOLLOW METAL	HOLLOW METAL/ MORTAR FILLED	STAINLESS STEEL DEADBOLT LOCKSET AT ACTIVE LEAF	TWO (2) TAMPERPROOF STAINLESS STEEL HINGES PER LEAF	ALUMINUM W/ WEATHER-STRIPPING	BRONZE SPRING WEATHER-STRIPPING	ASTRAGAL AT ACTIVE LEAF/ TWO (2) FLUSH BOLTS AT INACTIVE LEAF
2	NON RATED	SINGLE LEAF	HOLLOW METAL	HOLLOW METAL/ MORTAR FILLED	STAINLESS STEEL DEADBOLT LOCKSET	TWO (2) TAMPERPROOF STAINLESS STEEL HINGES	ALUMINUM W/ WEATHER-STRIPPING	BRONZE SPRING WEATHER-STRIPPING	N/A
3	NON RATED	DOUBLE LEAF	HOLLOW METAL	HOLLOW METAL/ MORTAR FILLED	STAINLESS STEEL DEADBOLT LOCKSET AT ACTIVE LEAF	THREE (3) TAMPERPROOF STAINLESS STEEL HINGES PER LEAF	ALUMINUM W/ WEATHER-STRIPPING	BRONZE SPRING WEATHER-STRIPPING	ASTRAGAL AT ACTIVE LEAF/ TWO (2) FLUSH BOLTS AT INACTIVE LEAF
4	NON RATED	DOUBLE LEAF	HOLLOW METAL	HOLLOW METAL/ MORTAR FILLED	STAINLESS STEEL DEADBOLT LOCKSET AT ACTIVE LEAF	THREE (3) TAMPERPROOF STAINLESS STEEL HINGES PER LEAF	ALUMINUM W/ WEATHER-STRIPPING	BRONZE SPRING WEATHER-STRIPPING	ASTRAGAL AT ACTIVE LEAF/ TWO (2) FLUSH BOLTS AT INACTIVE LEAF
<b>BASEMENT</b>									
5	FIRE RATED/ SMOKE PROOF	SINGLE LEAF	HOLLOW METAL	HOLLOW METAL/ MORTAR FILLED	STAINLESS STEEL DEADBOLT LOCKSET	TWO (2) TAMPERPROOF STAINLESS STEEL HINGES	ALUMINUM/ SMOKE-PROOF	SMOKE-PROOF	N/A

END OF SECTION

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SECTION 08 91 19

FIXED LOUVERS

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

**1.2 SUMMARY**

- A. Section Includes:
1. Fixed, extruded-aluminum louvers
  2. Formed-pre-patinated copper louvers.
  3. Repairs to existing copper louvers.

**1.3 DEFINITIONS**

- A. Louver Terminology: Definitions of terms for metal louvers contained in AMCA 501 apply to this Section unless otherwise defined in this Section or in referenced standards.
- B. Horizontal Louver: Louver with horizontal blades (i.e., the axes of the blades are horizontal).
- C. Wind-Driven-Rain-Resistant Louver: Louver that provides specified wind-driven rain performance, as determined by testing according to AMCA 500-L.

**1.4 SUBMITTALS**

- A. Product Data: For each type of product.
1. For louvers specified to bear AMCA seal, include printed catalog pages showing specified models with appropriate AMCA Certified Ratings Seals.
- B. Shop Drawings: For louvers and accessories. Include plans, elevations, sections, details, and attachments to other work. Show frame profiles and blade profiles, angles, and spacing.
1. Show weep paths, gaskets, flashing, sealant, and other means of preventing water intrusion.

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2. Show mullion profiles and locations.
- C. Samples: For each type of metal finish required.
- D. Shop Drawing Submittal: For louvers indicated to comply with structural performance requirements, including analysis data signed and sealed by the licensed professional engineer responsible for their preparation.
- E. Product Test Reports: Based on evaluation of comprehensive tests performed according to AMCA 500-L by a qualified testing agency or by manufacturer and witnessed by a qualified testing agency, for each type of louver and showing compliance with performance requirements specified.
- F. Windborne-debris-impact-resistance test reports.

#### 1.5 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to the following:
  1. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."
  2. AWS D1.6/D1.6M, "Structural Welding Code - Stainless Steel."

#### 1.6 FIELD CONDITIONS

- A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

### **PART 2 - PRODUCTS**

#### 2.1 MANUFACTURERS

- A. Source Limitations: Obtain louvers from single source from a single manufacturer where indicated to be of same type, design, or factory-applied color finish.

#### 2.2 PERFORMANCE REQUIREMENTS

- A. Shop Drawings: Design louvers, including comprehensive engineering analysis by a licensed professional engineer, using structural performance requirements and design criteria indicated.
- B. Structural Performance: Louvers shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated without permanent deformation of louver components, noise or metal fatigue caused by louver-blade rattle or flutter, or permanent damage to fasteners and anchors. Wind pressures shall be considered to act normal to the face of the building.



1. Wind Loads: Determine loads based on a uniform pressure of 30 lbf/sq. ft., acting inward or outward.
- C. Louver Performance Ratings: Provide louvers complying with requirements specified, as demonstrated by testing manufacturer's stock units identical to those provided, except for length and width according to AMCA 500-L.
- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
  1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
- E. SMACNA Standard: Comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" for fabrication, construction details, and installation procedures.

**2.3 FIXED, EXTRUDED-ALUMINUM LOUVERS**

**A. Horizontal, Nondrainable-Blade Louver:**

1. Provide Aluminum Louvers from one of the following:
  - a. Cesco Products  
450 Riverside Dr  
Wyalusing, PA 18853  
612-424-4919
  - b. Greenheck Fan Corp  
400 Ross Ave  
Schofield, WI 54476  
715-359-6171
  - c. Airolite Company  
114 Westview Ave  
Marietta, OH 45750  
740-373-7676
  - d. Or Commissioner approved equal.
2. Louver Depth: 4 inches.
3. Blade Profile: Plain blade without center baffle.
4. Frame and Blade Nominal Thickness: Not less than 0.060 inch for blades and 0.080 inch for frames.
5. Mullion Type: Exposed.

6. Louver Performance Ratings:
  - a. Free Area: As shown on the Mechanical Drawings.
  - b. Point of Beginning Water Penetration: Not less than 700 fpm
  - c. Air Performance: Not more than 0.10-inch wg static pressure drop at 650-fpm free-area velocity.

**2.4 FIXED, FORMED-PRE-PATINATED COPPER LOUVERS**

**A. Horizontal, Nondrainable-Blade Louver.**

1. Provide formed pre-patinated copper louvers and louver components from one of the following:
  - a. Cesco Products  
450 Riverside Dr  
Wyalusing, PA 18853  
612-424-4919
  - b. Greenheck Fan Corp  
400 Ross Ave  
Schofield, WI 54476  
715-359-6171
  - c. Airolite Company  
114 Westview Ave  
Marietta, OH 45750  
740-373-7676
  - d. Or Commissioner approved equal.
2. Louver Depth: To match existing historic louvers.
3. Blade Profile: Plain blade without center baffle to match historic detail.
4. Frame and Blade Material and Nominal Thickness: Copper sheet, not less than 0.052 inch for frames and 0.040 inch for blades.
5. Mullion Type: To match existing historic louvers.
6. Louver Performance Ratings:
  - a. Free Area: To match existing historic louvers.
  - b. Point of Beginning Water Penetration: Not less than 550 fpm.
  - c. Air Performance: Not more than 0.10-inch wg static pressure drop at 550-fpm free-area velocity.

7. Provide additional pre-patinated copper louver components to replicate existing damaged historic louvers.

## 2.5 LOUVER SCREENS

- A. General: Provide screen at louvers indicated.
  1. Screen Location for Fixed Louvers: Interior face and exterior face.
  2. Screening Type: Bird screening at exterior face of formed copper louvers to match historic detailing and Insect screening at the interior of louvers indicated.
- B. Secure screen frames to louver frames with 316 stainless-steel machine screws], spaced a maximum of 6 inches from each corner and at 12 inches o.c.
- C. Louver Screen Frames: Fabricate with mitered corners to louver sizes indicated.
  1. Metal: Same type and form of metal as indicated for louver to which screens are attached.
  2. Finish: Same finish as louver frames to which louver screens are attached
  3. Type: Non-rewirable, U-shaped frames.
- D. Louver Screening for Aluminum Louvers:
  1. Insect Screening: Aluminum, 18-by-16 mesh, 0.012-inch wire.
- E. Louver Screening for Copper Louvers:
  1. Bird Screening: Bronze, 1/2-inch-diamond mesh, 0.041-inch wire.
  2. Insect Screening: Bronze, 18-by-14 mesh, 0.011-inch wire.

## 2.6 BLANK-OFF PANELS

- A. Uninsulated, Blank-Off Panels: Metal sheet attached to back of louver.
  1. 316 Stainless-steel sheet for copper louvers, not less than 0.038-inch nominal thickness, with grain running in same direction as grain of louver blades.
  2. Panel Finish: mill finish.
  3. Attach blank-off panels with 316 stainless steel sheet metal screws

## 2.7 MATERIALS

- A. Aluminum Extrusions: ASTM B 221 Alloy 6063-T5, T-52, or T6.

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- B. Aluminum Sheet: ASTM B 209 Alloy 3003 or 5005 with temper as required for forming, or as otherwise recommended by metal producer for required finish.
- C. Copper Sheet: ASTM B 370; temper H00, cold rolled except where temper 060 is required for forming. Provide in weight indicated on Drawings but not less than 20-oz. per sq. ft.
- D. Fasteners: Use types and sizes to suit unit installation conditions.
  - 1. Use Phillips flat-head screws for exposed fasteners unless otherwise indicated.
  - 2. Use 316 stainless-steel fasteners.
- E. Postinstalled Fasteners for Concrete and Masonry: Torque-controlled expansion anchors, made from stainless-steel components, with capability to sustain, without failure, a load equal to 4 times the loads imposed, for concrete, or 6 times the load imposed for masonry, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
- F. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

2.8 FABRICATION

- A. Factory assemble louvers to minimize field splicing and assembly. Disassemble units as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
- B. Vertical Assemblies: Where height of louver units exceeds fabrication and handling limitations, fabricate units to permit field-bolted assembly with close-fitting joints in jambs and mullions, reinforced with splice plates.
  - 1. Continuous Vertical Assemblies: Fabricate units without interrupting blade-spacing pattern.
  - 2. Horizontal Mullions: Provide horizontal mullions at joints where indicated.
- C. Maintain equal louver blade spacing, including separation between blades and frames at head and sill, to produce uniform appearance.
- D. Fabricate frames, including integral sills, to fit in openings of sizes indicated, with allowances made for fabrication and installation tolerances, adjoining material tolerances, and perimeter sealant joints.
  - 1. Frame Type: Exterior flange unless otherwise indicated.
- E. Include supports, anchorages, and accessories required for complete assembly.
- F. Provide vertical mullions of type and at spacings indicated, but not more than is recommended by manufacturer, or 72 inches o.c., whichever is less.

1. Exposed Mullions: Where indicated, provide units with exposed mullions of same width and depth as louver frame. Where length of louver exceeds fabrication and handling limitations, provide interlocking split mullions designed to permit expansion and contraction.
  2. Exterior Corners: Prefabricated corner units with mitered with blades with concealed close-fitting splices and with semirecessed mullions at corners.
- G. Provide subsills made of same material as louvers for recessed louvers.
- H. Join frame members to each other and to fixed louver blades with fillet welds threaded fasteners, or both, as standard with louver manufacturer unless otherwise indicated or size of louver assembly makes bolted connections between frame members necessary.

2.9 ALUMINUM FINISHES

- A. Baked-Enamel or Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils. Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.
1. Color and Gloss: As selected by Commissioner from manufacturer's full range.

2.10 COPPER SHEET FINISHES

- A. Pre-Patinated to match historic louver color.

**PART 3 - EXECUTION**

3.1 EXAMINATION

- A. Examine substrates and openings, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Coordinate setting drawings, diagrams, templates, instructions, and directions for installation of anchorages that are to be embedded in masonry construction. Coordinate delivery of such items to Project site.

3.3 INSTALLATION

- A. Locate and place louvers level, plumb, and at indicated alignment with adjacent work.

- B. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection.
- C. Form closely fitted joints with exposed connections accurately located and secured.
- D. Provide perimeter reveals and openings of uniform width for sealants and joint fillers, as indicated.
- E. Install concealed gaskets, flashings, joint fillers, and insulation as louver installation progresses, where weathertight louver joints are required. Comply with Section 079200 "Joint Sealants" for sealants applied during louver installation.

#### 3.4 ADJUSTING AND CLEANING

- A. Clean exposed louver surfaces that are not protected by temporary covering, to remove fingerprints and soil during construction period. Do not let soil accumulate during construction period.
- B. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to finishes. Thoroughly rinse surfaces and dry.
- C. Restore louvers damaged during installation and construction so no evidence remains of corrective work. If results of restoration are unsuccessful, as determined by Commissioner, remove damaged units and replace with new units.
  - 1. Touch up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating.

END OF SECTION

SECTION 09 21 00

GYPSUM PLASTER

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

**1.2 SUMMARY**

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the work of gypsum plaster as shown on the Drawings and specified herein, including, but not limited to, the following:
1. Plaster Skim Coat.
  2. Three Coat Gypsum plastering.

**1.3 QUALITY ASSURANCE**

- A. Plaster Specialist: a firm experienced in application of gypsum plaster similar in type and scope to that required on this Project and employing skilled plasterers thoroughly familiar with materials and methods specified.
- B. Reference Standards
1. US Gypsum Handbook
  2. Gypsum Plaster Application Standard: ASTM C 842
  3. Bonding Agent Reference Standard: ASTM C 631
- C. Single-Source Responsibility: Obtain lath gypsum plaster from one source and by a single manufacturer.
- D. Coordination of Work: Coordinate layout and installation of suspension system components for suspended ceilings with other work supported by or penetrating through ceiling.

**1.4 SUBMITTALS**

- A. **General:** Submit each item in this Article in compliance with the Conditions of the Contract and General Conditions. Revise and resubmit each item as required to obtain Commissioner's approval.
- B. **Qualification Data:** Submit qualification data for firm specified in "Quality Assurance" Article that demonstrates that firm has capabilities and experience complying with requirements specified. For firm, provide a list of at least three (3) completed projects similar in size and scope to work required on this project. For each project list project name, address, architect, conservator, supervising preservation agency, scope of contractor's work, and other relevant information.
- C. **Product Literature:** Manufacturer's published technical data for each product to be used in work of this Section including recommendations for application and use. Include test reports and certificates verifying that product complies with specified requirements.
- D. **Shop Drawings:** Drawings detailing installation, showing location of all supporting framing, lath, and plaster applications. Include plans and sections, for all required work.
- E. **Samples**
  - 1. **Trim Accessories:** 12-inch-length for each trim accessory indicated.
- F. **Material Certificates:** Submit certificate signed by manufacturer for each kind of plaster aggregate certifying that materials comply with requirements.
- G. **Mockups:** Provide mockups as specified in Article "Mockups," below.

**1.5 MOCKUPS**

- A. **General:** Before beginning general gypsum plaster work, prepare mockups to provide standards for work of this Section. Do not proceed with gypsum plaster work until Commissioner has approved mockups.
  - 1. **Locate mockups** as directed by Commissioner.
  - 2. **Notify Commissioner** 48 hours prior to start of each mockup.
  - 3. **Commissioner will monitor** mockups.
  - 4. **Perform mockups** using crew that will be executing the work and following requirements of this Section to demonstrate full range of aesthetic effects and workmanship.
  - 5. **Repeat mockups** as necessary to obtain Commissioner's approval.



6. Protect approved mockups to ensure that they are without damage, deterioration, or alteration at time of Substantial Completion.
7. Approved mockups in undamaged condition at time of Substantial Completion may be incorporated into the Work.
8. Approved mockups will represent minimum acceptable standards for gypsum plaster work. Subsequent plaster work that does not meet standards of approved mockups will be rejected.

**B. Prepare the Following Mockups:**

1. Plaster skim coat repair: One location, minimum 2'x2'
2. Full Plaster replacement section: One location, min 2'x2'

**1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver materials to Project site in original packages, containers, or bundles, labeled with manufacturer's name, product brand name, and lot number.
- B. Store materials inside, under cover, and dry, protected from weather, direct sunlight, surface contamination, aging, corrosion, and damage from construction traffic and other causes.

**1.7 PROJECT CONDITIONS**

- A. Environmental Requirements, General: Comply with requirements specified herein and requirements of referenced plaster application standards and recommendations of plaster manufacturer for environmental conditions before, during, and after plaster application. In case of conflict, the most stringent requirements shall apply.
- B. Temperature Requirements: Maintain continuous uniform temperature of not less than 50 deg F nor more than 80 deg F for at least 7 days before beginning plaster application, during its application, and until plaster is dry but for at least 7 days after application is complete. Distribute heat evenly; prevent concentrated or uneven heat from contacting plaster near heat source.
- C. Ventilation: Ventilate building spaces as required to remove water in excess of that required for hydrating plaster. Begin ventilation immediately after plaster is applied and continue until it has set.
- D. Protect contiguous work from soiling, spattering, moisture deterioration, and other harmful effects caused by plastering.

**PART 2 - PRODUCTS**

**2.1 ACCESSORIES**

- A. General: Comply with material provisions of ASTM C 841 and requirements indicated below; coordinate depth of accessories with thicknesses and number of plaster coats required.

**2.2 PLASTER MATERIALS**

- A. Base-Coat Plasters: ASTM C 28, types as indicated below:
1. Gypsum neat plaster.
  2. Gypsum wood-perlite plaster.
- B. Finish-Coat Plasters: Types as indicated below:
1. Gypsum gauging plaster, ASTM C 28.
  2. Gypsum ready-mixed finish plaster, manufacturer's standard mill-mixed gauged interior finish.
- C. Aggregates for Finish-Coat Plaster: Clean washed sand complying with ASTM C 35; graded per ASTM C 842.

**2.3 MISCELLANEOUS MATERIALS**

- A. Water for Mixing and Finishing Plaster: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.
- B. Bonding Compound: Polyvinyl-acetate, complying with ASTM C 631.

**2.4 PLASTER MIXES AND COMPOSITIONS**

- A. Plaster Base-Coat Compositions: Comply with ASTM C 842 and manufacturer's written instructions for plaster base-coat proportions that correspond to application methods and plaster bases indicated below:
1. Three-Coat Work: Base coats as indicated below:
    - a. Scratch Coat: Gypsum neat plaster with job-mixed sand.
    - b. Brown Coat: Gypsum neat plaster with job-mixed sand.
- B. Finish Coats: Proportion materials for finish coats to comply with ASTM C 842 for each type of finish coat and texture indicated.

C. Finish Coats: Proportion materials in parts by dry weight for finish coats to comply with the following requirements for each type of finish coat and texture indicated:

1. Troweled Finishes: Finish-coat proportion as indicated below:
  - a. Gypsum Gauging Plaster: 1 part plaster to 2 parts aggregate.

## 2.5 MIXING

A. Mechanically mix cementitious and aggregate materials for plasters to comply with applicable referenced application standard and with recommendations of plaster manufacturer.

## **PART 3 - EXECUTION**

### 3.1 INSTALLATION OF PLASTERING ACCESSORIES

A. General: Comply with referenced lathing and furring installation standards for provision and location of plaster accessories of type indicated. Miter or cope accessories at corners; install with tight joints and in alignment. Attach accessories securely to plaster bases to hold accessories in place and in alignment during plastering.

### 3.2 PLASTER APPLICATION, GENERAL

- A. Prepare monolithic surfaces for bonded base coats and use bonding compound to comply with requirements of referenced plaster application standards for conditioning monolithic surfaces.
- B. Tolerances: Do not deviate more than plus or minus 1/8 inch in 10 feet from a true plane in finished plaster surfaces, as measured by a 10-foot straightedge placed at any location on surface.
- C. Sequence plaster application with installation and protection of other work so that neither will be damaged by installation of other.
- D. Apply thicknesses and number of coats of plaster as indicated or as required by referenced standards.

### 3.3 PLASTER APPLICATION

- A. Plaster Application Standard: Apply plaster materials, composition, mixes, and finishes indicated to comply with ASTM C 842.
- B. Number of Coats: Apply plaster of composition indicated, to comply with the following requirements:
  1. Three Coats: Over the following plaster bases:

a. Wood lath.

C. Finish Coats: Apply finish coat and trowel to smooth surface.

**3.4 CUTTING AND PATCHING**

A. Cut, patch, replace, and repair plaster as necessary to accommodate other work and to restore cracks, dents, and imperfections. Repair or replace work to eliminate blisters, buckles, excessive crazing and check cracking, dry outs, efflorescence, sweat outs, and similar defects and where bond to substrate has failed.

B. Leave plaster ready for painting.

**3.5 CLEANING AND PROTECTING**

A. Remove temporary protection and enclosure of other work. Promptly remove plaster from door frames, windows, and other surfaces not to be plastered. Repair floors, walls, and other surfaces stained, marred, or otherwise damaged during plastering. When plastering is completed, remove unused materials, containers, and equipment and clean floors of plaster debris.

B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer; that ensure plaster work is without damage or deterioration at the time of Substantial Completion.

**END OF SECTION**

SECTION 09 22 16

NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Section Includes:

1. Non-load-bearing steel framing systems for interior partitions.

1.3 SUBMITTALS

- A. Product Data: For each type of product.

1. Studs and Runners: Provide documentation that framing members' certification is according to SIFA's "Code Compliance Certification Program for Cold-Formed Steel Structural and Non-Structural Framing Members."

- B. Evaluation Reports: For embossed steel studs and runners and firestop tracks, from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.
- C. Horizontal Deflection: For wall assemblies, limited to 1/240 of the wall height based on horizontal loading of 5 lbf/sq. ft.

2.2 FRAMING SYSTEMS

- A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.
- B. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
  - 1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.
  - 2. Protective Coating: Coating with equivalent corrosion resistance of ASTM A 653/A 653M, G40, hot-dip galvanized unless otherwise indicated.
- C. Studs and Runners: ASTM C 645. Use either steel studs and runners or embossed steel studs and runners.
  - 1. Steel Studs and Runners:
    - a. Minimum Base-Metal Thickness: As required by performance requirements for horizontal deflection: 0.0179 inch
    - b. Depth: 3-5/8 inches.
  - 2. Embossed Steel Studs and Runners:
    - a. Minimum Base-Metal Thickness: As required by horizontal deflection performance requirements: 0.0147 inch.
    - b. Depth: 3-5/8 inches.
- D. Slip-Type Head Joints: Where indicated, provide the following:
  - 1. Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch-deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 12 inches of the top of studs to provide lateral bracing.
- E. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.
- F. Cold-Rolled Channel Bridging: Steel, 0.0538-inch minimum base-metal thickness, with minimum 1/2-inch-wide flanges.
  - 1. Depth: 1-1/2 inches.
  - 2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch-thick, galvanized steel.
- G. Hat-Shaped, Rigid Furring Channels: ASTM C 645.

1. Minimum Base-Metal Thickness: 0.0179 inch.
2. Depth: 1-1/2 inches.

2.3 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Isolation Strip at Exterior Walls: Provide the following:
1. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.

**PART 3 - EXECUTION**

3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754.
1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.
- B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.
- C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- D. Install bracing at terminations in assemblies.
- E. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.3 INSTALLING FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
  - 1. Single-Layer Application: 16 inches unless otherwise indicated.
- B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- C. Install studs so flanges within framing system point in same direction.
- D. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts that penetrate partitions above ceiling.
  - 1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
  - 2. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
  - 3. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
    - a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.
  - 4. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
- E. Direct Furring:
  - 1. Screw to wood framing.
  - 2. Attach to masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
- F. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

END OF SECTION



SECTION 09 29 00

GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Section Includes:
1. Interior gypsum board.

1.3 SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For the following products:
1. Trim Accessories: Full-size Sample in 12-inch-long length for each trim accessory indicated.
- C. Samples for Initial Selection: For each type of trim accessory indicated.
- D. Samples for Verification: For the following products:
1. Trim Accessories: Full-size Sample in 12-inch-long length for each trim accessory indicated.

1.4 QUALITY ASSURANCE

- A. Mockups: Build mockups of at least 20 sq. ft. in surface area to demonstrate aesthetic effects and to set quality standards for materials and execution.
1. Build mockups for the following:
    - a. One (1) partition around piping as indicated on the plans.
  2. Apply or install final painting on exposed surfaces for review of mockups.

3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.6 FIELD CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written instructions, whichever are more stringent.
- B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, moisture damaged, and mold damaged.
  1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

**PART 2 - PRODUCTS**

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

2.2 GYPSUM BOARD, GENERAL

- A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

- A. Gypsum Wallboard: ASTM C 1396/C 1396M.

Gypsum wallboard is also available in 1/4- and 3/8-inch (6.4- and 9.5-mm) thicknesses for limited applications.

1. Thickness: 5/8 inch, Type X

2. Long Edges: Tapered.
- B. Acoustically Enhanced Gypsum Board: ASTM C 1396/C 1396M. Multilayer products constructed of two layers of gypsum boards sandwiching a viscoelastic sound-absorbing polymer core.
1. Basis-of-Design Product: Subject to compliance with requirements, provide product by one of the following:
    - a. National Gypsum Company.
    - b. Quiet Solution.
    - c. Temple-Inland Building Products by Georgia-Pacific.
  2. Core: 5/8 inch, regular type.
  3. Long Edges: Tapered.

#### 2.4 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized-steel sheet
  2. Shapes:
    - a. Cornerbead.

#### 2.5 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.
- B. Joint Tape:
1. Interior Gypsum Board: Paper.
- C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.
1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
  2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use all-purpose compound.
    - a. Use setting-type compound for installing paper-faced metal trim accessories.

3. Fill Coat: For second coat, use drying-type, all-purpose compound.
4. Finish Coat: For third coat, use setting-type, sandable topping compound.

2.6 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
  1. Laminating adhesive shall have a VOC content of 50g/L or less.
- C. Steel Drill Screws: ASTM C 1002 unless otherwise indicated.

Retain first subparagraph below if panels are attached to cold-formed metal framing specified in Section 054000 "Cold-Formed Metal Framing."

1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.

**PART 3 - EXECUTION**

3.1 EXAMINATION

- A. Examine areas and substrates including welded hollow-metal frames and support framing, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C 840.
- B. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- C. Locate edge and end joints over supports, where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

- D. Form control and expansion joints with space between edges of adjoining gypsum panels.
- E. Cover both faces of support framing with gypsum panels in concealed spaces except in chases braced internally.
  - 1. Fit gypsum panels around ducts, pipes, and conduits.
  - 2. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch-wide joints to install sealant.
- F. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch-wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- G. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

Retain "Wood Framing" Paragraph below for wood framing where fire ratings are not required.

### 3.3 APPLYING INTERIOR GYPSUM BOARD

- A. Install interior gypsum board in the following locations:
  - 1. Wallboard Type: Vertical surfaces unless otherwise indicated.
- B. Multilayer Application:
  - 1. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
  - 2. Fastening Methods: Fasten base layers and face layers separately to supports with screws.

### 3.4 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Commissioner for visual effect.

- C. Interior Trim: Install in the following locations:
  - 1. Cornerbead: Use at outside corners

**3.5 FINISHING GYPSUM BOARD**

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
  - 1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.

**3.6 PROTECTION**

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, and mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION

SECTION 09 91 13

EXTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. This Section includes surface preparation and the application of paint systems on the following exterior substrates:
1. Gypsum Board
  2. Sheet Metal Clad Windows
  3. Terra Cotta and CMU

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of topcoat product indicated.
- C. Samples for Verification: For each type of paint system and each color and gloss of topcoat indicated.
1. Submit Samples on rigid backing, 8 inches square.
  2. Step coats on Samples to show each coat required for system.
  3. Label each coat of each Sample.
  4. Label each Sample for location and application area.
- D. Product List: For each product indicated, include the following:
1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
  2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

**1.4 QUALITY ASSURANCE**

**A. MPI Standards:**

1. **Products:** Complying with MPI standards indicated and listed in "MPI Approved Products List."
2. **Preparation and Workmanship:** Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.

**B. Mockups:** Apply benchmark samples of each paint system indicated and each color and finish selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Commissioner will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
  - a. **Vertical and Horizontal Surfaces:** Provide samples of at least 100 sq. ft.
  - b. **Other Items:** Commissioner will designate items or areas required.
2. Final approval of color selections will be based on benchmark samples.
  - a. If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Commissioner at no added cost to the City of New York.

**1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F**
1. Maintain containers in clean condition, free of foreign materials and residue.
  2. Remove rags and waste from storage areas daily.

**1.6 PROJECT CONDITIONS**

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.**
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.**



1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
  - 1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. of each material and color applied.

**PART 2 - PRODUCTS**

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Benjamin Moore & Co.
  - 2. Sherwin Williams
  - 3. Pittsburgh Paints
  - 4. Or Commissioner approved equal.

2.2 PAINT, GENERAL

- A. Material Compatibility:
  - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
  - 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- B. Colors: Match Commissioner 's samples of historic finishes

2.3 BLOCK FILLERS

- A. Interior/Exterior Latex Block Filler: MPI #4.
  - 1. VOC Content: E Range of E2.

2.4 PRIMERS/SEALERS

- A. Alkali-Resistant Primer: MPI #3.
  - 1. VOC Content: E Range of E1.
- B. Bonding Primer (Water Based): MPI #17.
  - 1. VOC Content: E Range of E1.

2.5 EXTERIOR ALKYD PAINTS

- A. Exterior Alkyd Enamel (Semigloss): MPI #94 (Gloss Level 5).
  - 1. VOC Content: E Range of E1.

**PART 3 - EXECUTION**

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
  - 1. Masonry: 12 percent.
  - 2. Gypsum Board: 15 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
  - 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.
- C. **Masonry Substrates:** Remove efflorescence and chalk. Do not paint surfaces if moisture content of surfaces or alkalinity of mortar joints to be painted exceed that permitted in manufacturer's written instructions.

### 3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions.
1. Use applicators and techniques suited for paint and substrate indicated.
  2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

### 3.4 FIELD QUALITY CONTROL

- A. **Testing of Paint Materials:** Commissioner reserves the right to invoke the following procedure at any time and as often as Commissioner deems necessary during the period when paints are being applied:
1. Commissioner will engage the services of a qualified testing agency to sample paint materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
  2. Testing agency will perform tests for compliance of paint materials with product requirements.
  3. Commissioner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying-paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

**3.5 CLEANING AND PROTECTION**

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Commissioner, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

**3.6 PAINTING SCHEDULE**

- A. Metal Clad Wood Windows: Alkyd System: MPI EXT 6.3B
  - 1. Prime Coat: Benjamin Moore Fresh Start Alkyd Primer
  - 2. Intermediate Coat: Benjamin Moore Imprevex Acrylic Alkyd Enamel (Semi-Gloss)
  - 3. Topcoat: Benjamin Moore Imprevex Acrylic Alkyd Enamel (Semi-Gloss)
- B. Hollow Metal Doors: Alkyd System: MPI EXT 6.3B
  - 1. Prime Coat: Benjamin Moore Fresh Start Alkyd Primer
  - 2. Intermediate Coat: Benjamin Moore Imprevex Acrylic Alkyd Enamel (Semi-Gloss)
  - 3. Topcoat: Benjamin Moore Imprevex Acrylic Alkyd Enamel (Semi-Gloss)
- C. Gypsum Board Substrates: Alkyd System: MPI EXT 6.2C
  - 1. Prime Coat: Benjamin Moore Fresh Start Alkyd Primer
  - 2. Intermediate Coat: Benjamin Moore Mooreguard house and trim paint (Semi-Gloss)
  - 3. Topcoat: Benjamin Moore Mooreguard house and trim paint (Semi-Gloss)

END OF SECTION

SECTION 09 96 00

HIGH-PERFORMANCE COATINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. This Section includes surface preparation and application of high-performance coating systems on the following substrates:
1. Exterior Substrates:
    - a. Steel.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of finish-coat product indicated.
- C. Samples for Verification: For each type of coating system and in each color and gloss of finish coat indicated.
1. Submit Samples on rigid backing, 8 inches square.
  2. Step coats on Samples to show each coat required for system.
  3. Label each coat of each Sample.
  4. Label each Sample for location and application area.
- D. Product List: For each product indicated. Cross-reference products to coating system and locations of application areas. Use same designations indicated on Drawings and in schedules.

1.4 QUALITY ASSURANCE

- A. Master Painters Institute (MPI) Standards:

**Bellevue Men's Shelter Elevator Rehabilitation**  
**FMS# HH112BLEL**

1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
  2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and coating systems indicated.
- B. Mockups: Apply benchmark samples of each coating system indicated to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
1. Commissioner will select one surface to represent surfaces and conditions for application of each type of coating and substrate.
    - a. Steel truss: 1 bay of the pavilion truss
  2. Apply benchmark samples after permanent lighting and other environmental services have been activated.
  3. Final approval of color selections will be based on benchmark samples.
    - a. If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Commissioner at no added cost to the City of New York.

**1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F
1. Maintain containers in clean condition, free of foreign materials and residue.
  2. Remove rags and waste from storage areas daily.

**1.6 PROJECT CONDITIONS**

- A. Apply coatings only when temperature of surfaces to be coated and surrounding air temperatures are between 50 and 95 deg F
- B. Do not apply coatings in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

**1.7 EXTRA MATERIALS**

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.

1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. of each material and color applied.

**PART 2 - PRODUCTS**

**2.1 HIGH-PERFORMANCE COATINGS, GENERAL**

**A. Material Compatibility:**

1. Provide materials for use within each coating system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. Provide products of same manufacturer for each coat in a coating system.

**B. Chemical Components of Interior Paints and Coatings: Provide products that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and the following chemical restrictions:**

1. Nonflat Paints and Coatings: VOC content of not more than 150 g/L.
2. Anticorrosive Coatings: VOC content of not more than 250 g/L.
3. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing 1 or more benzene rings).
4. Restricted Components: Paints and coatings shall not contain any of the following:
  - a. Acrolein.
  - b. Acrylonitrile.
  - c. Antimony.
  - d. Benzene.
  - e. Butyl benzyl phthalate.
  - f. Cadmium.
  - g. Di (2-ethylhexyl) phthalate.
  - h. Di-n-butyl phthalate.
  - i. Di-n-octyl phthalate.

- j. 1,2-dichlorobenzene.
- k. Diethyl phthalate.
- l. Dimethyl phthalate.
- m. Ethylbenzene.
- n. Formaldehyde.
- o. Hexavalent chromium.
- p. Isophorone.
- q. Lead.
- r. Mercury.
- s. Methyl ethyl ketone.
- t. Methyl isobutyl ketone.
- u. Methylene chloride.
- v. Naphthalene.
- w. Toluene (methylbenzene).
- x. 1,1,1-trichloroethane.
- y. Vinyl chloride.

C. Colors: Match Commissioner 's samples

## 2.2 METAL PRIMERS

A. Alkyd Anticorrosive Metal Primer: MPI #79.

1. Products: Subject to compliance with requirements, provide one of the following:
  - a. Tnemec, Series 530 Omnithane
  - b. Benjamin Moore, Super Spec HP Alkyd Metal Primer P06
  - c. PPG Architectural, Speedhide Exterior Rust Inhibitive Primer
  - d. Or Approved Equal
2. VOC Content: Minimum E Range of E1.



2.3 INTERMEDIATE COATINGS

A. Anticorrosive Semi-Gloss:

1. Products: Subject to compliance with requirements, provide the following:
  - a. Tnemec, Series L69 Hi-Build Epoxoline II
  - b. Benjamin Moore, Super Spec HP Urethane Alkyd Gloss Enamel
  - c. PPG Architectural, Aquapon 35 Polyamide Epoxy Gloss
  - d. Or Approved Equal
2. VOC Content: Minimum E Range of E1.

2.4 TOPCOAT COATINGS

A. Anticorrosive Semi-Gloss:

1. Products: Subject to compliance with requirements, provide the following:
  - a. Tnemec, Series L69 Hi-Build Epoxoline II
  - b. Benjamin Moore, Super Spec HP Urethane Alkyd Gloss Enamel
  - c. PPG Architectural, Aquapon 35 Polyamide Epoxy Gloss
  - d. Or Approved Equal
2. VOC Content: Minimum E Range of E1.

**PART 3 - EXECUTION**

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
  2. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
  3. Coating application indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
- B. Clean substrates of substances that could impair bond of coatings, including dirt, oil, grease, and incompatible paints and encapsulants.
  - 1. Remove incompatible primers and reprime substrate with compatible primers as required to produce coating systems indicated.
- C. Steel Substrates: Remove rust and loose mill scale.
  - 1. Clean using methods recommended in writing by coating manufacturer.  
Delete subparagraph above or below.
  - 2. Blast clean according to SSPC-SP 15

3.3 APPLICATION

- A. Apply high-performance coatings according to manufacturer's written instructions.
  - 1. Use applicators and techniques suited for coating and substrate indicated.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of the same material are to be applied. Tint undercoats to match color of finish coat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through final coat, apply additional coats until cured film has a uniform coating finish, color, and appearance.
- D. Apply coatings to produce surface films without cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Produce sharp glass lines and color breaks.

3.4 FIELD QUALITY CONTROL

- A. Commissioner reserves the right to invoke the following procedure at any time and as often as Commissioner deems necessary during the period when coatings are being applied:
  - 1. Commissioner will engage the services of a qualified testing agency to sample coating material being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.

2. Testing agency will perform tests for compliance with specified requirements.
3. Commissioner may direct Contractor to stop applying coatings if test results show materials being used do not comply with specified requirements. Contractor shall remove noncomplying coating materials from Project site, pay for testing, and recoat surfaces coated with rejected materials. Contractor will be required to remove rejected materials from previously coated surfaces if, on recoating with complying materials, the two coatings are incompatible.

**3.5 CLEANING AND PROTECTION**

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from coating operation. Correct damage by cleaning, repairing, replacing, and recoating, as approved by Commissioner, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced coated surfaces.

**END OF SECTION**

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SECTION 09 99 00

PAINT AND COATINGS REMOVAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the work of paint and coatings removal as shown on the Drawings and specified herein, including, but not limited to, the following:
1. Remove paint and other coatings from ferrous metal elements to be restored/repared.

1.3 SUBMITTALS

- A. General: Submit each item in this Article in compliance with the Conditions of the Contract and General Conditions. Revise and resubmit each item as required to obtain Commissioner's approval.
- B. Product Literature: Submit manufacturer's published technical data for each product to be used in work of this Section including recommendations for application and use. Include test reports and certificates verifying that product complies with specified requirements. Include Material Safety Data Sheets (MSDS).
- C. Program of Work: Written program for each phase of paint and coatings removal required by this Section.
1. Include detailed description of materials, methods, and equipment to be used.
  2. Include descriptions, drawings, and diagrams outlining proposed methods and procedures for protection of personnel, the public, existing construction, site, vehicular traffic, and environment during work of this Section.
  3. If alternate methods and materials to those specified are proposed for any phase of architectural woodwork restoration, provide written

description. Provide evidence of successful use on comparable projects and demonstrate effectiveness for use on this project.

- D. Perform paint and coatings removal testing and mockups as specified in Articles "Testing" and "Mockups," below.

#### 1.4 TESTING

- A. General: Before beginning general paint and coatings removal, test chemical paint and coating removal methods on sample areas to determine most effective method for each coating and substrate. Do not proceed with paint and coatings removal mockups until Commissioner has accepted results of testing.
  - 1. Locate tests as directed by Commissioner.
  - 2. Notify Commissioner 48 hours prior to start of testing.
  - 3. Commissioner will monitor testing. No testing done in absence of Commissioner will be accepted.
  - 4. Perform testing using crew that will be executing work and following requirements of this Section.
- B. Test each product specified on a 2-sq.-ft. area of each different material to be stripped. Perform additional tests using different dwell times and other variations as directed by Commissioner to determine most effective product and procedure for removing paint and coatings from each surface.
  - 1. Stop testing and remove product from surface immediately using appropriate solvent if any adverse effect to substrate is observed.

#### 1.5 MOCKUPS

- A. General: Before beginning paint and coatings removal, prepare mockups to provide standards for work of this Section. Do not proceed with paint and coatings removal until Commissioner has approved mockups.
  - 1. Locate mockups as directed by Commissioner.
  - 2. Notify Commissioner 48 hours prior to start of each mockup.
  - 3. Commissioner will monitor mockups. Mockups not performed in presence of Commissioner will be rejected.
  - 4. Perform mockups using crew that will be executing the work and following requirements of this Section.
  - 5. Repeat mockups as necessary to obtain Commissioner's approval.

6. Protect approved mockups to ensure that they are without damage, deterioration, or alteration at time of Substantial Completion.
7. Approved mockups in undamaged condition at time of Substantial Completion may be incorporated into the Work.
8. Approved mockups will represent minimum standards for paint and coatings removal. Subsequent paint and coatings removal that does not meet standards of approved mockups will be rejected.

**B. Prepare the Following Mockups**

1. Coating Removal from Steel framing – 1 steel corner column.
2. Coating Removal from Metal Clad Wood Window – 1 window.

**1.6 LEAD-CONTAINING PAINT**

- A. Perform all work that disturbs lead-containing paint (LCP) in compliance with applicable OSHA regulations, including but not limited to, Lead in Construction and Hazard Communication Standard (Title 29, Sections 1926.62 and 1910.1200, respectively, Code of Federal Regulations, OSHA, US Department of Labor) and with all other applicable federal, state, and local laws and regulations for removal, handling, containerization, transportation, and disposal of lead-containing material.
- B. Dispose of lead-containing paint chips and other residue as hazardous waste in compliance with federal, state, and local laws and regulations: New York State Department of Environmental Conservation (NYSDEC), Title 6, Part 364 and Parts 370-374; and US Department of Transportation, 49 CFR Parts 173, 178, and 179.

**1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store, and handle products and materials to prevent damage, deterioration, or degradation and intrusion of foreign material.
- B. Discard and remove from site deteriorated or contaminated materials and products that have exceeded their expiration dates. Replace with fresh materials.

**1.8 PROJECT CONDITIONS**

- A. Protection of Persons: Protect all persons, whether or not they are involved with work of this Section, from harm caused by work of this Section.
  1. Ensure adequate ventilation at all times during work of this Section.
- B. Protection of Building: Protect building elements and finishes from damage or deterioration caused by work of this Section using all means necessary.

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Repair any damage to materials or finishes to Commissioner's satisfaction at no additional cost to the City of New York.

1. Take all necessary precautions to prevent fire and spread of fire.
  2. Do not use torches, heat guns, or any other heat generating equipment to remove paint.
- C. Coordination: Coordinate work of this Section with other work to ensure proper completion of the Work.
- D. Contract Drawings: The Drawings are two-dimensional representations of three-dimensional objects and do not show all surfaces. Perform work on all surfaces of projections, reveals, ornament, and other elements associated with areas on which work is indicated.
- E. Access for Inspection and Approvals: Provide Commissioner access on a regular basis to all locations on which testing or mockups are being carried out, on which work is ongoing, and where work has been completed to allow for inspections and approvals. Provide means of access and safety precautions required to facilitate inspections and approvals.

#### 1.9 ENVIRONMENTAL REQUIREMENTS

- A. Follow manufacturer's recommendations for temperature requirements for products specified herein.

### **PART 2 - PRODUCTS**

#### 2.1 CHEMICAL PAINT REMOVERS

- A. Alkaline Paint Removers: Subject to compliance with requirements, provide for testing each of the following, or approved equal:
1. "Heavy Duty Paint Stripper," as manufactured by ProSoCo, Inc.
  2. "Heavy Duty Paint Stripper," as manufactured by Hydrochemical Techniques, Inc.
  3. "Peel Away 1," as manufactured by Dumond Chemicals.
- B. Solvent Paint Removers: N-methyl pyrrolidone based strippers. Subject to compliance with requirements, provide for testing each of the following, or approved equal:
1. "EnviroStrip #3," as manufactured by ProSoCo, Inc.
  2. "Peel Away 7," as manufactured by Dumond Chemicals.



3. "Back to Nature 2, 3, 4, 5, 6, 7," as manufactured by Dynacraft Industries.

C. Neutralizer for Alkaline Paint Removers: Sure Klean "Limestone and Masonry Afterwash," manufactured by ProSoCo, Inc., or approved equal.

## 2.2 MISCELLANEOUS MATERIALS AND EQUIPMENT

A. Hand Tools with Vacuum Attachments: Provide tools specifically made to contain and collect paint removal products. Acceptable manufacturers include:

1. Desco Manufacturing Company, Long Beach, CA, 800-337-2648.

2. The Marindus Company, Englewood, NJ, 201-567-8383.

B. Pressure Rinsing Equipment: Provide pressure washer with a working pressure gage.

## PART 3 - EXECUTION

### 3.1 PROTECTION

A. Erect protection to protect workers, public, and environment from hazards associated with lead based paint.

B. Erect protection to protect adjacent materials from damage or deterioration by paint stripping agents.

C. Prior to start of work, install protection and waste collection system according to approved protection plan.

1. The containment system must prevent water and other materials of this Section from coming into contact with material from which paint is not to be stripped and from any person not performing work under this Section. Dispose of the collected water and effluent by legal means.

### 3.2 PAINT AND COATINGS REMOVAL

A. Apply cleaning and stripping materials to comply with manufacturer's recommendations and to match results obtained in approved mock-ups.

B. Perform cleaning and stripping in a manner that results in uniform results on all surfaces, including corners and moldings, without streaking or damage.

C. Do not damage or deteriorate substrates being stripped.

D. Use the least aggressive method necessary to remove all paint from specified surfaces.

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- E. Prior to the start of wet chemical paint stripping, Contractor may vacuum surfaces to remove loose and flaking paint to greatest extent possible without damaging substrate. Use vacuums equipped with HEPA filters only.
- F. On completion of stripping, clean residue from treated surface and neutralize surface if necessary to provide surface in optimum condition to accept specified finish.

### 3.3 CHEMICAL PAINT REMOVAL METHODS

- A. Selection: Use paint stripper found during testing to be gentlest, most effective method for removing each type of coating from each substrate. Furnish strippers selected during testing for general stripping of each combination of substrate and coating.
  - 1. Test both alkaline and solvent based strippers on metal.
- B. Strip all coatings using the following procedure. Procedure is subject to modification during testing phase.
  - 1. Install protection.
  - 2. Manually remove loose and peeling paint with scrapers that will not mar substrate surface.
  - 3. Apply chemical paint stripper as directed by manufacturer. Allow to dwell for approved time, as determined by test panels and mockups and as approved by Commissioner. Cover with plastic sheeting if necessary to ensure that stripper does not dry out.
  - 4. Manually scrape off paint stripper and softened paint to greatest extent possible.
  - 5. Repeat process as needed to remove all traces of paint and other coatings.
  - 6. Rinse surfaces using solvents recommended by manufacturer of paint stripper.
    - a. Thoroughly flush surface of wood to ensure that all stripper residue has been removed.
    - b. Rinse alkaline strippers with water. Water pressure shall not exceed 500 psi.
    - c. Provide an analysis of rinse water showing quantity of hazardous materials, including lead, in water. If required because of lead concentration, contain, collect, and dispose of water by legal means.

7. Neutralize surfaces where alkaline strippers have been used.
  - a. Apply neutralizing chemical at dilution determined during testing.
  - b. Rinse surfaces with water.
  - c. Test for neutralization with pH paper. Acceptable pH range is 6.0 to 8.0.
  - d. Repeat rinsing until proper pH range is obtained.

**3.4 CLEAN-UP AND PROTECTION**

- A. Clean-up: Properly contain run-off from paint and coatings removal. Remove rubbish, rags, and effluent from site at end of each workday, in appropriately marked containers.
- B. Protection: Protect work of other trades against damage by paint and coatings removal work. Correct any damage by cleaning, repairing, or replacing, as acceptable to Commissioner, at no additional cost to the City of New York.

**END OF SECTION**

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**January 5, 2015**

**PAINT AND COATINGS REMOVAL**  
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SECTION 14 21 00

TRACTION ELEVATORS

PART 1 - GENERAL

1.1 SUMMARY AND DEFINITIONS

A. Related Documents

1. The following documents apply to all required work for the project:
  - a. The Contract drawings
  - b. The specifications
  - c. The General Conditions
  - d. The addendum
  - e. The contract [City of New York Standard Construction Contract]

B. Intent

1. This section includes electric traction passenger elevators.
2. The following outlines the scope of work covered in this Section:

**Comprehensive complete modernization/restoration of two (2) existing passenger elevators identified as PE43 & PE44 and one (1) service elevator identified as PE45, located at the Bellevue Men's Shelter, 400 East 30<sup>th</sup> Street, New York, NY, as specified herein.**

3. Related equipment shall be designed, constructed, installed and adjusted to produce the highest results with respect to smooth, quiet, convenient and efficient operation, durability, economy of maintenance, and the highest standard of safety.
4. It is not the intent of these specifications to detail the construction and design of all parts of the equipment, but it is expected that the type, materials, design, quality of work and construction of each part shall be adequate for the service required, durable, properly coordinated with all other parts, and in accordance with the best commercial standards applicable and of the highest commercial efficiency possible.
5. Electric and magnetic circuits and related parts shall be of proper size, design and material to avoid heating and arcing, and all other objectionable effects which may reduce the efficiency of operation, economy of maintenance and/or net-useful life of the apparatus.
6. Minimum requirements for design, materials, etc., are for certain parts of the equipment. Equivalent requirements approved by the Commissioner shall apply to such parts as are of special design, construction or material and to which the specified requirements are not directly applicable. These minimum requirements as a whole shall be considered as establishing proportionate general minimum standards for all parts of the equipment.

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7. The Commissioner may permit variations from the requirement of these specifications to permit use of the Contractor's standard equipment, provided such standard equipment is in every way adequate for the intended use and meets the full intent of these specifications. All such variations proposed by the manufacturer shall be called to the attention of the Commissioner and shall only be made if approved in writing.
8. General requirements for design, materials and construction are intended primarily to apply to the heavy-duty and important parts of the equipment specifically mentioned and to other parts of similar duty and importance. Less important and light-duty parts may be of the standard design, materials and construction provided that, in the opinion of the Commissioner, such standards are in accordance with the best commercial practice and are fully adequate for the purpose of use. All such variations shall be made only on the Commissioner's written approval.
9. All equipment and component parts installed, supplied or provided under this contract shall be manufactured and distributed by a third-party, non-installer company servicing the vertical transportation industry.
  - a. Apparatus shall conform to the design and construction standards referenced herein, and shall be rated the best commercial grade suitable for this application.
  - b. Equipment and component systems shall not employ any experimental devices or proprietary designs that could hamper and/or otherwise prohibit subsequent maintenance repairs or adjustments by all qualified contractors.
  - c. Manufacturers of the apparatus shall provide technical support and parts replacements for their equipment and component systems for a minimum of twenty (20) years, and issue such guarantee of support to the purchaser with written certification naming the City of New York as the final Owner of their product(s) to ensure the apparatus or systems remain maintainable regardless of who may be selected for future service.
10. All equipment provided shall be factory and field tested with a history of design reliability and net-useful life established.
  - a. Contractor must be able to demonstrate the apparatus to be installed has been used successfully in a substantially similar manner under comparable conditions.
  - b. If the apparatus proposed differs substantially in construction, material composition, design, size, capacity, duty or other such rating from the equipment previously used for the same purpose by the manufacturer, the Commissioner may reject the apparatus or require the vendor test and demonstrate the adequacy and suitability for this particular situation. Any necessary tests shall be performed at the sole expense of the Contractor with no prior guarantee of acceptance after the testing procedure.
11. The Contractor shall not use as part of the permanent equipment any experimental devices, proprietary design, components, construction of materials which have not been fully tried out in at least substantially similar or under comparable service, except as may be especially approved by the Commissioner.

**TRACTION ELEVATORS**

If any important equipment or devices to be used on this installation differ substantially in construction, materials, design, size, capacity or duty from corresponding items previously used for the same purpose by the manufacturer, they shall pass such tests as the Commissioner may require to fully show their adequacy and suitability. These tests shall be in addition to tests herein specified and shall be made at the expense of the Contractor.

12. Certain design limitations, tests, etc., are herein specified as a partial check of the adequacy of design, construction and materials used. These requirements do not cover all features necessary to ensure satisfactory and approved operation, etc., of the equipment.
13. It is understood, the entire system shall be designed, fabricated, modified and/or upgraded in full compliance with applicable local laws and code standards. The absence of a particular item or requirement shall not relieve the Contractor of the full and sole responsibility for such equipment, features and/or procedures.
14. The Specifications are intended to include all engineering, material, labor, testing, and inspections needed to achieve work specified by the Contract Documents. Inasmuch as it is understood that any incidental work necessary to complete the project is also covered by the Specifications, bidders are cautioned to familiarize themselves with the existing job site conditions. Additional charges for material or labor shall not be permitted subsequent to execution of the Contract.

**C. Abbreviations and Symbols**

1. The following abbreviations, Associations, Institutions, and Societies may appear in the Project Manual or Contract Documents:

AHJ	Authority Having Jurisdiction
AIA	American Institute of Architects
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
BOCA	Building Officials and Code Administrators International, Inc. - Basic National Building Code
IEEE	Institute of Electrical and Electronics Engineers
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Agency

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OSHA Occupational Safety and Health Act

D. Codes and Ordinances / Regulatory Agencies

1. Work specified by the Contract Documents shall be performed in compliance with applicable Federal, State, and municipal codes and ordinances in effect at the time of Contract execution. Regulations of the Authority Having Jurisdiction shall be fulfilled by the Contractor. The entire installation, when completed, shall conform with all applicable regulations set forth in the latest editions of:
  - a. Local and/or State laws applicable for logistical area of project work.
  - b. New York City Building Code
  - c. New York City Elevator Code – Appendix K / Appendix K3
  - d. Safety Code for Elevators and Escalators, ASME A17.1 and all supplements.
  - e. Guide for Inspection of Elevators, Escalators, and Moving Walks, ASME A17.2.
  - f. Safety Code for Existing Elevators and Escalators, ASME A17.3.
  - g. Guide for emergency evacuation of passengers from elevators, ASME A17.4.
  - h. New York City Electrical Code (ANSI/NFPA 70).
  - i. American with Disabilities Act - Accessibility Guidelines for Building and Facilities.
  - j. ASME A17.5/CSA-B44.1 - Elevator and escalator electrical equipment.
2. The Contractor shall advise the Commissioner of pending code changes that could be applicable to this project and provide quotations for compliance with related costs.

E. Definitions

1. Defective Work: Operation or control system failure, including excessive malfunctions; performances below specified ratings; excessive wear; unusual deterioration or aging of materials or finishes; unsafe conditions; need for excessive maintenance; abnormal noise or vibration; and similar unusual, unexpected, and unsatisfactory conditions.
2. Definitions in ASME A17.1 as amended or modified by the AHJ apply to work of this Section.

1.2 PERMITS AND SUBMITTALS

A. Permits

1. Comply with the requirements of the "General Conditions".
2. Prior to commencing work specified by the Contract Documents, the Contractor shall, at its own expense, obtain all permits or variances as may be required by the AHJ and provide satisfactory evidence of having obtained said permits and variances to the Commissioner.

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3. File necessary drawings for approval of all Authorities Having Jurisdiction. Obtain all required permits, which may be required for the execution of his work. Copies of all permits and approved applications shall be forwarded to the DDC and Commissioner.
4. The Contractor shall undertake the necessary review and search procedure to identify open applications and/or outstanding violations for elevators PE43, PE44, and PE45 located at this property; and, close-out such applications and/or expunge such violations relative to the project scope as required for final acceptance by the AHJ.
  - a. Outstanding applications and violations must be indicated on the request for permit filing for this procedure to ensure such applications and/or violations are dismissed accordingly.
  - b. All relative costs shall be included in the base bid proposal with the understanding that corrective actions are covered under the specified scope of work.

**B. Submittals**

1. Prior to beginning the work, the Contractor shall submit and have approved copies of layout drawings, shop drawings and standard cuts. These items shall include:
  - a. A plan view of the hoistway and machine room
  - b. Elevation of the pit
  - c. All accessories.
2. The Commissioner shall pass on the submittals with reasonable promptness and the Contractor shall be responsible to ensure that there will be no delay in their work or that of any other trade involved.
3. Approved filing and submittal requirements must be completed before equipment and related materials are ordered.
4. Copies of Department of Buildings' permits and/or governing authority's documents will be posted at the job site with copies issued to the Commissioner.
5. Samples of wood, metal, plastic, paint or other architectural finish material applicable to this project shall be submitted for approval by the Commissioner. It shall be understood that approval of the drawings and cuts by Commissioner shall be for general arrangement only and does not include measurements which are the Contractor's responsibility or approval of variations from the contract documents required by the AHJ.
6. The Contractor shall prepare a record log and maintain all submittals, shop drawings, catalog cuts and samples.

**C. Measurements and Drawings**

1. Drawings or measurements included with the bidding material shall be for the convenience of the bidders only and full responsibility for detailed dimensions lies with the Contractor.
2. In the execution of the work on the job, the Contractor shall verify all dimensions with the actual conditions.

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**D. Keys**

1. Upon the initial acceptance of work specified by the Contract Documents on each unit, the Contractor shall deliver to the Commissioner, six (6) keys for each general key-operated device that is provided in accordance with ASME A17.1, Part 8 standards as may be adopted and modified by the AHJ.
2. All other keying of access or operation of equipment shall be provided in accordance with ASME A17.1 Part 8 as may be adopted and modified by the AHJ.

**E. Diagnostic Tools**

1. Prior to seeking final acceptance of the project, the Contractor shall deliver to the Commissioner any specialized tools required to perform diagnostic evaluations, adjustments, and/or programming changes on any microprocessor-based control equipment installed by the Contractor. All such tools shall become the property of the City of New York.
  - a. City of New York's diagnostic tools shall be configured to perform all levels of diagnostics, systems adjustment and software program changes which are available to the Contractor.
  - b. City of New York's diagnostic tools that require periodic re-calibration and/or re-initiation shall be performed by the Contractor at no additional cost to the City of New York for a period equal to the term of the maintenance agreement from the date of final acceptance of the project.
  - c. The Contractor shall provide a temporary replacement, at no additional cost to the City of New York, during those intervals in which the City of New York might find it necessary to surrender a diagnostic tool for re-calibration, re-initiation or repair.
2. Contractor shall deliver to the Commissioner, printed instructions, access codes, passwords or other proprietary information necessary to interface with the microprocessor-control equipment.

**F. Printed Circuit Boards, Software Programs and Spare Parts**

1. Prior to seeking final acceptance of the project as specified by the Contract Documents, the Contractor shall deliver to the Commissioner a spare replacement for each printed circuit board that is needed to fully operate any one (1) elevator.
  - a. Circuit boards shall be exact duplicates of those in use and shall be provided with "as installed" software programs.
  - b. Circuit boards shall be "run in" on the job site to demonstrate its ability to function in a normal manner.
  - c. All spare printed circuit boards shall become property of the City of New York.
2. During the life of the equipment and subject to the term of the maintenance agreement, where revisions to firmware and/or software are issued by the control

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manufacturer or manufacturer of solid state and microprocessor based subsystems subsequent to the beneficial use of the equipment, updates shall be provided so that the installation and spare circuit boards are current with respect to software and firmware versions.

3. Provide spare parts required for maintenance of the elevator equipment installed under this contract.
  - a. The contractor shall provide the following spare parts under the terms of this agreement and store same in two (2) approved cabinets (Greenlee 5660L/38659, or approved equal), located in the machine room, and become the property of the City of New York.
  - b. Upon expiration of the contract, a complete set of spare parts as described below shall be turned over to the Commissioner and a receipt obtained.
  - c. The following is the absolute minimum requirement:
    - 1) Four (4) fuses of each size.
    - 2) Two (2) complete set of controller resistor of each size.
    - 3) One (1) complete set of door protective device of each size.
    - 4) One (1) door lock of each type.
    - 5) Two (2) car door and two hall door sheaves of each type.
    - 6) Four (4) sets of door gibs for car and hall doors of each type.
    - 7) One (1) complete door closer of each type.
    - 8) Two (2) call button assemblies.
    - 9) One (1) position indicator of each type.
    - 10) One (1) complete set of car and counterweight guide rollers where applicable.
    - 11) Power supply of each size.
    - 12) One (1) set of controller I/O boards.
    - 13) One (1) Ea. Hoistway limit switch and other switches used in hoistway
    - 14) One (1) Ea. Stop switches used for car, pit, top of car, machine room
    - 15) One (1) Ea. Brake coils for each type used
    - 16) One (1) Ea. Door Motors of each type used
    - 17) One (1) Top of car run box completed
    - 18) One (1) Ea. Fans for cabs.
  - d. Spare parts list has to be submitted by Contractor on the Letter Head for review and approval by Commissioner and DDC to comply with specification parts list. Contractor has to provide each spare part with manufacturer No.

**G. Wiring Diagrams, Operating Manuals and Maintenance Data**

1. Comply with the requirements of the "General Conditions".
2. Contractor shall deliver to the Commissioner, four (4) identical volumes of printed information organized into neatly bound manuals prior to seeking final acceptance of the project.
3. The manuals shall also be submitted in electronic format on non-volatile media, incorporating raw 'CAD' and/or Acrobat 'PDF' file formats.
4. Manuals, as well as electronic copies, shall contain the following:

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- a. Step-by-step adjusting, programming and troubleshooting procedures that pertain to the solid-state microprocessor-control and motor drive equipment.
  - b. Passwords or identification codes required to gain access to each software program in order to perform diagnostics or program changes.
  - c. A composite listing of the individual settings chosen for variable software parameters stored in the software programs of both the motion and dispatch controllers.
  - d. Method of control and operation.
5. Contractor shall provide four (4) sets of "AS INSTALLED" straight-line wiring diagrams in both hard and electronic format in accordance with the following requirements:
- a. Displaying name and symbol of each relay, switch or other electrical component utilized including identification of each wiring terminal.
  - b. Electrical circuits depicted shall include all those which are hard wired in both the machine room and hoistway.
  - c. Supplemental wiring changes performed in the field shall be incorporated into the diagrams in order to accurately replicate the completed installation.
6. Furnish four (4) bound instructions and recommendations for maintenance, with special reference to lubrication and lubricants.
7. Manuals or photographs showing controller repair parts with part numbers listed.

**H. Training**

1. Prior to seeking final acceptance of the project, the Contractor shall conduct a thirty two (32) hour training program on-site with building personnel selected by the Commissioner.
2. The focus of the session shall include:
  - a. Instructions on proper safety procedures to utilize in assisting passengers that may become entrapped inside an elevator car.
  - b. Explain each control feature and its correct sequence of operation.
3. Control features covered shall include but, not be limited to:
  - a. Independent Service Operation
  - b. Attendant Service Operation
  - c. Emergency Fire Recall Operation - Phase I
  - d. Emergency In-car Operation - Phase II
  - e. Emergency Power Operation
  - f. Emergency Communications Equipment
  - g. Security Operating Features
  - h. Interactive Systems Management
  - i. Remote Monitoring/Controls.

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**1.3 QUALITY ASSURANCE**

**A. Materials and Quality of Work**

1. All materials are to be new and of the best quality of the kind specified.
2. Installation of such materials shall be accomplished in a neat manner and be of the highest quality.
  - a. Should the Contractor receive written notification from the Commissioner stating the presence of inferior, improper, or unsound materials or quality of installation, the Contractor shall, within twenty-four (24) hours, remove such work or materials and make good all other work or materials damaged.
  - b. Should the Commissioner permit said work or materials to remain, the Commissioner shall be allowed the difference in value or shall, at its election, have the right to have said work or materials repaired or replaced as well as the damage caused thereby, at the expense of the Contractor, at any time within one (1) year after the completion of the work; and neither payments made to the Contractor, nor any other acts of the Commissioner shall be construed as evidence of acceptance and waiver.

**B. Mechanical Design Requirements (General)**

1. The following typical requirements shall apply to all parts of the work where applicable and are supplementary to other requirements noted under the respective headings.
  - a. All bearings, pivots, guides, guide shoes, gearing, door hanger sheaves, door hanger tracks and similar elements subject to friction or rolling wear in the entire elevator installation shall be accurately and smoothly finished and shall be arranged and equipped for adequate and convenient lubrication. Means shall be provided for flushing and draining the larger bearings and gear case. All oiling holes shall have dustproof, self-cleaning caps.
  - b. Bearings of governor and governor sheaves and important supporting bearings of other parts in motion when the elevator is traveling shall, unless otherwise specified or approved, be of ball or roller bearing type or shall have renewable linings of bronze or babbitt metal.
  - c. Bearings for brake levers and similar uses where the amount of movement under load is light and the wear negligible may be unlined.
  - d. All plain bearings shall be liberally sized in accordance with the best commercial elevator usages which have proved entirely satisfactory on heavy-duty installations.
  - e. Bearings of motors shall be arranged and equipped for adequate automatic lubrication. Ring or chain oilers, spring-fed grease cups and equivalent devices properly used in accordance with the best commercial elevator practice will be acceptable. Approved means shall be provided for visibly checking the amount of lubricant contained and for flushing and draining. Means shall also be provided for preventing leakage of lubricant when the reservoirs or grease cups are filled to proper levels.

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- f. Ball and roller bearings shall be of liberal size and of a type and make which have been extensively and successfully used on other similar, heavy-duty elevator installations. They shall be fully enclosed. Loading, lubrication, support and all other conditions of use shall be in accordance with the recommendations of the bearing manufacturer based on previous extensive and satisfactory elevator usage.
- g. All armature spiders and similar items intended to rotate with their shafts shall be keyed and/or firm press or shrunk fit on the shafts. Set screw fastening will be permitted only for minor items not subject to hoisting loads and where means for field adjustment is required.
- h. All bolts used to connect moving parts, bolts carrying hoisting stresses and all other bolts, except guide rail bolts, subject to vibration or shock shall be fitted with adequate means to prevent loosening of the nuts and bolts. Bolts transmitting important shearing stresses between machine parts shall have tight body fit in drilling holes.
- i. All machine work, assembling and installing shall be done by skilled and experienced mechanics using first-class, modern equipment and tools. All work shall be thoroughly high grade in every respect. All parts will be manufactured to high precision standards so that wearing parts will be readily interchangeable with stock repair parts with a minimum of field fitting.
- j. All bearing and sliding surfaces of shafts, pins, bearings, bushings, guides, etc., shall be smoothly and accurately finished. They shall be assembled and installed in accurate alignment and with working clearance most suitable for the load, speed, lubrication and other conditions of use.
- k. Structural steel used for supporting and securing equipment and for the construction of car slings, etc., shall conform to the A.S.T.M. specification for Structural Steel for Buildings. Design stresses shall not exceed those specified in the local Building Code.
- l. Castings of motor frames, sheaves, gear casings, etc., shall be of the best quality metallurgically controlled, hard, close grained gray machinery cast iron, free from blow holes, sand holes, or shrinkage cracks, ground to remove overruns, sanded and machined so as to leave a finish suitable for its particular application. Surfaces of sheaves and brake drums shall be entirely free from defects and shall show a hardness of not less than 220 Brinell.

**C. Electrical Design Requirements (General)**

- 1. The following typical requirements shall apply to all parts of the work and are supplementary to other requirements noted under the respective headings.
  - a. The design and construction of the motors shall conform to the requirements of these specifications and to the ASME Standards for Rotating Electrical Machinery with revisions issued to the first day when the work of this Contract was advertised.
    - 1) Motors shall operate successfully under all loads and speeds and during acceleration and deceleration.
    - 2) Motors shall be designed for quiet operation without excessive heat.

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- 3) Insulation on motor coils and windings and on all insulated switch, relay, brake and other coils shall conform to the requirements for Class "H" insulation, as defined in ASME Standards for Rotating Electrical Machinery. All motors shall be impregnated twice.
- 4) Switches, relays, etc., on controller, starter and signal panels and similar items on other parts of the equipment shall be the latest improved type for the condition of use. They shall function properly in full accordance with the requirements of the machines controlled and with the specified operating requirements of the elevator. Any of these parts showing wear or other injurious effects during the guarantee period to the extent that abnormal maintenance is required or indicated shall be replaced with proper and adequate parts by the Contractor.
- 5) Contacts in elevator motor circuits which are intended to be opened by governors or other safety devices shall be copper to carbon or other approved non-fusing type.
- 6) Where required, controllers and other component parts of the installation shall be labeled in accordance with the latest codes and standards as adopted and/or otherwise modified by the AHJ.
- 7) Electrical equipment, motors, controllers, etc., installed under this contract shall have necessary CSA/US or UL listing. Equipment shall be labeled or tagged accordingly.

D. **Electrical Design Parameters**

1. The mechanical and electrical systems and the building structure have been designed for the following design loads:
2. Power supply: 460-3-60
3. Electrical Loads:(PE43 & PE44)            50 HP  
    77 A. FLR (Full Load Running)  
    177 A. FLA (Full Load Acceleration)
4. Electrical Loads:(PE45            )            20 HP  
    28 A. FLR (Full Load Running)  
    71 A. FLA (Full Load Acceleration)
5. Heat Release:(PE43 & PE44)            21,000 BTU/HR/UNIT  
    (PE45)            13,000 BTU/HR/UNIT
6. Submit a written statement with the bid that the above design loads and the clearance requirements shown on the Architectural drawings are acceptable for the proposed equipment. If not, specifically state the design variances.
7. After the award, if the type of equipment provided requires structure, mechanical and electrical system changes and/or revisions, the Contractor shall be responsible for all additional design and construction costs.

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8. Electrical equipment, motors, controllers, etc., installed under this contract shall have necessary CSA/US or UL listing. Equipment shall be labeled or tagged accordingly.

**E. Materials, Painting and Finishes**

1. Two (2) coats of rust inhibiting machinery enamel shall be applied to exposed ferrous metal surfaces in the pit that do not have a galvanized, anodized, baked enamel, or special architectural finishes.
2. Two (2) coats of rust inhibiting enamel paint to the machinery located within the machine room and secondary level (where applicable) as well as to the machine room floors.
3. Architectural metal surfaces of bronze or similar non-ferrous materials which are specified to be refinished, re clad and/or provided new, shall be sufficiently clear coated so as to resist tarnishing during normal usage for a period of not less than twelve (12) months after final acceptance by the Commissioner.
4. Identify all equipment including buffers, crosshead, safety plank, machine, controller, drive, governor, disconnect switch, etc., by 4" high numerals which shall contrast with the background to which it is applied. The identification shall be either decalcomania or stencil type.
5. Paint or provide decal-type floor designation not less than six (6) inches high on hoistway doors (hoistway side), fascias and/or walls as required by Code at intervals not exceeding 7'-0". The color of paint used shall contrast with the color of the surface to which it is applied.

**F. General**

1. Cold-rolled Sheet Steel Sections: ASTM A1008, commercial steel, Type "B".
  - a. Shop Prime: Factory-applied baked on coat of mineral filler and primer.
  - b. Finish Paint: Two coats of low sheen baked enamel, color as selected by the Commissioner.
  - c. Steel Equipment: Two coats of manufacturer's standard rust-inhibiting paint.
2. Rolled Steel Floor Plate: ASTM A786
3. Steel Supports and Reinforcement: ASTM A36
4. Aluminum-alloy Rolled Tread Plate: ASTM B632
5. Stainless Steel: ASTM A240 Type 302 (for interior) or 316 (for exterior)
  - a. Satin Finish: No. 4 satin, long grain.
  - b. Mirror Finish: No. 8 non-directional mirror polished.
6. Stainless Steel Bars and Shapes: ASTM A276
7. Stainless Steel Tubes: ASTM A269
8. Aluminum Extrusions: ASTM B221
9. Structural Tubing: ASTM A500
10. Bolts, Nuts and Washers: ASTM A325 and A490.
11. Clear Tempered Glass: ASTM C1048

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**G. Handicapped Requirements (ADAAG)**

1. Locate door reopening devices at 5" and 29" above the finish floor when individual contact projection apparatus is employed.
2. Locate the alarm button and emergency stop switch at 35", and floor and control buttons not more than 48" above the finished floor. The alarm button shall illuminate when pressed for visual acknowledgement to user.
3. Provide raised markings in the panel to the left of the car call and other control buttons. Letters and numbers shall be a minimum of 5/8" and raised .03" and shall be in contrasting color to the call buttons and cover plate.
4. The centerline of the hall push button shall be 42" above the finished floor.
5. The hall arrival lanterns or cab direction lantern provided shall sound once for the "up" direction and twice for the "down" direction. Design and locate fixtures per Federal standards.
6. Provide floor designations at each entrance on both sides of jamb at a height of 60" above the floor. Designations shall be 2" high, raised .03" on a contrasting color background as selected by the Commissioner.
  - a. Use cast metal plates and polished numbers secured with tamper-proof hardware.
7. Provide an audible signal to tell passenger that the car is stopping or passing a floor served by the elevator.
8. Provide signal controls for passenger entry/exit transitions per Federal standards.
9. Ensure sill-to-sill running clearances do not exceed 1-1/4" at all landings served.
10. Provide visual call acknowledgment signal for cab emergency intercommunication device.

**H. Qualifications**

1. The work shall be performed by a company specialized in the business of manufacturing, installing and servicing conveying systems of the type and character required by these specifications with a minimum of three (3) years experience.

**1.4 DELIVERY, STORAGE, HANDLING AND COORDINATION**

**A. Delivery and Storage of Material and Tools**

1. Comply with the requirements of the "General Conditions".
2. Delivery, Storage and Handling:
  - a. Deliver materials to the site ready for use in the accepted manufacturer's original and unopened containers and packaging, bearing labels as to type of material, brand name and manufacturer's name. Delivered materials shall be identical to accepted samples.
  - b. Store materials under cover in a dry and clean location, off the ground.
  - c. Remove delivered materials which are damaged or otherwise not suitable for installation from the job site and replace with acceptable materials.

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3. The City of New York shall bear no responsibility for the materials, equipment or tools of the Contractor and shall not be liable for any loss thereof or damage thereto.
4. The Contractor shall confine storage of materials on the job site to the limits and locations designated by the Commissioner and shall not unnecessarily encumber the premises or overload any portion with materials to a greater extent than the structural design load of the Facility.

**B. Removal of Rubbish and Existing Equipment**

1. On a scheduled basis, the Contractor shall remove from the job site all rubbish generated in performing work specified in the Contract Documents.
2. Any component of the existing elevator plant that is not reused under the scope of work specified in the Contract Documents shall become property of the Contractor and, as such, shall be removed from the premises at the Contractor's sole expense.
3. The Contractor agrees to dispose of the aforementioned equipment and rubbish in accordance with any and all applicable Federal, State, and municipal environmental regulations, and further accepts all liability that may result from handling and/or disposing of said material.

**C. Protection of Work and Property**

1. The Contractor shall continuously maintain adequate protection of all their work from damage and shall protect the City of New York's property from injury or loss arising out of this contract.
2. The Contractor shall make good any such damages, injury or loss, except such as may be directly caused by agents or employees of the City of New York.
3. The Contractor shall provide all barricades required to protect open hoistways or shafts per OSHA regulations. Such protection shall include any necessary guards or other barricades for employee protections during and after the modernization procedure.

**D. Related Work by the Contractor Included in the Base Bid**

1. The following requirements shall be applicable based on prevailing conditions at the site of work and/or mandated modifications for code compliance.
  - a. Provide hoist rope guards at the car and counterweight drop side of the hoisting machine sheave to prevent accidental contact with the hoisting ropes. The guard shall extend from the point where the hoisting ropes penetrate the machine room floor slab to a point beyond where the ropes contact the traction and deflector sheaves. The guards shall be constructed so as to conceal pinch-points between ropes and sheave grooves.
  - b. Remove angle bracing at each door entrance to gain access into the hoistway. All hoistway doors must be secured as all times when contractor is not working on the elevator.

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- c. Provide a standard railing conforming to Code on the outside perimeter of the car top on all sides where the perpendicular distance between the edges of the car top and the adjacent hoistway enclosure exceeds 300 mm (12 in.) horizontal clearance or as otherwise required by the Authority Having Jurisdiction.
  - d. Subsequent to the contract execution, the Contractor shall perform the following procedures and engineering tasks relative to balance loading of system and cab work included under base specification requirements and alternative/optional upgrades:
    - 1) Perform balance load testing to determine existing conditions and requirements applicable to new/modified equipment.
    - 2) Provide data for the Commissioner to evaluate any limitations that may be placed on design/finish options due to prevailing conditions or total suspended loading.
  - e. Subsequent to the contract execution, the Contractor shall perform a Violation search and review of all open Applications in conjunction with the filing procedure. Subsequently, any and all outstanding Violations and/or open Applications shall be indicated on the Request for Permit; and such outstanding Violations shall be expunged and open Applications closed out as part of this filing procedure.
    - 1) If requirements and/or work necessary to satisfy outstanding Violation or Applications are not included in the contracted scope of work, the Contractor shall prepare an itemized listing with relative extra costs to cure the condition(s) and expunge and/or close out the Violation or Application for the Commissioners' review/approval prior to executing such work procedures.
2. The Contractor shall provide all labor, materials and equipment necessary to complete all removals and restoration work required by the drawings and as herein specified, generally as follows:
- a. Cutting and removals as required to connect existing and new work.
  - b. Restoration of existing work and finishes to remain where same has been cut, disturbed or damaged by work of this project. Restoration shall be done by applicable tradesman involved, using materials and methods to match existing work and finish, or as specified.
  - c. Bracing of existing walls and work to remain.
  - d. Removal of all demolished materials, debris and excess materials except as otherwise specified.
  - e. Provide and maintain all necessary scaffolds and hoists.
3. All removals shall be neatly done, causing as little damage as possible to work to remain. Debris shall not be allowed to accumulate. Provide all necessary bracing or shoring as required to properly maintain existing construction. Removals shall be done in small safe sections. All debris and removed materials not used shall be entirely removed from the premises. Materials to be reused shall be carefully

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taken down, dismantled, stored and protected until ready for reuse. Any material damaged shall be replaced at no extra cost to the City of New York. All debris and rubbish shall be removed from the building through the basement (when possible) in covered carts to avoid spreading of dust.

4. The Contractor shall provide, maintain and remove when no longer required, all scaffolding for proper and safe execution of his work. Scaffolding shall be erected and maintained in conformance with State Labor Laws and OSHA requirements.
5. Furnish all required hoisting, rigging or additional bracing and services as required for the removal, delivery or erection of equipment or apparatus.
6. Dust Control – Removals - Minimum Requirements for dust control are as follows:

The following procedures must be followed when impacting coated/painted components/surfaces that have been identified to not contain lead above the current regulatory threshold.

a. Regulatory Compliance

- 1) The Contractor must conform with all applicable federal, state and local regulations required to perform this work.

b. Materials and Equipment

- 1) In addition to the tools required to perform a specific task, the Contractor shall bring the following materials and equipment to do the work:
  - a) HEPA VAC's
  - b) Covered Carts
  - c) Hand tools (e.g. sledgehammer, pry bar)
  - d) HEPA equipped power tools
  - e) Polyethylene sheeting (6-mil fire retardant)
  - f) Polyethylene bags
  - g) String mops
  - h) Buckets
  - i) Lead specific detergent
  - j) Water misters or spray bottles
  - k) Duct tape
  - l) Knives
  - m) Clean rags

7. Preparation

- a. The Contractor shall apply a single layer of 6-mil fire retardant polyethylene sheeting (sheeting) to the ground area adjacent to the work area(s). Seal all seams with duct tape to create an airtight barrier.
- b. Within the work area(s), room(s) where painted/coated components/surfaces will be impacted, cover all vents, windows, pipe openings passing through floors, and similar items with sheeting and/or duct tape to prevent dust and debris from escaping the work area.

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- c. Cover the entire floor of the work area(s) with a single layer of sheeting (disregard if the floor is being removed during this phase of work). Seal all seams with duct tape to create an airtight barrier.
- d. Fixtures not removed from the work area shall be covered with a single layer of sheeting sealed on all edges (airtight) with duct tape.
- e. Cover the work area entrance with a primitive air lock using two layers of sheeting. The first layer of sheeting is placed over the door opening and sealed with tape on all four sides. The first layer is then slit down the middle. The second layer of sheeting is taped to the top of the door frame and weighed down at the bottom to create a seal.

8. Performing the Task

- a. When performing the task, the Contractor shall observe safety precautions in contained work areas.
  - 1) Do not smoke in the work area.
  - 2) Do not eat or drink in the work area.
  - 3) Keep polyethylene sheeting away from open flame, e.g., stoves, and blowtorches.
  - 4) Exercise caution when spraying in the vicinity of electrical outlets.
  - 5) Prevent children from entering the work area.
- b. Immediately repair torn sheeting using duct tape for minor tears; total sheet replacement may be necessary for major tears.
- c. Prior to entering the work area the contractor shall don tyvek suit (or equivalent), ½ face negative pressure respirator, head/eye/foot/hand and ear protection, as well as any other protective covering/measure required or deemed appropriate. These work practices shall be in place until such time that the Contractors exposure assessment dictates an increase or decrease in work practices.
- d. With a fine spray of water, lightly spray painted/coated surfaces/components to be impacted, to limit the creation and dispersal of dust. Periodically rewet these surfaces as well as the air in the work area(s). Dust levels within the work area(s) must be kept to a minimum. Any dust emissions outside the work area(s) will be deemed unacceptable. Any visible emissions of dust outside the work area(s) will require that work stop until such time as the contractor can demonstrate proper work practices to eliminate such events.
- e. Contractor shall use manual hand tools to perform work in a manner that creates the least amount of dust as possible.
- f. If power tools are to be used they shall be HEPA equipped.
- g. Debris generated during the work shall be placed into six-mil polyethylene bags (bags) and/or a covered cart. Close all bags with an airtight gooseneck seal (e.g., twist the bag, fold it over on itself, and wrap with duct tape and/or plastic tie) sealed with duct tape and/or plastic tie. If components are too large to be removed by bag or cart they shall be wrapped in sheeting and sealed with duct tape.

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- h. Bags, carts and/or sheeting shall be wet wiped with a clean damp rag prior to being moved from the work area(s).
- i. Debris shall be immediately removed from the building and placed in a covered container (e.g. roll off dumpster).

9. Final Clean-up

- a. Upon completion of gross clean-up the Contractor shall thoroughly clean the work area(s) in the following manner. The Contractor shall never dry sweep dust or debris.

1) Small Debris/Dust Removal

- a) Vacuum remaining dust and debris at moderate speed using a vacuum equipped with a High Efficiency Particulate Air filter (HEPA VAC).

2) Cleaning of Tools

- a) The Contractor must thoroughly wet wipe and clean all tools. Conversely the contractor may remove gross material and seal tools in a bag to be transported immediately to next work area.

3) Polyethylene Sheeting Removal

- a) Remove sheeting from the vents, windows, pipe openings and any other protrusions.
- b) With a spray bottle, moisten the sheeting covering the floor. Fold floor sheeting in upon itself to capture any remaining dust.
- c) After use, place the plastic sheeting into bags. Close all bags with an airtight gooseneck seal (e.g., twist the bag, fold it over on itself, and wrap with duct tape and/or plastic tie).

4) Vacuuming

- a) If the same personnel that performed demolition work are to complete the cleaning Tyvek coveralls shall be removed and replaced with a clean pair at this time.
- b) Vacuum the entire area starting at the highest and furthest point from the entrance working in a downward and forward motion. Use a vacuum equipped with a High Efficiency Particulate Air filter (HEPA VAC).
- c) Vacuum at a moderate speed.
- d) Upon completion of cleaning walls, etc. begin to vacuum floors, starting at the far end of the room, working toward the entrance. Avoid stepping on already vacuumed floor areas when moving to a new section.

5) Wet Cleaning

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a) Prepare Cleaning Solution (Two Bucket Method)

- i. Fill a bucket (bucket #1) with a MIXTURE of water and the lead specific cleaning solution, and label it cleaning solution.
- ii. Follow the manufacturers' instructions carefully when mixing the cleaning solution with water.
- iii. Fill another bucket (bucket #2) with clean cold water, and label it clean rinse; place it with the bucket labeled cleaning solution.

b) Wipe walls and horizontal surfaces except floors.

Using the two bucket method, use two rags designating one as the solution rag (rag #1) and the other as the rinse rag (rag #2).

- i. Dip rag #1 into bucket #1, wring the excess solution into the same bucket and begin to wipe.
- ii. Continue wiping until the rag is dry.
- iii. Dip rag #2 into bucket #2 and wipe only the area you just cleaned with rag #1.
- iv. Repeat steps a through c until designated areas are completely wiped.
- v. Periodically change the water in bucket #2 (clean rinse).
- vi. Wipe all surfaces where dust can accumulate.
- vii. Remove primitive airlock from doorway and place in bag.
- viii. Remove sheeting from work areas.

c) Mop Floors

After completely cleaning walls and all other horizontal surfaces, mop all floors using the following procedure:

Prior to mopping, dump the water from bucket #2 (clean rinse) and refill it with clean cold water. Using the two bucket method, use two mops designating one as the solution mop (mop #1) and the other as the rinse mop (mop #2).

- i. Dip mop #1 into bucket #1, wring the excess solution into the same bucket and begin to mop.
- ii. Continue mopping until the mop is dry.
- iii. Dip mop #2 into bucket #2 and mop only the area you just cleaned with mop #1.
- iv. Repeat steps a through c until all floor areas are completely mopped.

Periodically change the water in bucket #2 (clean rinse).

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Mop all floors in the order described in Section V. D. 4.  
Vacuuming

Do not discard wash water in any apartment.

6) Personal Clean-up

- a) To reduce the spread of dust beyond the work area, before exiting the work area, the Contractor shall remove dust and debris from themselves and their clothing.

10. Visual Inspection

- a. The Commissioner reserves the right to visually inspect the work area for dust/debris. If dust/debris is identified in the work area, the Contractor shall be required to conduct additional cleaning at no cost to the City of New York, Contractor shall perform cleaning until the no visible dust/debris is identified and the Commissioner is satisfied.

1.5 MASONRY- Summary of Work Included

A. The masonry work under this contract includes the following:

- 1. Restoring and/or rebuilding masonry shaft walls and floor slab where removed to enable installation of new work.
- 2. Cutting and patching walls, ceilings, floor and beams for the installation of work under this Contract, including core drilling.

B. Masonry

- 1. Cement shall be Portland cement complying with A.S.T.M. Specification C-150, Type 1.
- 2. Hydrated lime shall comply with A.S.T.M. Specification C-207, Type N.
- 3. Sand shall be clean and free of impurities.
- 4. Masonry Cement shall comply with A.S.T.M. C-91.
- 5. Glazed structural tile units to match existing and shall comply with A.S.T.M. C-126-7k.
- 6. Mortar for masonry work shall be one part Portland cement, 1 1/2 parts lime putty and six parts sand by volume.
- 7. Grout, where required, shall be one part Portland cement and two parts fine sand by volume.
- 8. Calcined gypsum for finish coat for plaster and gypsum neat plaster shall comply with A.S.T.M. C-28.

C. Workmanship - Masonry

- 1. Existing masonry shall be properly and neatly cut back and removed.
- 2. All masonry shall be solidly lined up in mortar with all joints filled solid. Where masonry is to remain exposed, mortar joints shall be tooled smooth and even.

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3. All filled in patches, altered and restored masonry shall form solid, continuous, sound, uniform and matching surfaces.
4. Exposed surfaces of new work shall be cleaned and left free of stains or streaks. Cleaning shall be done with mild solution and then rinsed with clean water.

1.6 ELECTRICAL WORK - Scope of Work

A. Existing Wiring and Conduit

1. Replace all existing conduit and wiring in elevator machine room and in the elevator hoistway.

B. Electrical Work

1. General:

- a. All electrical work shall be performed by or under the supervision of a licensed master electrician.
- b. Properly insulate all equipment requiring insulation.

C. Conduit

1. All conduit except as specified below in Paragraph 7, shall be standard weight, butt welded, rigid iron heavy wall. Conduit shall be hot-dipped galvanized inside and out. The conduit shall be jointed with threaded fittings and butt joints. Conduit shall be free from defects and shall be reamed at each end. All bends are to be free from kinks and be of such curvature as to permit the drawing in of cable without damage. Conduit shall have standard pipe taper threads, clean cut, straight and true, and shall be of sufficient length to permit the proper coupling connections. Long running threads will not be permitted on any part of the work. When necessary use three-piece (Erickson) coupling or approved equal.
2. Fasten conduit to the surface of the masonry walls or ceilings with one hole malleable iron straps, 10-24 round head machine screws of 3/16" toggle bolts.
3. Install conduit parallel or perpendicular to adjacent walls. Vertical runs shall be plumbed. All bends are to be equal radius throughout. Offsets and saddles shall not exceed 7". Conduit shall be bent to conform to the surface upon which it is fastened. Fastening supports shall not be used to spring conduit to contour of surface.
4. Do not use ninety degree bends around external corners; use malleable iron threaded type conduit bodies, type LB or approved equal.
5. Use offsets where conduit enters outlet, junction boxes or distribution panels; fastened thereto with malleable iron locknuts and bushings.
6. Use adjustable extension boxes or collars to extend existing flush mounted junction or outlet boxes as required.
7. Flexible conduit shall be constructed of a continuous strip of convoluted galvanized steel with a continuous copper ground in the convolutions. Flexible conduit shall also have an extruded polyvinyl chloride (PVC) cover and be suitable for use in wet and oily applications. All flexible conduit fittings shall be of the liquid tight type.

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8. Connect conduit to boxes or other devices with double locknuts and bushing or threaded hub in the device. Do not use setscrew type connectors or couplings.

**D. Wire**

1. Wherever, new conductors or extension to existing conductors are required, they shall be type THWN, sizes as required by the Electrical Code.
2. Wherever such new or extended conductors are required, they shall be supplied and installed by the Contractor.
3. Splices in conductors shall be soldered or taped, or approved solderless connectors shall be used.
4. Where wire insulation type, as specified are not available, the Contractor shall furnish other approved types provided the New York City Electrical Code allowances for conduit fill are not exceeded. There shall be no additional cost to the City of New York for this substitution.
5. Wires No. 10 AWG and smaller shall be solid; size No. 8 AWG and larger shall be stranded. All conductors shall be soft annealed copper, and strands of No. 8 or larger conductors shall be tinned.

**E. Continuity of Electrical Service**

1. Schedule work so that there will be no interruption of electrical services to tenants or power equipment.

**F. Painting**

1. All paint to be in accordance with the Painting Section as hereinafter specified in this Specification.
2. All new steel work shall be painted with one (1) coat of Material 38 and one (1) coat of Material 5.

**1.7 WARRANTY AND MAINTENANCE GUARANTEE**

**A. Contract Close-Out, Guarantee and Warranties**

1. The Contractor agrees to certify that work performed in accordance with the Contract Documents shall remain free of defects in materials and quality of work for a period of one (1) year after final acceptance of the completed project, or acceptance thereof by beneficial use on a unit by unit basis, which ever occurs first.
2. The sole duty of the Contractor under this warranty is to correct any non-conformance or defect and all damages caused by such defect without any additional cost to the City of New York and within fifteen (15) days of notification.
3. The express warranty contained herein is in lieu of all other warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose.
4. In the event the Contractor fails to fulfill its obligations defined herein, the Commissioner shall have the express right to perform the Contractor's obligations

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and to charge the Contractor the cost of such performance or deduct an equal amount from any monies due the Contractor.

**B. Maintenance Guarantee**

1. The following maintenance coverages apply:

a. Guarantee Maintenance

- 1) Provide full comprehensive preventative maintenance guarantee services for a period of twelve (12) months after the final completion and acceptance of the project.
- 2) Costs related to guarantee maintenance shall be included in the base bid quotation.

**C. Contractor's Form of Full Protective Maintenance Guarantee (One (1) year Guarantee Period)**

1. Provide full maintenance guarantee service for elevators included in the Specifications for a period of one (1) year after completion of the installation, including acceptance by the Department of Buildings for normal passenger use. All costs associated with the Guarantee Maintenance period shall be included in the base bid. Guarantee Period Maintenance guarantee services shall be provided in accordance with the following:

- a. The Guarantee Period shall commence on the date that all three elevators have been placed into normal passenger operation and shall continue for a period of one (1) year thereafter.
- b. The maintenance work shall be performed by elevator personnel directly employed and supervised by the manufacturer and installer of the equipment who are experienced and skilled in maintaining elevators similar to those to be maintained under this agreement.
- c. Except for emergency minor adjustment call-back service, all work shall be performed during the regular working hours of regular working days of the trade. If, at any time, it should become necessary, and only when so authorized by the Commissioner to perform any portion of the work other than emergency call-back service during overtime hours, the maintenance contractor shall be reimbursed at the established billing rates for the difference between regular and overtime labor.
- d. Maintenance contractor shall maintain all parts of the elevators consisting of, but not limited to, machines, motors, solid-state motor drives, positioning systems, pumps, valves, cylinder head, above ground piping, hoses, fittings, gauges, seals, O-Rings, filters, screens, packing, belts, recovery devices, rescuator, above ground cylinder and plunger assemblies, mufflers, heaters, shut-off valves, valves, brushes, controllers, selectors, worms, gears, thrusts, bearings, brake magnet coils, brake shoes, windings, rotating elements, contacts, coils and resistances for operating and motor control circuits, magnet frames, leveling devices, cams, car and hoistway door hangers, tracks and guides, door operating

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devices, door protection systems, hall lanterns and all other elevator operating, signal and accessory equipment complete.

2. The guarantee maintenance work shall consist of the following:
  - a. All guarantee maintenance shall comply with Part 8 of the ASME A17.1 Code as may be modified or amended by the Authority Having Jurisdiction.
  - b. Supplying, repairing and replacing of all parts of every description made necessary by wear and tear at the maintenance contractor's cost. Only parts that are correctly designed and suitable in all respects shall be used. The maintenance contractor shall have and maintain on hand locally a supply of spare parts sufficient for the normal maintenance and repair of the equipment. The following items of elevator equipment are excluded: car enclosures, hoistway enclosures, hoistway doors, door frames and sills, fluorescent light bulbs.
  - c. Repairing and/or replacing all electrical wiring and conductors, extending to the elevator from the mainline switch or circuit breaker. Mainline switch fuses are excluded.
  - d. Keeping the guide rails clean and properly lubricated, except when roller type guides are involved no rail lubrication shall be used. When necessary, the maintenance contractor shall renew guide shoe gibs or rollers as required to ensure smooth and quiet operation. All oil reservoirs shall be kept properly sealed to prevent leakage.
  - e. Keeping the exterior of the machinery and any other parts of the equipment subject to rust properly painted and presentable at all times. The motor windings and controller coils are to be periodically treated with proper insulating compound.
  - f. Performing mandated Annual testing procedures as required by local law and/or building code. (Including Category 1 & Category 5)
3. The maintenance contractor shall provide a minimum of two (2) hours per month dedicated to performing preventive maintenance guarantee services.
4. This service shall be performed solely by the manufacturer and installer of the equipment.

**PART 2 - PRODUCTS**

**2.1 ELEVATORS**

**A. Elevator – PE43, PE44, PE45**

- |                   |                                    |
|-------------------|------------------------------------|
| 1. Quantity       | Three                              |
| 2. Type           | Passenger                          |
| 3. Capacity (lbs) | PE43 & PE44 – 4,000 / PE45 – 2,500 |
| 4. Speed (fpm)    | PE43 & PE44 – 400 / PE45 – 250     |
| 5. Travel in Feet | Existing                           |
| 6. Roping/Ropes   |                                    |
| a. Hoisting       | New                                |

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7.	b. Governor Compensation	New Whisperflex Chains (2)
8.	Number of Landings	PE43 & PE44 - Ten @ B, 1 to 9 PE45 - Nine @ SC, B, 1 to 7
9.	Number of Openings	Same as Landings
10.	Front Openings	All
11.	Rear Openings	None
12.	Operation	Automatic
13.	Fireman's Service	As per Appendix K
14.	Machine Type	Geared Traction
15.	Power Drive	VVVF
16.	Machine Location	Overhead
17.	Governor	Centrifugal
18.	Car Frame, Platform, Safety Plank	New
19.	Counterweight	New
20.	Guide Rails	New
21.	Guides	New - Roller Type
22.	Buffers	New - Oil Hydraulic
23.	Car Door Size / Type	PE43 & PE44 - 3'-4" w x 7' h / 2SSO PE45 - 4'-0" wide x 7'-0" high / 2SSO
24.	Hoistway Door Size / Type	Same as Car
25.	Master Door Operator	New
26.	Tracks, Hangers, Interlocks, Closers	New
27.	Keyed Access	New
28.	Power Supply	New - 460-3-60 VAC - By others
29.	Wiring and Traveling Cables	New
30.	Security - Lockouts - Key	New
31.	Number of Push Button Risers	One per bank
32.	Hall Operating Fixtures	New
33.	Car Operating Fixtures	New
34.	Communication	New - Central Exchange
35.	Door Protective Device	New
36.	Emergency Cab Lighting	New
37.	Car Ventilation	New
38.	Car Enclosure	New - As specified
39.	Car Doors	New
40.	Car Sill	New - Nickel Silver

**2.2 MANUFACTURERS**

**A. Pre-Approved Equipment Manufacturers**

1. The following manufacturer's equipment and materials have been pre-approved for use on this project.
2. Other equipment not specifically mentioned shall be considered for approval on an individual basis.

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- a. Controller –Elevator Systems Inc., Motion Control Engineering, GAL Galaxy
- b. Tracks, Hangers, Interlocks and Door Operators - G.A.L., ECI
- c. Fixtures - G.A.L., Adams, EPCO, Monitor, E-Motive USA, C.E. Electronics, Innovation, PTL, MAD,
- d. Door Protective Device - Janus, Adams, G.A.L., T.L. Jones, Tri-Tronics,
- e. Gearless Machines - Hollister-Whitney, Imperial
- f. VVVF Power Drives - Mitsubishi, MagneTek, Yaskawa, TorqMax
- g. Electrical Traveling Cables – Draka, James Monroe
- h. Guide Shoes/Rollers – ELSCO
- i. Wire Ropes - Paulsen, Bethlehem, Wayland, Draka, Brugg.
- j. Intercommunications/Telephones - Webb Electronics, K-Tec, Ring, Star-Plus, Wurtec, Janus, approved equal.

## 2.3 SYSTEMS AND COMPONENTS

### A. Control Equipment

- 1. Provide the elevator installation with a new controller to fit within existing space conditions.
- 2. The Controller shall be non-proprietary and shall be microprocessor based. All inputs and outputs are to be performed through removable plug-in relays, exclusive of power relays, through a maximum of one (1) printed circuit board or removable plug-in relays mounted on thin rail. The only additional printed circuit boards allowed will be for speed control, for the rope brake/rope gripper device, for the PI driver board and for the voltage monitor.
  - a. The controller shall include, but not be limited to the following features.
    - 1) Password accessible.
    - 2) Inspection control.
    - 3) Fireman's service (w/ future smoke detector recall provisions).
    - 4) Independent service.
    - 5) Diagnostics.
    - 6) Remote monitoring.
- 3. All controllers shall be designed and be capable to handle the floors served and car speeds noted within the contract documents, and shall have the associate I/O's (inputs/outputs) and connections to accommodate the aforementioned. A speed control board shall also be provided on all controllers.
- 4. All controllers shall be designed to operate within a +/- 10% operating range of the nominal building voltage supply (i.e., for 208 V building supply, operating range would be 188 V to 228 V).
- 5. Control equipment shall comply with the requirements of all applicable sections of ASME A17.1 Code, as approved and adopted by the AHJ (Authority Having Jurisdiction), including, but not limited to the following:

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- a. As required under rule 2.26.4.2 of ASME A17.1, drive-machine controllers, logic controllers, and operating devices accessory thereto for starting, stopping, regulating, controlling, or protecting electric motors, or other equipment shall be listed/certified and labeled/marked to the requirements of CAN/CSA-B44.1/ASME A17.5.
  - 1) A data plate that indicates the edition of the Code in effect at the time of installation and/or alteration shall be provided in accordance with applicable Code and requirements of ASME A17.1 Code. The data plate shall be in plain view and securely attached on the controller.
  - 2) A copy of the Certificate of Compliance shall be furnished showing that the controller is eligible to bear the CAN/CSA-B44.1/ASME A17.5 mark.
  
- b. As required under rule 2.26.4.4 of ASME A17.1, control equipment shall meet the requirements of EN 12016. When the control equipment is exposed to interference levels at the test values specified for "safety circuits" in EN 12016, the interference shall not cause any of the conditions described in rule 2.26.9.3(a) through (e) of ASME A17.1, and shall not cause the car to move while on inspection operation. If enclosure doors or suppression equipment must remain installed to meet the above requirements, warning signs to that effect shall be posted on the control equipment.
  - 1) A copy of the test report and results shall be furnished to DDC and Commissioner showing that the controller is in Compliance to EN 12016.
  
- 6. The controller assembly shall provide efficient, smooth, stepless acceleration and deceleration of the elevator hoisting machine, automatically and irrespective of the load in the car. All control equipment shall be enclosed in a NEMA Type 1, general purpose metal enclosure with lockable, hinged door(s), and shall be provided with a means of forced ventilation {i.e., fan(s)}. All non-conducting metal parts in the machine room shall be grounded in accordance with controller manufacturers specifications and the NYC Electrical Code. Cabinet shall be securely attached to the building structure. All Controllers shall be identified with 4 inch letters.
  - a. No controller components and or wiring will be allowed to be mounted/attached to the controller cabinet door(s)
  - b. The door operator resistors shall be located outside the controller cabinet, on the top of the enclosure. The resistors shall be enclosed on all exposed sides in a removable expanded steel wire mesh enclosure with solid sheet metal top, to protect against accidental contact and to dissipate heat generated by the resistors. Type SF-2 wiring shall be used for the resistor wiring.
  - c. Furnish and install inside each controller cabinet, a fluorescent light fixture not less than 24 inches long, with a protective guard for the fluorescent

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light bulb/tube. The lighting circuit for the fixture shall be arranged so that upon opening of the cabinet door(s), the light fixture will automatically illuminate, and upon closing of the cabinet door(s), the light will go off.

7. Modules or solid state boards shall be Circuit Breaker protected (the use of cartridge fuses or glass fuses require prior approval). Each module or solid state board and circuit breaker or fuse (with ampere rating) shall be identified by name, letter or standard symbol in an approved, indelible and legible manner on the device or panel. Coordinate identification markings with identical markings on wiring diagrams.
8. Light emitting diodes (LEDS) shall be used for visual monitoring of individual modules and marked with familiar terminology.
9. Components shall have interlocking circuits to assure fail-safe operation, and to prevent unwarranted elevator movement, should any component fail to function properly.
10. Wiring shall be arranged so that similar voltages are grouped together.
11. If modules are used, they shall be of the type that plug into pre-wired mounting racks. Field wiring or alteration shall not be necessary in order to replace defective modules.
12. Field wiring changes shall be made only to the mounting rack connection points and not to the individual module circuitry or components. Individual modules, requiring design changes shall be returned to the factory where changes shall be made and module design records updated so that correct replacement units shall be available.
  - a. All shaft and traveling cable wires shall be able to withstand accidental connection to any other shaft or traveling cable connection without causing permanent damage to the equipment. Replacement of fuses or other "low cost" protection devices is acceptable. All outputs shall withstand the application of a short circuit across the output terminals without causing permanent damage to the equipment.
13. Module boards shall be moisture resistant, fabricated from non-conductive, non-corrosive material, and shall be of sufficient strength so as to support all components mounted thereon without warping. Mounting racks shall be spaced sufficiently apart to prevent accidental contact between individual modules.
14. All logic symbols and circuitry designations shall be in accordance with ASME Standards.
15. Solid state components shall be designed to operate normally within a temperature range of 32° degrees F, and 120°degrees F.
16. Wiring connections for operating circuits and for external control circuits shall be brought to terminal blocks mounted in an accessible location within the controller cabinet. Terminal blocks using pierce-through serrated washers are not permitted. Clearly mark the terminals and color code and mark the voltages on the terminal strips. In addition to the aforementioned, the markings shall also be provided on the backside of the controller door. All markings shall be clear, indelible and permanently attached. Use of numbers/letters hand written on the terminals and terminal strips, hand written on cardboard, hand written on paper, or the like, is not permitted.

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17. A diagnostic testing device shall be permanently installed on each controller, for all trouble-shooting procedures related to the specific type controls installed on this Contract. The diagnostic device shall be by the same manufacturer as the PLC processor and shall be capable of displaying a minimum of 4 lines of text and 16 characters per line.

a. Diagnostics shall include but not be limited to the following control circuits:

- 1) Interlocks.
- 2) Car door gate switch.
- 3) Up and down slowdown limits.
- 4) Up and down normal limits.
- 5) Up and down final limits.
- 6) Emergency stop switch in car.
- 7) Emergency stop switch on top of car.
- 8) Safety plank switch.
- 9) Governor overspeed switch(es).
- 10) Top emergency exit switch.
- 11) Comp sheave switch.
- 12) Hoist motor overloads.
- 13) Pit stop switch.
- 14) Tape switch.
- 15) Oil Buffer switch.
- 16) Door Operator overload switch.

The Fault Monitoring system shall record and report faults in a sequential fashion and shall be time and date stamped.

- b. Error messages are to be stored in a non-volatile memory for future recall and shall be capable of storing the last 50 faults.
- c. If repairs or replacement of the testing device's become necessary prior to the end of a one (1) year Warranty period, the repairs or replacement shall be provided at no additional cost to the City of New York.

18. A relay test panel shall be installed inside each controller to test all plug-in relay configurations used. The plug-in relay test panel shall have the following features and sequence of operation:

a. Features:

- 1) Neon light assemblies with parallel 3000 ohm load resistors to check all normally open and normally closed contacts. Contact load voltage will be nominal 115V AC.
- 2) Voltage selector switch for AC or DC relay coils.
- 3) DC voltage selector switch corresponding to the appropriate voltage used for the DC relay coils (i.e., 24V, 110V, etc).
- 4) Contact mode switch for selecting either normally open or normally closed contacts for test.
- 5) Coil energize switch.

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- 6) Built-in current limiting to prevent damage to relay coil if incorrect voltage is selected.
  - 7) Relay pull-in voltage limited to 75-85% of nominal rated voltage (pick-up test).
  - 8) Residual magnetism test provision (when coil is de-energized, 5% to 10% of nominal rated voltage is maintained on DC relay coils, and 25% to 35% nominal rated voltage is maintained on AC relay coils).
- b. Sequence of Operation:
- 1) Select proper voltage (AC or DC).
  - 2) Select proper voltage level (i.e., 24V, 110V, etc) if a DC relay is to be tested.
  - 3) Insert relay to be tested in socket.
  - 4) Check normally closed contacts (contact mode switch in N.C. position). All neon bulbs should light.
  - 5) Check normally open contacts (contact mode switch in N.O. position, coil energize switch off). Neon bulbs should not light. If one or more bulbs do light, contacts are fused.
  - 6) Energize coil (energize in "ON" position). Relay should pick up and all neon bulbs should light. If any bulb does not light, contacts are not carrying current.
  - 7) De-energize coil (energize switch in "OFF" position). If any bulb remains lit, this indicates that the relay is faulty.
19. The Controller manufacturer shall provide to the Commissioner, the **LADDER LOGIC** and its operating software for the control boards installed and for each different type of control board installed, within the same development.
- a. In addition to printed hard copies, all documentation for wiring diagrams and Ladder Logic, shall be provided on CD ROM disk, in an Acrobat™ Portable Document Format (PDF).
  - b. All job parameters, both for the controller and motion control equipment, shall be provided.
20. The use of standard issue communication devices, such as walkie-talkies, from in front of the controllers, with the doors open, should not cause intermittent or permanent problems with the proper operation of the controller equipment
21. The contractor shall provide electrical (over-current) protection for each elevator hoist motor. When activated, it shall disconnect power from the elevator hoist motor and hoist machine brake. Activation of the motor protection device shall require a "Manual Reset". The motor protection device shall be clearly labeled and identified at the terminals and a cover plate shall be provided with a light illumination indicating that this device has been tripped with a reset button provided to restore normal operation. The motor protection equipment and its method of connection to the elevator system must be shown on the wiring diagram.

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22. In the event of a power outage, the equipment shall be arranged, so that once the normal power supply has been re-established, the elevator will automatically return to service.
23. The Safety circuits shall be designed to individually protect (by means of U.L. approved circuit breakers. The use of cartridge or glass fuses require prior approval) the following:
  - a. Gate switch & secondary gate switch.
  - b. Interlocks
  - c. Normal limits (up & down)
  - d. Final limits (up & down)
  - e. Slowdown limits (up & down)
  - f. Pit switch, governor switch, buffer switch, comp switch & pit door switch.
  - g. Top emergency exit switch, Car safety switch, top of car inspection stop switch, stop switch in car.
24. The control system for the elevator shall be arranged to maintain consistent acceleration and deceleration rate changes and floor leveling accuracy regardless of load.
25. Controller shall incorporate direction switches, reverse phase protection, overcurrent protection, single-phase protection in each phase, and switching to provide smooth acceleration and deceleration.
26. Provide a reverse phase monitor, Part # TVM208A100.5S3S, as manufactured by ABB, or approved equal.
27. Provide a voltage power monitor, Model # 1408-EM3A-ENT as manufactured by Allen Bradley, or approved equal.
28. Provide rubber mats as per NYC Electrical Code.

**B. Geared Traction Machine / Sheaves / Brake**

- a. Provide a worm-gearred traction machine with a direct current brake and demountable drive sheave, mounted in proper alignment on a common bedplate.
- b. The worm shall be accurately machined from steel and provided with a single end, double race ball bearing thrust.
- c. The worm gear shall be made from a phosphor bronze rim, accurately cut, fitted and bolted to a cast iron spider.
- d. The drive sheave shall be a demountable casting from the best grade of metal with a Brinell hardness of 215 to 230, and shall be machined with grooves, providing maximum traction with a minimum of rope and sheave wear.
- e. Provide means for lubricating the machine.
- f. The gear housing shall have a gasketed hole to inspect the gear.
- g. Provide machine with an electro-mechanical brake.
  - 1) The brake shall be spring applied and electrically released where drum or disk-type brakes are employed.
  - 2) Design the brake electro-magnet for quick release and application of brake shoes.

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- 3) Swivel type brake shoes shall be applied to the braking surface (pulley or disk).
  - 4) The brake lining material shall be non-asbestos and shall be attached to two (2) cast iron shoes.
  - 5) The brake pulley or disk shall act as the coupling between the drive motor shaft and the worm shaft.
- h. Provide a raised machine arrangement so that the deflector sheave is located above the machine room slab. Provide adequate steel blocking members to support the machine assembly.
  - i. Where a secondary level exists, span the distance between the car and counterweight with an accurately grooved deflector sheave mounted in the secondary level.
  - j. Provide sheave guards to prevent ropes from jumping off of the sheave grooves.
  - k. Provide hoist cable guards at the car and counterweight-drop side of the machine sheave.
    - 1) Guards shall cover cables from the point of slab penetration to the point where the hoist cables contact the sheave.
    - 2) Guards shall prevent access to cables at pinch points.
  - l. Design and construct the hoisting machine based on passenger elevator cab enclosure weight as specified and as shown on the architectural drawings.

**C. AC Drive Motor / Geared Applications**

1. Provide a vector duty, variable speed, reversible alternating current induction motor with high starting torque and low starting current, rated for 50° C (122° F) during continuous operation, designed for this particular elevator application.
  - a. Provide adequate ventilation of internal stator windings and rotating element to prevent overheating. (Constant velocity fan for constant cooling.)
  - b. Provide thermal overload protection of the stator windings.
2. The hoist motor housing shall have a rigid cast iron stator frame.
  - a. Core Plate stator laminations shall be press fit into frame and properly secured.
  - b. Class "H" (or approved equal) insulation shall be used to ensure long-term reliability.
3. The rotating element shall be fabricated from drawn bars machined and fitted in slots with end rings brazed together and shall be dynamically balanced for vibration-free operation. The motor shaft shall be manufactured from high-strength alloy steel for maximum strength.
4. Furnish and install a new motor coupling machined for proper fit on motor shaft with slotted keyway and key to properly secure same for standard NEMA mounted construction (foot or footless).

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5. Properly align the hoisting motor to the hoisting machine for vibration-free operation.
- D. Rope Gripper (Emergency Brake)
1. Provide an ascending car overspeed and unintended car movement device complying with ASME A17.1 – 2000, section 2.19. Device shall be the "Rope Gripper" as manufactured by Hollister Whitney, the "Sure Stop Rope Brake" as manufactured by Draka, or approved equal. The device shall act by stopping the suspension ropes and shall be capable of holding the suspension ropes indefinitely after activation. It shall be activated mechanically, employing springs and a power cam to provide a consistent stopping force. The device shall be held ready electrically and triggered electrically and shall have provisions to be automatically reset if triggered by loss of electrical power. The device shall have provisions for manual release, and provisions that will prevent the elevator from running when in the manual mode. The device shall have a means to prevent elevator operation if lining wear would render the device ineffective. The linings shall be easily replaceable, be non asbestos and non metallic type. Device shall be located in the machine room on the car or counterweight side rope drops. Provide and install any necessary blocking beams, structural steel, mounting brackets, reinforcements, etc., as required to mount the device to the machine bed frame, machine beams, tie down channels, etc.
- E. VVVF AC Drive
1. Provide a solid-state, variable voltage, variable frequency (VVVF), 3-phase AC hoist motor drive system as part of the microprocessor-based equipment.
    - a. VVVF drive system shall be a low-noise, flux-vector inverter device.
    - b. Include a digital LED readout and touch-key pad to facilitate software parameter adjustments, monitor system operation and display fault codes.
  2. The drive shall utilize a 3-phase, full wave rectifier and capacitor bank to provide direct current power for solid-state inversion.
  3. The inverter shall utilize IGBT power semiconductors and duty cycle modulation fundamental frequency of not less than one kilohertz to synthesize 3-phase, variable voltage variable frequency output.
  4. The system shall be designed and configured with the following countermeasures for noise generated by the pulse-width modulated (PWM) inverters.
    - a. Control of radiated noise via inverter and/or motor cables.
    - b. Conducted noise through power lines.
    - c. Induction noise and ground noise.
  5. Inverter shall be encased in metal and independently grounded.
  6. A noise filter for the input power line shall be provided to prevent penetration into radios, wireless equipment and smoke detectors.
  7. A 3% three-phase line reactor shall be provided on the power system rated at the utility voltage input to the drive and sized for the rated drive current.

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8. Provide interconnection wiring and ground cables in accordance with the manufacturer's design requirements.
9. The drive shall:
  - a. Be configured as a complete digital drive system.
  - b. Utilize two (2) microprocessors - one for power conversion circuitry a 16/32 BIT Microprocessor controlled PWM output and one for drive signal control circuitry.
  - c. Be totally software configurable through high level language.
  - d. Interface with external equipment/signals via either discrete local I/O connections or high speed Local Area Network (LAN).
  - e. Provide fully programmable and adjustable carrier frequency to 16KHz.
  - f. Be located within the limits of the control cabinet (where system size allows) or separately mounted in an appropriate chassis with hinged swing-out doors with clearances equal to the cabinet width dimensions.
  - g. Output frequency of 0-500 Hz.
  - h. Provide programmable linear or S-curve acceleration.
  - i. Provide free run or programmable linear or S-curve deceleration.
  - j. Have controlled reversing.
  - k. Have a minimum of 15 preset speeds.
10. Operating and Environmental Conditions:
  - a. Have a service factor of 1.0.
  - b. Rated for continuous duty.
  - c. Humidity - 90% rated humidity non condensing.
  - d. Altitude - 3300 feet without derate.
  - e. Cooling - forced air when required.
  - f. Temperature - 0-40°C (104°F) for UL Listing.
  - g. Digital display for:
    - 1) Running - output frequency, motor RPM, output current, voltage (Selectable).
    - 2) Setting - Parameters values for setup and review.
    - 3) Trip - separate message for each trip, last 30 trips to be retained in memory.
11. Protective Features:
  - a. Motor overspeed.
  - b. Adjustable current limit.
  - c. Isolated control circuitry.
  - d. Digital display for fault conditions.
  - e. Selectable automatic restart at momentary power loss.
  - f. Manual restart.
  - g. Over/Under Voltage.
  - h. Line to line and line to ground faults.
  - i. Over-temperature.

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12. The system shall provide full regenerative capabilities to control overhauling motor speed and reduce hoist motor deceleration time by allowing overhaul power to be discharged back into the power lines.
  - a. The regenerative section may be an integral part of the drive or a stand alone unit.

**F. Deflector Sheave**

1. Provide new overhead wire rope deflector sheave(s) with related apparatus and structural mounting supports.
  - a. Locate and size new sheave to maximize use of available clearances maintaining the present car and counterweight hitch drops.
  - b. New support bearings shall be of a roller type designed for a minimum of twice the total load calculation.
  - c. The sheaves shall be equipped with suitable lubrication devices.
  - d. Required new mounting beams and structural supports shall be interfaced with existing building structures as may be modified under the terms of this contract for the new design rated loading where applicable.
  - e. The deflector sheave shall be provided with means to guard the hoist ropes so they do not jump out of their respective grooves during a slack rope condition.

**G. Overspeed Governor**

1. Provide a speed governor, located overhead, to operate the car safety.
  - a. Maintain the proper tension in the governor rope with a weighted tension sheave located in the pit.
    - 1) Springs used to develop the tension are not acceptable.
  - b. Provide rope grip jaws, designed to clamp the governor rope to actuate the car safety upon a predetermined overspeed downward.
    - 1) Rope grip jaws directly coupled to the governor mechanism so as to float with governor movement shall not be permitted.
    - 2) The centrifugal type governor shall trip and set rope jaws within 60 degrees of governor sheave rotation after reaching rated tripping speed.
  - c. Design the governor rope tripping device so that no appreciable damage to or deformation of the governor rope shall result from the stopping action of the device in operating the car safety.
  - d. Provide an electrical governor overspeed protective device which shall remove power from the driving machine motor and brake before or at the application of the safety.

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- 1) The setting for the overspeed switch shall be as prescribed in the ASME A17.1 Safety Code.
  - 2) Locate and enclose the switch to insure that excess lubrication will not enter the switch enclosure.
  - 3) Overspeed switch shall operate in both direction of travel on systems employing a static power drive unit.
- e. Seal and tag the governor with the running speed, tripping speed and date last tested.
- H. Automatic Leveling/Releveling and Positioning Device
1. Equip the elevator with a floor leveling device which shall automatically bring the car to a stop within 1/4" of any floor for which a stop has been initiated regardless of load or direction of travel.
  2. This device shall also provide for releveling which shall be arranged to automatically return the elevator to the floor in the event the elevator should move below or above floor level in excess of 1/4".
  3. This device shall be operative at all floors served and whether the hoistway or car door is open or closed provided there is no interruption of power to the elevator.
- I. Load Weighing Device
1. Provide means to measure the load in the car within an accuracy of  $\pm 4\%$  of the elevator capacity.
  2. Provide one of the following types of devices:
    - a. A device consisting of four strain gauge load cells located at each corner of the car platform and supporting a free floating car platform and cab with summing circuits to calculate the actual load under varying conditions of eccentric loading.
    - b. A strain gauge device located on the crosshead, arranged to measure the deflection of the crosshead and thus determine the load in the car.
    - c. A device consisting of four strain gauge load cells, supporting the weight of the elevator machine with summing circuits to calculate the actual load under varying conditions of load.
    - d. A device to measure the tension in the elevator hoist ropes and thus determine the load in the car.
  3. Arrange that the output signal from the load weighing device be connected as an input to the signal and motor control systems to pre-torque of the hoisting machine motors where applicable.
  4. Provide audible and visual signals in connection with the load weighing device when used as an "overload" device.
- J. Ascending Car Overspeed Protection Device
1. Provide a device designed to prevent an ascending elevator from striking the hoistway overhead structure.

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2. The device shall decelerate the car with any load up to the rated capacity by applying an emergency brake.
  - a. The device shall detect an ascending car overspeed condition of not greater than 10% higher than the speed that the car governor is set to trip.
  - b. The device, when activated, shall prevent operation of the car until the device is manually reset.
  - c. The device shall meet the requirements of the ASME A17.1 Safety Code as may be modified by the Authority Having Jurisdiction.

**K. Unintended Car Movement Protection Device**

1. Provide a device to prevent unintended car movement away from the landing when the car and hoistway doors are not in the closed and locked.
  - a. The device shall prevent such movement in the event of failure of:
    - 1) The electric driving machine motor
    - 2) The brake
    - 3) The machine shaft or shaft coupling
    - 4) Gearing
    - 5) Control system
    - 6) Any component upon which the speed of the car depends
    - 7) Suspension ropes and the drive sheave of the traction machine are excluded.
  - b. The device shall prevent operation of the car until the device is manually reset.
  - c. The device shall meet the requirements of the ASME A17.1 Safety Code as may be modified by the Authority Having Jurisdiction.

**L. Emergency Brake**

1. Provide a mechanical device, independent of the normal braking system, that will stop the elevator should it overspeed or move in an unintended manner.
2. The device used may be arranged to apply force to the car or counterweight rails, suspension or compensation ropes, drive sheave or brake drum.
3. The emergency brake shall be provided with a marking plate indicating the range of total masses (car with attachments and its load) for:
  - a. The range of speeds at which it is set to operate.
  - b. The criteria such as rail lubrication requirements that are critical to the performance.

**M. Machine Beams**

1. Provide additional support beams, angles, plates, bearing plates, blocking steel members, etc., to support new machine, governors, dead end hitches, deflector and overhead sheaves from existing machine beams where applicable.

2. Where feasible, remove existing concrete pads above hoistway and reinforce structural beams for adequate support of loads imposed on new beams.
3. Contractor shall verify adequacy of all existing supports scheduled to be reused and report same to the Commissioner.

**N. Governor Rope Tension Assembly**

1. Provide a governor rope tension assembly.
  - a. Maintain the proper tension in the governor rope with a weighted tension sheave located in the pit.
    - 1) Springs used to develop the tension are not acceptable.
  - b. The sheave shall be of proper diameter and set directly plumb with the governor rope drop to prevent the rope from pulling off of the sheave at an angle.
  - c. Lubrication fittings shall be provided on the assembly.
  - d. The assembly shall have necessary rope guards to prevent accidental contact of the rope/sheave by service personnel and to prevent the governor rope from jumping off of the sheave.
  - e. Design governor to prevent false tripping because of conditions caused by rope dynamics.

**O. Car and Counterweight Oil Buffer**

1. Provide buffer with necessary blocking and horizontal steel braces under the car and counterweight.
2. Oil buffer shall bring the car and counterweight to rest from governor tripping speed at an average rate of retardation not exceeding gravity (32 ft/s<sup>2</sup>).
3. Oil buffer shall be of the spring return type and shall have means of checking oil supply level.
4. The buffer shall be tested by a qualified testing laboratory and approved as complying with the ASME Code.
5. Provide a permanent buffer marking plate which indicates the manufacturer's name, identification number, rated impact speed and stroke.
6. Provide a permanent data plate in the vicinity of the counterweight buffer indicating the maximum designed counterweight runby in accordance with ASME A17.1 as may be modified by, and/or in addition to codes and standards accepted by the AHJ.
7. Oil buffers shall be provided with means for determining the oil level is within the maximum and minimum allowable limits.  
Glass sight gauges shall be used.
8. A fixed vertical or inclined ladder fitted with an inspection and maintenance platform with guard rails shall be provided if the top of the car buffer cylinder is over 7ft. from the pit floor

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**P. Counterweight**

1. Counterweight shall consist of a steel frame welded or bolted together and necessary steel sub-weights.
  - a. Sub-weights shall be held within the frame by not less than 2 tie rods passing through holes in all weights with rods equipped with locknuts, secured by washers and cotter pins at each end.
  - b. The counterweight shall be equal to the weight of the elevator car and approximately 40% of the contract (specified) capacity.
  - c. Provide the required pit counterweight guard where no compensation is used.
  - d. The bottom of the counterweight shall have a buffer striking plate and means to attach knock-off blocks to compensate for varying rope length.

**Q. Compensation Chain**

1. Provide vinyl encapsulated compensating chain.
2. The quantity and size of the chains shall be calculated in accordance with the manufacturer's guidelines based upon the number, diameter and construction of hoist cables being used.
3. Final attachment of each compensating chain underneath the car and counterweight frame shall be accomplished by means of 'U-bolts'.
4. Intermediate support for each chain shall be provided 24" to 39" from the point of final attachment underneath the elevator car by use of an S-hook and separate U-bolt.
  - a. Arrange compensation attachment points to maintain recommended loop dimension established by the compensation manufacturers.
5. Provide a guidance system designed to prevent cable sway.
6. The use of a single compensating chain if not centered on the car and counterweight is unacceptable.
7. Provide manually reset electric switches to monitor each compensating chain connection at the elevator platform which will stop the elevator immediately upon failure of one or more of the "S" hooks.

**R. Hoist Ropes**

1. [New] pre-formed traction steel wire rope, specifically constructed for elevator applications, shall be provided for suspension of the elevator car and counterweight assembly.
  - a. Fastenings shall be accomplished by use of individual tapered rope sockets with adjustable shackles.
  - b. General design requirements for rope shackles and the method of securing wire rope shall conform with ASME A17.1 elevator safety code as modified by, and/or in addition to codes and standards accepted by the Authority Having Jurisdiction.

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2. New ropes shall be identical in number and construction to those which are currently in use.
3. Broken rope shackle springs shall be replaced on an as needed basis.
4. Provide anti-spinout as required by applicable code at all shackles where applicable.

**S. Governor Rope**

1. New pre-formed wire rope specifically constructed for elevator applications, shall be provided for governor ropes.
2. Rope shall be traction steel or iron in accordance with OEM design requirements.
3. Rope diameter and method of fastening shall be in accordance with ASME A17.1 Safety Code as adopted and/or otherwise modified by the AHJ.

**T. Guide Rails / Inserts / Brackets**

1. Provide machined, standard size steel "T" section guide rails with tongue and grooved joints for the car and counterweight. Use not less than 15.0 pound car rails.
2. The car guide rails shall be as follows:
  - a. At operating speeds of 350 fpm and below: Savera Super Line, Monteferro S or approved equal
  - b. At operating speeds between 400 and 700 fpm: Savera Extra Line, Monteferro H or approved equal
3. Use not less than 3/4" thick machined steel fishplates to form rail joints. Connect rails to fishplate with four (4) bolts.
4. Brackets shall be used to support the rails from the hoistway framing and/or inserts.
  - a. The rails shall be attached to the brackets by heavy clamps or clips.
  - b. Bolting or welding rails to brackets shall only be allowed in certain instances.
  - c. Do not attach brackets to the top flange of hoistway framing steel.
5. Provide rail backing where the vertical distance between support framing is greater than 14'-0" and no intermediate support framing is shown on the drawing.
6. All guide rails shall be erected plumb and parallel to a maximum deviation of 1/8 inch (plus or minus 1/16 inch).
7. Provide oversized steel members and brackets for the rails where the distances exceed the manufacturer's standard dimensions.

**U. Roller Guides**

1. Provide roller guide shoes with adjustable mounting base, rigidly bolted to the top and bottom of each side of the car and counterweight frame.

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- a. Roller guides shall consist of a set of sound reducing rubber wheels in precision bearings held in contact with the three finished rail surfaces by adjustable stabilizing springs.
  - b. The bearings shall be provided with grease fittings for lubrication.
  - c. Equip roller guides with adjustable stops to control postwise float.
  - d. Fit the top car roller guides with galvanized, 16 gauge steel guards.
2. Approved applications and manufacturers:
- a. Geared traction elevators: ELSCO Model B for car roller guides and ELSCO Model D for counterweight guides, or approved equal.
3. Roller guides shall not be installed on counterweight frames where traveling buffers with separate guide shoes are employed and lubrication of the rails is necessary for quiet guide operation.
4. Roller guides shall not be installed on counterweight frames where counterweight safeties are employed and prevailing conditions prohibit installation due to limitations in clearances or in cases where rollers will interfere with the operation of the safety plank.

V. Car Frame and/or Platform

1. The car frame shall be made of steel members, with a factor of safety as required by the ASME Code.
2. The car platform shall consist of a steel frame with necessary steel stringers, all securely welded together.
3. The frame and platform shall be so braced and reinforced that no strain will be transmitted to the elevator car.
  - a. Provide platform with two (2) layers of 3/4" thick marine grade plywood. Cover the underside of the car platform with sheet steel.
4. The support frame shall carry rubber pads on which the platform shall rest without any connection to the steel frame for sound and vibration isolation.
5. Provide extruded nickel silver thresholds having non-slip surface, guide grooves.
6. Sound isolate all passenger elevator platforms with vibration isolation pads. The support frame shall carry rubber pads on which the platform shall rest without any connection to the steel frame.
7. Recess the passenger elevator platforms to receive finished flooring as selected by the Commissioner and specified under another section of their specification.
8. The car frame shall be made of steel members, with a factor of safety as required by ASME A17.1 standards.
9. The car platform shall consist of a steel frame with necessary steel stringers, securely welded, with a factor of safety as required by ASME A17.1 standards.
  - a. Provide the platform with two (2) layers of marine grade plywood. Cover the underside of the car platform with sheet steel or other approved fire protection.

W. Safety

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1. Provide a governor actuated mechanical safety device mounted under the car platform and securely bolted to the car sling.
2. The car safety shall be sized for the capacity and speed noted herein.
  - a. When tripped, the safety mechanism shall engage the rails with sufficient force to stop a fully loaded car with an average rate of retardation within the limits given in A17.1 Safety Code as adopted and/or otherwise modified by the AHJ.
3. Install a car safety marking plate of corrosion resistant metal and, in addition to the data required by Code, indicate the manufacturer's name and manufacturer's catalog designation number for safety.
4. Make provisions to release the car safety. In no event shall the safety be released by downward motion of the car. Raising the car to reset the safety shall be allowed.
5. Provide an electrical safety plank switch that will interrupt the power to the hoist machine when the safety is set.

**X. Equipment Isolation**

1. Provide sound reducing vibration isolation elements at all support points of elevator controller, solid-state motor drives, isolation transformers, reactance units, hoisting motors and machines.
2. The elements for controllers, solid-state motor drives and isolation transformers shall be similar to double deflection neoprene-in-shear mounts, as manufactured by Mason Industries, Type ND, with 0.35" static deflection under design load ratings.
3. Elements between the hoisting machine unitized base and machine support beams shall be similar to triple layer ribbed neoprene pads, separated by appropriate steel shims as manufactured by Mason Industries, Type W pads, at 50 durometer, loaded for 40 psi or approved equal.
4. All bolts through isolation elements, where necessary, are to incorporate resilient washers and bushings.

**Y. Top-of-Car Operating Station**

1. An inspection operating station shall be provided on top of the elevator car.
2. This station shall be installed so that the controls are plainly visible and readily accessible from the hoistway entrance without stepping on the car.
3. When the station is operational, all operating devices in the car shall be inoperative.
4. Provide the following control devices and features:
  - a. A push/pull or toggle switch designated "EMERGENCY STOP" shall be arranged so as to prevent the application of power to the hoist motor or machine brake when in the "off" position.
  - b. A toggle switch designated "INSPECTION" and "NORMAL" to activate the top of car Inspection Service Operation.

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- c. Push button designated "Up", "Down" and "Enable" to operate the elevator on Inspection Service (the "Enable" button shall be arranged to operate in conjunction with either the "Up" or "Down" button).
  - d. An indicator light and warning buzzer that are subject to activation under Phase I - Fire Emergency Recall Operation.
5. The unit may contain the following additional devices:
- a. Approved car top lighting fixture with service guard and local control switch.
  - b. Approved 120 Volt grounded convenience receptacle to be GFI type.

**Z. Emergency Exits**

- 1. Ensure they operate as per code and have proper electrical contacts and mechanical locks on the exterior of the cab enclosure.

**AA. Elevator Security Mirror (NYC Multiple Dwellings)**

- 1. Provide a mirror within the car enclosure which will enable waiting passengers to view the inside of the cab to determine if any person is in the elevator prior to entering.

**BB. Inspection Certificate and Frame (NYC Buildings)**

- 1. Provide the mandated inspection card frame for posting the required certificate or an alternate plaque as directed by the Commissioner.
- 2. The alternate plaque shall indicate the location of the certificate within the building, including floor and/or room designation, where access is available during normal business hours.

**CC. Designation and Data Plates, Labeling and Signage.**

- 1. Provide floor designation plates at each elevator entrance, on both sides of the jamb at a height of 60 inches to center line of plate.
  - a. Designations shall be 2" high, 0.03" raised and stud mounted.
  - b. Type shall be as selected by the Commissioner from premium line of plates.
- 2. Identify the designated medical emergency services elevator with 3" high international symbol at each elevator entrance on both sides of the jamb.
  - a. Type shall be as selected by the Commissioner from premium line of plates.
- 3. Provide elevators with data and marking plates, labels, signage and refuge space markings complying with A17.1 Elevator Safety Code as may be adopted and/or otherwise modified by the AHJ.

2.4 WIRING AND ELECTRICAL SAFETY DEVICES

A. Electrical Conduit, Wiring and Traveling Cable

1. Electrical wiring shall be provided.
  - a. All wiring shall be stranded copper conductors, manufactured in compliance with ANSI/ASTM B174-71 and UL 62 requirements, and polyvinyl chloride insulation complying with ETT requirements of UL 62 and Article 400 of the National Electric Code.
  - b. Electrical wiring provided for hoistway interlock shall be of a flame retardant type, capable of withstanding temperatures of at least 392 degrees Fahrenheit. Conductors shall be Type SF or the equivalent thereof.
  - c. Each run of electrical conduit or duct shall contain no less than 10% spare wires and, in any case, no fewer than two (2) spare wires.
  - d. Crimp-on type wire terminals shall be used where possible.
2. Traveling cable shall be provided.
  - a. Each traveling cable shall be provided with a flame and water resistant polyvinyl chloride jacket.
  - b. Electrical wiring shall consist of stranded copper conductors, manufactured in compliance with ANSI/ASTM B174-71 and UL 62 requirements, and polyvinyl chloride insulation complying with ETT requirements of UL 62 and Article 400 of the National Electric Code.
  - c. Each traveling cable shall contain no less than 10% spare wires.
  - d. Traveling cable exceeding 100' in length shall be provided with a steel wire rope support strand from which the cable shall be suspended.
  - e. Traveling cable must be contained within an approved electrical conduit to within 6' of the final suspension point in the hoistway.
  - f. Each traveling cable shall be arranged to provide no fewer than six (6) individually shielded pairs of 20 gauge wire and arranged to contain no less than one (1) coaxial cable for CCTV remote monitoring.
  - g. Traveling cable conductors that terminate at a hoistway center box shall be connected to stud block provided for that purpose.
    - 1) Each wiring terminal shall be clearly identified by its nomenclature as shown on the "as built" wiring diagrams and solderless, crimp-on type wire terminals shall be used where possible.
  - h. The attachment of a traveling cable to the underside of the elevator car shall be performed so that a minimum loop diameter of 30x the cable diameter is provided.
  - i. Pre-hang the cables for at least 24 hours with ends suitably weighted to eliminate twisting during operation.
3. Rigidly supported conduit, flexible metal conduit and galvanized steel trough shall be utilized throughout the hoistway.



- a. Flexible conduit shall be connected on either end by use of compression fittings and secured in place with metal clamps sized in accordance with the diameter of conduit utilized.
  - 1) Wire or plastic wire ty-raps shall not constitute an acceptable means of fastening.
- b. The use of flexible metal conduit shall be limited to runs not greater than 3' in length.
- c. All abandoned or unused electrical conduit shall be removed from the hoistway.
- d. Existing conduit and wiring duct may be reused if suitable for the application.
  - 1) Reuse of existing conduit/duct shall be at the discretion of the Commissioner.

**B. Normal and Final Terminal Stopping Devices – Proximity Type**

- 1. Provide normal terminal stopping devices to stop the car automatically from any speed obtained under normal operation within the top and bottom overtravel, independent of the operating devices, final terminal stopping device and the buffers.
- 2. Provide final terminal stopping devices to stop the car and counterweight automatically from the speed specified within the top clearance and bottom overtravel.
- 3. The final terminal stopping devices shall have rollers with rubber or other approved composition tread to provide silent operation when actuated by the fixed cam in the hoistway.
  - a. Normal Terminal stopping devices shall be magnetic proximity type and shall be provided by the manufacturer of the control equipment, intended for use as a terminal limit, and designed for reliable operation in the hoistway environment.
- 4. Final terminal limits shall be pinned so as to prevent movement after final adjustment where required by the AHJ.

**C. Pit Stop Switch**

- 1. Where pit depth does not exceed 67", each elevator pit shall be provided with a push/pull or toggle switch that is conspicuously designated "EMERGENCY STOP" and located so as to be readily accessible from the hoistway entrance on the lowest landing served at a height of approximately 18" above the floor.
  - a. This switch shall be arranged to prevent the application of power to the hoist motor and machine brake when placed in the "OFF" position.
- 2. Where climb-in pit depth exceeds 67", each pit shall be provided with two (2) push/pull or toggle switches conspicuously designated "EMERGENCY STOP".

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- a. Both of these stop switches, shall be located immediately adjacent to the pit access ladder.
  - 1) Place one stop switch approximately 47" above the pit floor.
  - 2) Place the second stop switch 18" above the hoistway entrance sill on the lowest landing served.
  - 3) These switches shall be arranged so as to prevent the application of power to the hoist motor or machine brake when either one is placed in the "OFF" position.
3. Where a walk-in pit exists, each elevator shall be provided with a push/pull or toggle switch that is conspicuously numbered and designated "EMERGENCY STOP".
  - a. The location of this stop switch shall be approximately 47" above the pit floor at the nearest point of pit entry from the access door.
  - b. This switch shall be arranged so as to prevent the application of power to the hoist motor and machine brake when placed in the "OFF" position.
4. Provide an electric contact safety switch for the pit access door if any equipment attached to the car extends within the space of the hoistway pit at any point of travel including the car under full compressed buffer.
  - a. Opening the pit access door shall cause the electric contact switch stop the elevator by interrupting electric power to the driving machine and brake.
  - b. Provide a sign on the pit door "**WARNING – OPENING OF PIT DOOR WILL STOP ELEVATOR**" using lettering a minimum of 2 inches high.
  - c. Provide a sign on the pit door "**DANGER, ELEVATOR PIT**"

## 2.5 OPERATING SYSTEMS AND OPERATION

### A. Simplex Selective Collective Operation (PE45)

1. Provide simplex selective collective operation from a riser of hall push button stations.
2. The registration of one or more car calls shall dispatch the car to the designated floors in the order in which the floors are reached by the car, irrespective of the sequence in which the calls were registered. The car shall also respond to registered hall calls in the same direction of travel. Car and hall calls shall be canceled when answered.
3. Stops in response to calls that are registered in either the car or corridor pushbutton stations shall occur in the natural order of progression in which the floors are encountered, depending on the direction of car travel, and irrespective of the order in which calls are registered.
4. When the car has responded to the highest or lowest call, and calls are registered for the opposite direction, the car shall reverse direction automatically and respond to those registered calls.
5. When the car arrives at its last stop and reverses direction of travel, all previously registered car calls shall be automatically cancelled.

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6. When the car has responded to the highest or lowest call, and the hall calls are registered for the opposite direction, the car shall reverse direction automatically and respond to those registered calls.
7. When the car arrives at a landing where both up and down hall calls are registered, it will answer the call in the direction of travel.
  - a. If no car call is registered, the car shall be assigned to respond to call registered for opposite directions; car doors shall close immediately, re-open and respond to the call.
  - b. Hall lantern operation shall always correspond to direction of service.
8. When an empty car reverses direction at a landing with no hall calls, doors shall not open and hall lantern shall not operate.
9. If the car has no car calls registered and arrives at a floor where both up and down hall calls have been registered, the car shall respond to the hall call corresponding to the direction of car travel. If, after making its stop, a car call is not registered and no other hall calls exist ahead of the car corresponding to its original direction of travel, the doors shall close and immediately reopen in response to the hall call for the opposite direction.
10. The car shall maintain its original direction at each stop until the doors are fully closed to permit a passenger to register a car call before the car reverses its direction of travel.

**B. Automatic Group Duplex / Selective Collective Operation (PE43 & PE44)**

1. Provide duplex selective collective operation with the two cars arranged to operate from a single riser of hall push buttons.
2. When there is no demand for elevator service, park one car at the Lobby Floor and the other shall be a "free car", parking at the floor last served.
  - a. Park both cars with doors closed.
  - b. The "free car" shall normally respond to any registered hall call except:
    - 1) A hall call registered at the Lobby Floor shall be answered by the car parked at the Lobby Floor.
    - 2) A hall call registered below the Lobby Floor shall be answered by the car parked at the Lobby Floor.
3. When the car parked at the Lobby Floor responds to a registered call for a floor above the Lobby Floor, the "free car" shall be dispatched automatically to the Lobby Floor, and shall become the assigned Lobby Floor parking car.
4. When the "free car" is responding to registered calls, the Lobby Floor parking car shall automatically dispatch from the Lobby Floor under any of the following conditions:
  - a. Registration of hall call below the "free car" while it is traveling in the up direction.
  - b. Registration of hall call above the "free car" while it is traveling in the down direction.

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- c. Inability of the "free car" to move in response to a registered hall call within a predetermined time.
5. When both cars are responding to registered car and hall calls, the first car to complete its calls shall become the assigned Lobby Floor parking car and shall be dispatched automatically to the Lobby Floor.
6. If either car is removed from service, the other car shall respond to all registered hall calls and its own car calls.
7. When a car arrives at its last stop and reverses direction of travel, all previously registered car calls shall be automatically cancelled.
8. When a car has responded to the highest or lowest call, and hall calls are registered for the opposite direction, the car shall reverse direction automatically and respond to those registered calls.
9. When a car arrives at a landing where both up and down hall calls are registered, it will answer the call in the direction of travel.
  - a. If no car call is registered, the car shall be assigned to respond to call registered for the opposite direction. The car doors shall immediately close and re-open to respond to the call in the opposite direction.
  - b. Hall lantern operation shall always correspond to direction of service.
10. When an empty car reverses direction at a landing with no hall calls, the doors shall not open and the hall lantern shall not operate.
11. If a car has no car calls registered and arrives at a floor where both up and down hall calls have been registered, the car shall respond to the hall call corresponding to the direction of car travel.
12. If, after making its stop, a car call is not registered and no other hall calls exist ahead of the car corresponding to its original direction of travel, the doors shall close and immediately reopen in response to the hall call for the opposite direction.
13. The car shall maintain its original direction at each stop until the doors are fully closed to permit a passenger to register a car call before the car reverses its direction of travel.
14. In the event that any car is delayed for more than a predetermined time interval after it received a start signal, the system shall automatically permit the remaining car in the two car group to respond to signals and be dispatched in the specified manner.
15. Coincident calls: The dispatching system shall be designed with a 20 second parameter whereby an elevator with a car call will receive priority to answer a corresponding corridor call if it can do so within 20 seconds. If it cannot answer the call within the prescribed time, the first available car shall be assigned. A continuous reassessment of calls shall be made, with the processor having the capability of reassessing five (5) times per second.
16. In the event the supervisory control system should malfunction so that neither elevator is assigned calls within a predetermined interval and in accordance with the conditions of the operating strategy in effect, the system shall automatically assume a back-up mode of operation whereby the elevators shall be arranged to provide continuous service to each landing in a predetermined pattern without regard to actual corridor call demands.

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**C. Motion Control**

1. Smooth stepless acceleration and deceleration of the elevator car shall be provided in either direction of travel during both single and multiple floor runs.
2. Use digital logic to calculate optimum acceleration and deceleration patterns during each run.
  - a. The amplitude of acceleration and deceleration shall not exceed  $4 \text{ ft/sec}^2$ .
  - b. The maximum jerk rate shall not exceed  $8 \text{ ft/sec}^3$ .
  - c. The maximum velocity which the elevator achieves in either direction of travel while operating under load conditions that vary between empty car and full rated load shall be within  $\pm 2\%$  of the rated speed.
3. Floor leveling accuracy of  $\pm 1/4"$  as measured between the car entrance threshold and the landing sill on any given floor shall be provided.
  - a. This accuracy standard shall be maintained under varying load conditions and without need for releveling corrections caused by overshooting or stopping short of the floor (spotting).
4. Brake-to-brake elapsed time during a typical elevator one floor run shall not exceed values as further specified in this document.
  - a. Timing, as measured between initial brake lift and the moment the brake sets with the car position level at the next adjacent floor, shall remain consistent under varying load conditions in either direction of travel.
5. Elapsed flight time during a typical elevator one floor run shall not exceed values as further specified in this document.
  - a. Timing, as measured between the moment door closing operations begin and when the doors are  $3/4$  open at the next adjacent floor, shall remain consistent under varying load conditions in either direction of travel.

**D. Independent Service Operation**

1. The car operating station shall be equipped with a key-operated switch labeled "IND SER".
2. When placed in the "on" position, this switch shall cause the elevator to bypass corridor calls and to travel directly to any floor chosen by registration of a car call.
3. During Independent Service Operation, the elevator doors shall remain open at any landing until the door close or car call registration pushbutton, is pressed and maintained until the doors are fully closed.
4. In case an elevator is operating on the Independent Service mode and the Fire Emergency Recall system becomes activated, the elevator shall automatically override Independent Service Operation and engage Phase I - Fire Emergency Recall Operation following a period of approximately forty-five (45) seconds.
5. If more than one (1) car call is registered, all registered car calls shall extinguish when the elevator stops in response to the first call.

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**E. Inspection Service Operation**

1. Provide a key operated switch in the main car operating panel that, when turned to the 'ON' position, shall cause the elevator to be removed from service and placed in Inspection Service Operation.
2. Limited operation of the car shall be provided through pressing the Attendant Service up and down momentary push buttons (if provided) or the highest or lowest car call push buttons (if up and down buttons are not provided) in the main car operating panel only.
3. The car shall move at a speed not to exceed 150 feet per minute as per code with both the hall and car door panels in the closed and locked position.
4. The Inspection Service switch shall be keyed differently than other typical keys used in the operation of the elevator. Keying shall be in accordance with Security Group Classifications as required by applicable code.
5. The top of the elevator car shall be equipped with a control for limited operation of the car during repairs, maintenance and inspection conducted in the hoistway. The transfer of control to the top of car operating device shall cause that device to be the sole means of control for the elevator.
6. Power door operating equipment shall be rendered inoperative while the car is being operated in the Inspection Service mode with the exception of power closing of the door. The control system shall maintain closing power on the door while the elevator is moving under Inspection Service Operation.
7. The in-car Inspection Service switch shall be rendered ineffective when the top of car inspection control is activated.
8. Machine Room Inspection Operation and Inspection Operation with open door circuits shall be provided in accordance with A17.1 Safety Code where required or allowed by the AHJ.

**F. Hoistway Access Operation**

1. Provisions shall be made to allow access to the hoistway through the use of hoistway access switches.
2. Operating the access switch shall permit the car to be moved at slow speed (inspection speed) with the doors open to allow authorized persons to obtain access to the top of the cars P43 & P44 and to permit access to the top of car and pit for P45.

**G. Fire Emergency Operation (City of New York)**

1. Phase I - Emergency Recall Operation shall be provided in accordance with the applicable ASME A17.1 code as modified under New York City local law.
2. The car operating station shall be provided with an indicator light and audible signal, each of which shall become activated when Phase I Operation is engaged.
  - a. The warning buzzer shall cease to function once the car has completed the recall sequence and is positioned at the designated recall landing.
  - b. The indicator light shall remain illuminated as long as Phase I Operation is activated.

3. A two-position key-operated switch shall be provided on the designated recall landing per local law to manually activate Phase I Operation.
  - a. When activated, Phase I Operation shall be arranged so that in order to restore normal service, the car must first be returned to the designated recall landing, after which the Phase I key-switch must be turned to the 'OFF' position.
4. Phase II - Emergency Recall In-Car Operation shall be provided in accordance with applicable ASME A17.1 code as modified under New York City local law.
5. The car operating panel shall be modified or equipped with a three-position, key-operated switch to engage Phase II Operation subsequent to completing the Phase I recall sequence and parking at the designated recall landing.
6. The car operating panel shall be provided with a 'CALL CANCEL' push button that functions only under Phase II Operating mode.
  - a. When operated, the button shall cause any previously registered car calls to cancel.
7. The car operating panel shall be engraved with required fire control identifications per New York City local law.
8. A "Standardized Fire Recall Key" shall be used in accordance with the applicable Codes. This key shall be a Yale #2642.

**H. Flood Zone Requirements**

1. Elevators shall be provided with additional flood resistance measures in compliance with the Building Code of New York City.
  - a. Provide a water sensor located below the lowest electronic protective device within the pit which shall transmit a signal to the elevator control to initiate "flood operation".
  - b. Upon activation of "flood operation":
    - 1) All cars shall be parked at the first stop above flood level, or at alternate location as directed by the AHJ.
    - 2) Emergency power or auto lowering devices shall not lower the car below the flood level when "flood operation" is active.
  - c. Provide a visual signal at the lobby hall station and in the car operating panel to notify passengers and emergency responders that the car is on "Flood Operation".
  - d. All electrical devices below the base flood elevation and devices in the elevator pit shall be NEMA 4 compliant.
  - e. Where new door entrances, door panels, and sills are provided under the scope of work specified in project drawings and specifications, at or below the base flood elevation, stainless steel finish shall be provided.
  - f. The elevator equipment shall be installed and anchored to resist flood forces.

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- g. Where new door entrances, door panels, and sills are provided under the scope of work in project plans, drawings and specifications, provide galvanized sill angles and hardware at floors below the base flood elevation.
- h. Provide additional control measures as required by local codes.
- i. Provide applicable signage per NYC building code, Appendix G.
- j. "Flood Operation" functions and designs are subject to approval and / or revision by the AHJ and FDNY. The Contractor shall verify "Flood Operation" functions with the AHJ and FDNY prior to equipment installation.

**I. Load Weighing**

- 1. A positive means shall be provided to continuously monitor the amount of load being transported by the elevator car.
- 2. The system shall be used to preload static motor drives, activate control features that include anti-nuisance operation, load dispatch operation, and load non-stop operation where applicable.
- 3. The anti-nuisance feature shall operate at loads not exceeding 200 lbs., whereas load dispatch and load non-stop shall be set to function at 65% of the rated loading capacity for the initial set up and adjustment procedure.

**J. Anti-Nuisance Operation**

- 1. In the event car loading or operation is not commensurate with the number of car calls registered, all car calls shall be canceled.
  - a. The system shall monitor the door protection device to determine if passenger transfer exists.
  - b. If after the third stop a passenger transfer has not occurred, the system shall cancel all remaining car call registrations and resume normal operation by responding to assigned hall call demand.
  - c. The number of calls registered with no passenger transfer that will trigger anti-nuisance shall be adjustable. Initially set this threshold to 3 calls.

**K. Out-of-Service Control Operation**

- 1. The car operating station shall be provided with an unidentified key-operated switch that shall remove the elevator from service when placed in the "on" position and the car is not in motion.
- 2. In the event the key-switch is turned to the "on" position while the elevator is in motion, the car shall proceed to the next call and be removed from service after leveling operations are completed and the doors have opened.
- 3. When engaged, the Out-of-Service Control feature shall cause the car door to remain open under power, and the car call buttons to be inoperative.
- 4. The elevator shall not respond to hall call assignments from dispatching systems when the Out-of-Service Control feature is active.
- 5. Phase I - Emergency Fire Recall Operation shall override this feature and the Out-of-Service Control feature shall be inoperative during Phase II - Emergency Fire Operation.

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**2.6 DOOR DEVICES AND OPERATION**

**A. Car/Hoistway Door Operation**

1. Car and hoistway doors shall be arranged to operate in unison without excessive noise or slamming in either direction of travel.
  - a. Door opening speeds of two (2) feet per second shall be provided in conjunction with closing speeds of 1.0 feet per second in accordance with governing code.
  - b. Door operation shall be arranged to commence as the car enters its final leveling approach to a landing. In no case shall the door opening cycle conclude before the car comes to a complete stop at floor level.
2. Door open and door close time shall be measured between the moment car door operation in either direction begins and the instant at which that cycle is completed.
3. When responding to either a car or corridor call, the amount of time that the elevator door remains stationary in the open position shall be adjustable up to sixty (60) seconds.
  - a. Door open dwell time for a corridor call shall be separate of that for a car call, and in both cases, dwell time shall be canceled whenever the car door protection device is momentarily interrupted by passenger transfers, followed by a reduced door open dwell time of approximately one (1) second (adjustable) after the door protection device is cleared of obstructions.
4. The operation of the door protective device by physical contact (mechanical safety-edge) or the interruption of one or more infrared light beams (dual or multi-beam non-contact) during the close cycle shall cause the immediate reversing of the doors to the full open position.
5. The door closing cycle shall be arranged so that, in the event the door protective devices become continually obstructed after the normal door open dwell time has expired, and following a time interval of approximately thirty (30) seconds (adjustable), a warning tone shall sound and the door closing cycle shall commence at reduced speed and torque per applicable Code requirements.
6. Each car operating station shall be provided with a "door open" and "door close" push button.
  - a. Pressure on the "door open" button shall cause doors in the full open position to remain so and doors engaged in the close cycle to reverse direction and assume the full open position so long as pressure remains applied to the button.
  - b. The "door open" buttons shall also control the open cycle during Phase II - Emergency In-car Operation.
  - c. The "door close" push button shall function on Independent Service, Attendant Service or Phase II - Emergency In-car Operation as well as during normal automatic operations.

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7. Repeated attempts by the power door operator mechanisms to open or close the door at any landing shall be monitored by the microprocessor-control system.
    - a. In the event the door should fail to cycle properly after a preset (adjustable) number of attempts, the car shall either travel to the next stop or remove itself from service, depending upon whether the malfunction is in the open or close cycle.
  8. Each hoistway door shall be provided with an automatic self-closing mechanism arranged so that if the car should leave the landing while the hoistway door is unlocked, the closing device shall immediately close and lock the door.
  9. Car door shall be arranged so as to prevent their being manually opened from inside the car unless the elevator is positioned within a floor landing zone.
- B. Master Door Power Operator System – VVVF/AC**
1. Provide a heavy-duty master door operator on top of the elevator car enclosure for power opening and closing of the cab and hoistway entrance door panels.
  2. Operator shall utilize an alternating current motor, controlled by a variable voltage, variable frequency (VVVF) drive and a closed-loop control with programmable operating parameters.
    - a. System may incorporate an encoder feedback to monitor positions with a separate speed sensing rotating device or an encoderless closed-loop VVVF-AC control to monitor motor parameters and vary power applied to compensate for load changes.
  3. The type of system shall be designated as a high speed operator, designed for door panel opening at an average speed of 2.0 feet per second and closing at approximately 1.0 foot per second.
    - a. Reduce the closing speed as required to limit kinetic energy of closing doors to within values permitted by ASME A17.1 as may be adopted and/or otherwise modified by the AHJ.
  4. The door shall operate smoothly without a slam or abrupt motion in both the opening and closing cycle directions.
    - a. Provide controls to automatically compensate for load changes such as:
      - 1) Wind conditions (stack effect)
      - 2) Use of different weight door panels on multiple landings
      - 3) Other unique prevailing conditions that could cause variations in operational speeds.
    - b. Provide nudging to limit speed and torque in conjunction with door close signaling/closing and timing devices as permitted by ASME A17.1 as may be adopted and/or otherwise modified by the AHJ. Nudging shall be initiated by the signal control system and not from the door protective device.

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5. In case of interruption or failure of electric power from any cause, the door operating mechanism shall be so designed that it shall permit emergency manual operation of both the car and corridor doors only when the elevator is located in the floor landing unlocking zone.
  - a. The hoistway door shall continue to be self-locking and self-closing during emergency operation.
  - b. The door operator and/or car door panel shall be equipped with safety switches and electrical controls to prevent operation of the elevator with the door in the open position as per ASME A17.1 Code Standards.
  - c. Provide zone-lock devices as required by ASME A17.1 as may be adopted and/or otherwise modified by the AHJ.
6. Construct all door operating levers of heavy steel or reinforced extruded aluminum members, designed for stress and forces imposed on the related parts, linkages and fixed components during normal and emergency operation functions.
  - a. All pivot points shall have either ball or roller-type bearings, oilite bronze bushings or other non-metallic bushings of ample size.

**C. Car Door Hangers, Sheaves, Tracks and Gate Switch**

1. Provide a sheave type two-point suspension hanger and track for each car door.
  - a. Sheaves shall be hardened steel, not less than 3-1/4 inches in diameter with sealed grease packed precision ball bearings.
  - b. The upthrust shall be taken by a roller mounted on the hanger and arranged to ride on the underside of the track.
2. The track shall be of formed cold rolled steel or cold drawn steel and shall be rounded on the track surface to receive the hanger sheaves.
  - a. The track shall be removable and shall not be integral with the header.
3. Provide a gate switch that mounts directly to the car door track.
  - a. The gate switch shall prevent movement of the elevator until such time as it signals the control equipment that the car door has physically closed.

**D. Car Doors**

1. Provide standard 1" thick, 14 gauge hollow metal flush construction panels, reinforced for power operation and insulated for sound deadening.
2. Paint the hoistway side of each panel black and face the cab side with 16 gauge sheet steel matching the existing returns or in selected material and finish as otherwise directed by Commissioner.
3. The panels shall have no binder angles and welds shall be continuous, ground smooth and invisible.

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4. Drill and reinforce panels for installation of door operator hardware, door protective device, door gibs, etc.
    - a. Provide each door panel with two removable laminated plastic composition guides, arranged to run in the sill grooves with minimum clearance.
    - b. The guide mounting shall permit their replacement without removing the door from the hangers.
  5. Provide the meeting edge of center opening doors with necessary continuous rubber astragal bumper strips.
    - a. These strips shall be relatively inconspicuous when the doors are closed.
- E. Door Reopening Device
1. Provide an infrared curtain door protection system.
  2. The door shall be prevented from closing and reopen when closing if a person interrupts any one of the light rays.
  3. The door shall start to close when the protection system is free of any obstruction.
  4. The infrared curtain protective system shall provide:
    - a. Protective field not less than 71" above the sill.
    - b. Where a horizontal infrared light beam system is used:
      - 1) A minimum of 47 light beams.
      - 2) Accurately positioned infrared lights to conform to the requirements of the applicable handicapped code .
    - c. Modular design to permit on board test operation and replacement of all circuit boards without removing the complete unit.
    - d. Controls to shut down the elevator when the unit fails to operate properly.

## 2.7 FINISH AND MATERIALS

### A. Car Interior Finishes

1. Car interior finishes shall be as selected by Commissioner.
2. Contractor shall provide samples of finishes as required for approval prior to fabrication.
3. Refer to specifications for other design requirements.
4. Special attention shall be given to flooring materials and suitability for intended duty.

## 2.8 CAR ENCLOSURES AND ACCESSORIES

### A. New Cab

1. Car Flooring - Provide new cab flooring as specified below:

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a. **Materials and Labor:**

- |                            |   |
|----------------------------|---|
| 1) <b>Material:</b>        | Epoxy aggregate flooring.   |
| <b>Color:</b>              | As selected by the Commissioner.  |
| <b>Primer:</b>             | Homogeneous Epoxy Primer.   |
| <b>Application Method:</b> | Trowel.   |
| <b>Mixing Ratio:</b>       | Proportionately packaged as manufactured by Standard M&F, P.O. Box 160, Totowa, New Jersey, 07111, or approved equal. |

- b. Submit the name of the Installer. The Installer must have a minimum of 3 years experience in installing such floors. In addition, the Contractor must submit a list of locations where the Installer has installed this type of floor. The Contractor shall install one (1) floor and receive Commissioner approval on the installation before continuing.

2. **Standards:**

- a. Application shall be performed in accordance with the best recommendations, in a first class workmanship manner.
- b. The completed system shall be composed of 100% solid thermosetting Epoxy resins and inert aggregates.

3. **Applications Conditions:**

- a. Thoroughly clean and dry all surfaces, before the Epoxy aggregate flooring is applied.
- b. Maintain temperature of 50 degrees Fahrenheit during application and for a minimum period of seven days thereafter.

4. **Protection:**

- a. Protect all finishes from damage.

5. **Application Procedure:**

- a. Apply primer coat.
- b. Trowel mix resin and aggregate to a minimum of 1/4".
- c. Apply sealer coat 100% pure Epoxy.

6. **Post Applications Conditions:**

- a. Protect the new epoxy flooring from pedestrian traffic for at least 48 hours after the last coat has been applied and from moving of heavy equipment and furniture, for at least five days thereafter.

B. **Car Enclosure (Cab)**

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1. The existing car enclosure shall be removed and replaced complying with the following:

Cab panels shall be constructed of No. 16 USSG rigidized textured stainless steel, No. 304 Sheffield pattern 5WL, satin finish. Car panels shall be of the same height as existing not to exceed a maximum width of 18 inches for each panel. Each panel shall have all necessary reinforcements for proper stiffness with a maximum of one-quarter (1/4) inch deflection for all panels. Panels shall be without any warp, twists or bends. Panels shall be separate and readily removable for replacement. Each of the panels shall have a 1/32 inch felt or tape ribbon cemented to it to form a noiseless joint. The exterior of each of the panels shall receive a coating of sound deadening material. Provide a cutout in one (1) side panel closest to daylight for pushbutton box. Provide stainless steel angle and two stainless steel bolts, nuts, per panel, etc. for fastening these panels to car platform.

Provide stainless steel pad buttons to the uppermost portion of each car panel including the front return. Pad Buttons to be thru bolted and securely fastened from the shaft side. Provide one (1) complete set of protective pads for 1-10 elevators, two (2) complete sets of pads for 11-20 elevators, three (3) complete sets of pads for 21-30 elevators, etc. One pad in each complete set shall be provided with a cutout to provide access for the car operating panel.

- a. The entrance columns, door edge channels and astragals shall be constructed of stainless steel Alloy No. 302, smooth, No. 4 finish, No. 14 USSG. Each entrance column shall be one continuous member from the threshold to the soffit of the canopy, and shall be properly secured at top. The bottom of both posts shall be thru-bolted to platform with stainless steel hardware.
- b. The canopy shall be constructed of not less than No. 14 USSG stainless steel, reinforced and must be capable of sustaining a load of 300 pounds per square foot and shall be provided with a hinged emergency exit. The canopy shall be finished with a #4 satin finish. The canopy shall be securely anchored to the enclosure walls. There shall be two canopy exit switches; one in the safety circuit, and the other in the alarm bell circuit.
- c. Provide in each cab a No. 18 USSG polished stainless steel mirror in the upper corner of the cab and opposite the cab entrance. The mirror shall be tight to the ceiling and walls of the cab. Minimum size shall be 7 inches. Edges of the mirror shall be framed in a fireproof plastic molding. The mirror shall provide a view of the entire walls and floor of the cab that cannot be seen from the cab entrance. The mirror shall be fastened with concealed tamperproof fastenings.
- d. Provide a No. 16 USSG stainless steel cove base 4 inches high, around the entire car with exception of car door opening. All exposed ends of this molding shall be closed. The molding shall be stud welded through side panels and extend beneath the flooring. Provide a continuous bead of waterproof sealant at the top of this molding where it abuts the car panels.

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- e. Handrail: Provide a stainless steel type 302 alloy #4 finish handrail 2" x 3/8" across rear of the car secured to the panels. Edge of handrail shall be machined to a 1/16" chamfer. Each panel shall have a 1/8" steel reinforced plate behind it to support the handrail brackets. Locate top of handrail 36" above the finished floor.

**C. Car Entrance**

- 1. Provide the car entrance with a single panel, horizontal sliding door, of flush panel hollow metal construction and the same height as hatchway doors. Rear and leading edge of door seams shall be welded. Panel rigidity shall be obtained by suitable stainless steel reinforcements at top and bottom. The car side of the car door shall be No. 16 USSG rigidized stainless steel and the hall side of the car door shall be No. 16 USSG stainless steel. Note: Stainless Steel cladding on a furniture steel sub-door is not accepted construction. Reinforcement for car door operator or other operating equipment shall be a minimum of 1/4 inch and flush.
- 2. Car Door Hangers: Car slide doors shall be hung on heavy duty ball bearing, sheave type hangers, sheaves shall not be less than 3-1/8" riding surface diameter with adjustable upthrust rollers of metal design running on a new polished steel track. Sheave rollers shall be of nylon, or equal, with no flat spots. Hangers not mounted flush with the top of the door shall be provided with new metal stiffeners and shall be installed to eliminate excessive movement in the door and hanger assembly. Car door header shall be mounted in such a manner so that if a car door of a down traveling elevator engages a fixed obstruction in the hoistway, the car canopy will not be damaged. An upthrust safety retainer shall be installed on the door hanger to prevent the door from coming off the track due to vandalism.
- 3. Removable Guides: The bearing or riding surface of the sheave shall be machine cut to the same contour as the track shall be guided at the bottom by two (2) new Stainless Steel Safety Door Guide assemblies consisting of fully adjustable solid stainless steel safety bar guide(s) with an integral replaceable nylon or Teflon gib, mounted on a minimum 12 gauge stainless steel bracket, and fastened to the door with stainless steel machine screws, sliding in the cab door sill groove. Guide assemblies shall be the "SEES ENFORCER" as manufactured by Southern Elevator and Electric Supply or approved equal. Guide assemblies utilizing manually turned down "Fire tabs" for substitution of safety bar(s) is not acceptable.
- 4. Rubber Bumpers: Shall be mounted on the front and rear of the car door hanger tracks. After their final adjustment, they shall be permanently pinned in place.
- 5. Car Door Safety "Z" Bar Guide: Provide one new stainless steel safety "Z" bar guide on the underside of door and securely fastened to the underside of the door with stainless steel countersunk machine screws. The safety "Z" bar guide shall be mounted adjacent to and in between the two (2) removable guides for easy replacement of the guides.

**D. Ventilation**

- 1. Provide ventilation for the car enclosure as follows:

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- a. Provide two-speed blower, mounted to exhaust air from car enclosure, at the rear cab top behind the crosshead.
- b. An 8" x 4" Linear diffuser flush mounted to ceiling.
- c. Provide a two-speed switch at the rear of cab top.
- d. Hardware (liquid tight, conduit, connectors, etc.)
- e. The system shall be wired into the A-C circuit and shall be separately fused.
- f. Provide perforations in the canopy sides directly over each panel, with baffles to prevent insertion of foreign objects.

**E. Elevator Cab LED Fixture**

1. Housing shall be No. 18 USSG CRS all welded construction, finished baked white enamel with 87% reflectance factor.
2. Lens frame shall be No. 18 USSG stainless steel secured to housing with continuous stainless steel No. 18 USSG heavy piano hinge, and two (2) stainless steel tamperproof screws.
3. Lenses shall be one (1) 3/16" thick prismatic, Pattern 5, UV stabilized D.R. acrylic secured in frame by means of four (4) stainless steel full length brackets, and one (1) 1/4" thick clear tempered glass panel.
4. Driver shall be two (2) "Thomas Research" Cat #LED25W-72-C0350-D, or approved equal, 350mA, secured to housing assembly by means of two (2) machine screws and nuts.
5. LED boards to be "Luminare Lighting Corporation" Cat No.MP-LED-SHMOD or approved equal. Each board secured to No.18 USSG CRS reflector with three (3) 4-40 Torx PanTaptite screws. Reflector to be finished baked white enamel with 87% reflectance factor.
6. LED to be Samsung SPMWHT221MD-4000K-TDG or approved equal, circuited in a parallel series configuration and driven at 50mA each. All LEDs shall be from a single flux and a single voltage bin for uniformity. Flux and voltage shall be A2, S2 or greater.
7. LED board traces shall be designed for parallel series operation so that if any one LED shall fail, all other LEDs shall remain illuminated.
8. The elevator cab LED light fixture shall be "Luminare Lighting Corporation" Cat No.RVP26-42W HP or approved equal. Fixture input wattage to be no more than 42 watts with and efficacy of no less than 67 lumens per watt.

**F. Emergency Exits**

1. Ceiling Emergency Exit: Provide canopy with a hinged emergency exit, opening upward and clear of crosshead and car door operator. Emergency exit cover to be hinged on the counterweight side and held in place by nonremovable fastening device at each corner, and shall be openable from top of car only. These exits shall be equipped with electrical contacts which will prevent operation of the car when exit door is open, and cause alarm bells to ring. A guardrail shall be provided without interference with the opening of the exit and shall meet all requirements and be in accordance with Rule 2.14.1.7 and Rule 2.10.2 of the ASME A17.1 2000 Safety Code.

**H. Cab Fabrication and Installation**

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1. Maintain accurate relation of planes and angles with hairline fit of contacting panels and/or surfaces.
2. Any shadow gaps (reveals) between panels shall be consistent and uniform.
3. Unless otherwise specified or shown on the drawings, for work exposed to view use concealed fasteners.
4. Maximum exposed edge radius at corner bends shall be 1/16". There shall be no visible grain difference at the bends.
5. Form the work to the required shapes and sizes with smooth and even curves, lines and angles. Provide necessary brackets, spacers and blocking material for assembly of the cab.
6. Interior cab surfaces shall be flat and free of bow or oil canning. The maximum overall deviation between the low and high points of 24" x 24" panel section shall not exceed 1/32".
7. Make weights of connections and accessories adequate to safely sustain and withstand stresses to which they will be subjected.
8. All steel work except stainless steel and bronze materials shall be painted with an approved coat of primer and one (1) coat of baked enamel paint.

I. Car Enclosure Work Light and Receptacle

1. The top and bottom of each car shall be provided with a permanent lighting fixture enclosed with globe and guard, and 110 volt GFI receptacle.
2. Light control switches shall be located for easy accessibility from the hoistway entrance.
3. Where sufficient overhead clearance exists, the car top lighting fixture shall be extended no less than 24" above the crosshead member of the car frame.
4. Light bulbs shall be guarded so as to prevent breakage or accidental contact.

2.9 HOISTWAY ENTRANCES

A. Hoistway Entrance Structure – Complete (PE45 – SC & B floors only)

1. Frames - The frames shall be constructed of 14 gauge sheet steel.
  - a. Passenger Elevators - Provide painted metal finish unit frame with welded and mitered corners ground smooth, 2" wide square profile.
2. Doors - The doors shall be constructed of 16 gauge sheet steel, not less than 1-1/4" thick, reinforced to accept hangers, interlocks or door closers.
3. Equip all hoistway landing doors with one-piece full height non-vision wings of material and finish to match hall side of door panels. The doors shall be as follows:
  - a. Passenger Elevators - All Floors: Painted Metal.
4. Entrances shall bear 1 ½ hour label of Underwriters Laboratories, Inc.

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5. Provide each door panel with two removable laminated plastic composition guides, arranged to run in sill grooves with a minimum clearance, replaceable without removing the door from the hangers and incorporating a steel fire stop.
6. Provide rubber bumpers at the top and bottom of the door to stop them at their limit of travel in opening direction.
7. Sills - Provide narrow-type, extruded sills with the nosing approximately one (1) inch deep and running the full length of door travel.
  - a. The sills shall be at least 3/8 inch thick.
  - b. The wearing surface shall be of a non-slip type.
  - c. Rigidly secure the sills to the building construction by means of steel sill support brackets or blocking with necessary metal shimming or adjustments.
    - 1) Passenger Elevators – At All Floors : **Extruded nickel silver**
  - d. Provide and rigidly secure sill support members to the building structure after blocking and leveling them with necessary metal shimming.
    - 1) Use 4" x 4" x 1/4" angle for single speed entrances and 5" x 5" x 3/8" angle for two speed entrances.
    - 2) If formed sheet steel sill support members are used, the structural properties of these members shall match or exceed the structural properties of 4" x 4" x 1/4" angle for single speed entrances, and 5" x 5" x 3/8" angle for two speed entrances.
8. Provide a special key so that an authorized person can open any landing door when the car is elsewhere.
  - a. The key hole shall be fitted with metal ferrule that matches the door finish.
  - b. Drilling key holes in the field will not be accepted.
  - c. Terminal landings equipped with hoistway access switches do not require special key holes.
9. Struts - Provide 3" x 3" x 1/4" hot rolled steel angle struts.
  - a. If formed sheet steel struts are used, the structural properties of formed struts shall match or exceed the structural properties of 3" x 3" x 1/4" steel angle.
  - b. Extend the struts from top of sill to either the bottom of floor beam or intermediate framing above.
  - c. Bolt struts in place with not less than two (2) bolts at each end.
  - d. Strut clip angles or brackets shall have a thickness not less than the thickness of the supported strut.
10. Track Support - 3/16 inch thick steel track support plate shall extend between and be bolted to the vertical steel struts with no less than two (2) bolts at each end.
11. Track Covers - 14 gauge steel cover plates shall extend the full travel of the doors.

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- a. Covers shall be made in sections for service access to hangers, sheaves, tracks and interlocks.
  - b. The sections above the door opening shall be movable from within the elevator car.
  - c. Cover fastening devices shall be non-removable from the cover.
12. Fascias – 14 gauge steel fascia plates shall extend at least the full width of the door and be secured at hanger support and sill with oval head machine screws.
- a. Provide fascia plates where the clearance between the edge of the loading side of the platform and the inside face of the hoistway enclosure exceeds the code allowed clearance.
13. Toe Guards - Provide 14 gauge steel toe guards to extend 12 inches below any sill not protected by fascia.
- a. The toe guards shall extend the full width of the door and shall return to the hoistway wall at a 15 degree angle and be firmly fastened.
14. Dust Covers - Provide 14 gauge steel dust covers to extend 6 inches above any header not protected by fascia.
- a. The dust covers shall extend to a full width of travel of the doors, return to the hoistway wall at a 15 degree angle and be firmly fastened.

**B. Slide Type Hoistway Door (All Floors)**

1. Provide a new elevator hoistway entrance door reusing existing entrance frame.
2. Each new door shall be as follows:
  - a. Constructed hollow metal
  - b. 1-1/2 hour fire-rated test approved with label
  - c. Manufactured of cold rolled furniture steel
  - d. Flush design both sides
  - e. Rigidly reinforced
  - f. Sound deadened
3. Where conditions warrant, and where otherwise required by code, equip all hoistway landing doors with one-piece full height non-vision wings of material and finish to match hall side of door panels.
4. Provide each door panel with two removable laminated plastic composition guides, arranged to run in existing sill grooves with a minimum clearance.
  - a. The guide mounting shall permit their replacement without removing the door from the hangers.
  - b. A steel fire stop shall be enclosed in each guide.
5. Provide the meeting edge of center opening doors with necessary new continuous rubber astragal bumper strips.

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- a. Astragal shall be relatively inconspicuous when the doors are closed.
  - b. Provide rubber bumpers at the top and bottom of each section of door to stop them at their limit of travel in the opening direction.
6. Provide a special key so that an authorized person can open any landing door when the car is elsewhere.
- a. The key hole shall be not less than 3/8" in diameter and shall be fitted with a stainless steel or bronze ferrule to match related equipment.
7. Finish all door panels to match elevator entrances in baked enamel color as selected by Commissioner.
8. Where conditions require, provide necessary new masonry around existing entrance frames to maintain fire rating. Painting or other wall surface decorating will be by Others.
- C. Tracks, Hangers, Closers and Related Equipment
1. Formed or extruded steel landing door hanger tracks shall be provided.
  2. Each landing door panel shall be suspended from a pair of door hanger assemblies that are compatible with the hanger tracks.
    - a. Hanger assemblies shall be directly mounted to the door panel using 3/8" diameter or better hardware.
    - b. Solid steel blocks shall be used where job-site conditions dictate the use of spacers between hanger assemblies and the landing door panel.
      - 1) Jacking bolts or "U" shaped spacers are not acceptable for this application.
    - c. Hanger assemblies shall be adjusted or shimmed so that door panels are suspended in a plumb manner with no more than 3/8" vertical clearance to the cab entrance threshold.
    - d. Upthrust rollers shall be adjusted for minimal operating clearance against the bottom edge of the hanger track.
  3. Each set of center opening landing doors shall be provided with a cable driven relating mechanism which is compatible for use with the door hanger assemblies.
    - a. The relating mechanism shall be properly tensioned and adjusted so as to equalize the relationship between the door panels and the hoistway entrance.
  4. Each set of multi-speed center opening or side slide landing doors shall be provided with a sill-mounted spring closing mechanism.
  5. Each set of single speed side slide landing doors shall be provided with a sill-mounted spring closing mechanism.

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- a. Spirator-type spring closers shall be acceptable should prevailing sill depth or runby clearance conditions require their use.
6. Where applicable, each hoistway door interlock assembly shall be provided with an emergency release mechanism utilizing manufacturers' standard type access key at all landings served.
  - a. Drill each hoistway door to accommodate manufacturer's standard lock release key and install escutcheon. Escutcheon shall be brushed stainless steel to match door panels where required. Aluminum shall be provided at all other typical floors.

**D. Interlocks and Unlocking Devices**

1. Each set of landing doors shall be provided with a complete electromechanical interlock assembly.
  - a. Each interlock assembly shall consist of:
    - 1) A switch housing with contacts
    - 2) Lock keeper
    - 3) Clutch engagement/release subassembly
    - 4) Associated linkages
  - b. Arrange the lock so that individual leading door panels (side slide or center opening) are locked when in the closed position.
2. Non-typical mounting arrangements for interlocks and/or related mechanisms must receive prior approval from the Commissioner.
3. Each hoistway door interlock assembly shall be provided with an emergency release mechanism utilizing a drop-leaf type access key at all landings served.
  - a. Drill each hoistway door to accommodate manufacturer's standard lock release key and install escutcheon. Escutcheon shall be brushed stainless steel to match door panels where required. Aluminum shall be provided at all other typical floors.

**E. Bottom Guides and Safety Retainers**

1. The bottom of each horizontally sliding hoistway door panel shall be equipped with guiding members and safety retainers in accordance with A17.1 Safety Code as adopted and/or modified by the AHJ.
  - a. The bottom hoistway door panel safety retainers shall be of stainless steel "Z" bar design, or shall be otherwise designed to prevent displacement of the door panel.
  - b. Contractor must submit proof to the Department, in the form of a statement certified by a licensed architect or engineer, that the engineering and design of the safety retainers comply with the performance standard defined in Appendix "K".

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- c. Provide each new hoistway sill with two (2) new stainless steel safety blocks and secured with stainless steel hardware. Provide one safety block at the return post and another at the strike post, in a manner as not to cause a tripping hazard. Safety blocks shall measure 1/2" wide x 3/4" high x 1-1/2" long.
- d. New Removable Door Guide Assemblies: Each door panel shall be guided at the bottom by two (2) new Stainless Steel Safety Door Guide assemblies consisting of fully adjustable solid stainless steel safety bar guide(s) with an integral replaceable nylon or Teflon gib, mounted on a minimum 12 gauge stainless steel bracket, and fastened to the door with stainless steel machine screws, sliding in the hoistway door sill groove. Guide assemblies shall be the "SEES ENFORCER" as manufactured by Southern Elevator and Electric Supply or approved equal. Guide assemblies utilizing manually turned down "Fire tabs" for substitution of safety bar(s) is not acceptable.

## 2.10 SIGNAL EQUIPMENT

### A. General

- 1. The design and location of the hall and car operating and signaling fixtures shall comply with the ADAAG.
- 2. The operating fixtures shall be selected from the manufacturer's premium line of fixtures.
- 3. Custom designed operating and signaling fixtures shall be as shown on the drawings or as approved by the Commissioner.
- 4. The layout of the fixtures including all associated signage and engraving shall be as approved by the Commissioner.
- 5. Refer to drawings for other design requirements. Where no special design is shown the faceplates shall be as follows:
  - a. Passenger Elevators
    - 1) All Floors - 1/8" thick stainless steel with No. 4 finish and tamperproof screws
- 6. Where key-operated switch and or key operated cylinder locks are furnished in conjunction with any component of the installation, four keys for each individual switch or lock shall be furnished, stamped or permanently tagged to indicate function.
- 7. All caution signs, code mandated instructions and directives shall be engraved and filled with epoxy.

### B. Main Car Operating Panel – Vandal Resistant

- 1. Provide a main car operating push button panel on the inside front return panel of the car.
- 2. The push buttons shall become individually illuminated as they are pressed and shall extinguish as the calls are answered.
- 3. Provide LED call registration lights.

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4. The operating panel shall include:
  - a. A call button for each floor served.
  - b. "Door open" / "Door close" buttons.
  - c. "Alarm" button (Interfaced with emergency alarm).
  - d. "Emergency Stop" switch per local law.
  - e. Self-dialing, hands-free telephone and/or intercom with call acknowledging feature and A.D.A. design provisions.
  - f. Three (3) position firefighter key operated switch, call cancel button and illuminated visual/audible signal system with mandated signage engraved per ASME A 17.1 Standards as modified by the AHJ.
  - g. Provide a locked service cabinet flush mounted and containing the key switches required to operate and maintain the elevator, including, but not limited to:
    - 1) Independent/Attendant service switch with associated operating buttons and signal indicators.
    - 2) Light switch.
    - 3) Fan switch.
    - 4) GFI duplex receptacle.
    - 5) Emergency light test button and indicator.
    - 6) Inspection Service Operation key switch.
5. Car operating panel shall be flush mounted with swing type, one-piece faceplate with heavy-duty concealed hinges.
  - a. Mount all key switches that are required to operate and maintain the elevators exposed on the car station except those specified within a locked service cabinet.]
6. Car operating panel shall incorporate a digital LED floor position indicator, emergency light lens unit and black-filled engraved unit ID number or other nomenclature, as approved by Commissioner, with a "No Smoking" advisory and the rated passenger load capacity.
7. Where posting of an advisory is permitted by the Governing Authority in lieu of the inspection certificate, engrave the following advisory on the hinged cover of the service cabinet, or where otherwise directed by the Commissioner.
  - a. Engrave in ½ inch high lettering the Elevator car designation number/letter (if applicable) and the New York City Elevator Identification number. Also engrave in 3/8 inch high lettering the following information: "ELEVATOR INSPECTION CERTIFICATE IS IN THE BUILDING MANAGER'S OFFICE LOCATED AT \_\_\_\_\_." All text shall be black epoxy filled.

**C. Emergency Lighting Fixture and Battery Powered Alarm**

1. Provide a self-powered emergency light unit in the elevator car operating panel, consisting of a light fixture, alarm bell and a power pack unit.

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- a. Arrange two (2) of the cab light fixtures to operate as the emergency light system.
  - b. The power pack shall contain a nickel cadmium battery and a charger.
  - c. Unit shall provide continuous illumination for at least four (4) hours and one (1) hour alarm bell operation.
2. The operation shall be completely automatic upon failure of normal power supply.
  3. Unit shall be connected to normal power supply for car lights and arranged to be energized at all times so it automatically recharges battery after use.
  4. Provide a 6" diameter alarm bell with a sound output of between 80-90 dBa (measured from a distance of 10') mounted on top of the elevator car.
    - a. Activation of this bell shall be controlled by the ALARM button in the car operating station which shall illuminate when pressed.
- D. Central Exchange Communication System – Back-up Auto dialer
1. Provide an A.D.A. compatible, hands-free intercommunication system for all elevators for two-way, multi-path communication between the elevator car stations and master stations using a central exchange design system.
  2. The communication system shall include:
    - a. A car station in each elevator.
    - b. A master station in each machine room to communicate with the central and satellite monitor panels, and with each car within its group.
    - c. A master station in the Engineers Room to communicate with all stations in the system.
    - d. A master station at the Lobby Desk.
    - e. A master station where selected by the Commissioner.
  3. The car station shall have a loudspeaker and a microphone to provide hands-free communication. The station shall be installed behind the car operating panel.
  4. Master stations shall include:
    - a. Selector push buttons
    - b. Annunciator lights for each connected station
    - c. Speaker/microphone
    - d. Volume control and function buttons.
  5. Install one master station in the remote monitoring panel with other master stations being the desk-mount type.
  6. The master stations shall communicate with other master stations and any elevator in that group.
  7. A call shall be placed from the elevator car station by pressing the emergency call or alarm button.
    - a. This action shall cause the lamp in the corresponding button of all the designated master stations to flash and an intermittent tone to be heard.

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- b. When the incoming call is answered, the flashing light shall go to a steady condition.
    - c. Disconnection of a call is simply done by depressing the designated car button once.
    - d. If a call request is placed during a conversation, it shall be indicated by a flashing light and short tone of every designated master station.
    - e. When the original conversation is completed, the normal intermittent tone shall resume.
  8. A master station shall be connected to any of its designated car stations by depressing the corresponding call button.
    - a. The lamp in the button shall be illuminated while the button is depressed.
    - b. In the car station an audible tone shall be emitted and immediate communication is established.
    - c. The call shall be ended by depressing the button a second time, disconnecting the circuit.
    - d. The master stations shall call any other master station by depressing the corresponding call button.
    - e. The button shall lock in its down position and the lamp shall be lit with a steady light.
    - f. At the called master station, a short tone shall be sent out and the lamp in the button corresponding to the "calling" party shall be lit.
    - g. After the tone, immediate communication is established.
  9. On all non-called master stations, the lamps corresponding to the calling and called stations shall be illuminated as an indication that those stations are busy.
  10. Provide all power supplies, wire, conduit, fittings, etc., for both systems.
  11. Location of the stations, in the specified rooms or areas, shall be directed by the Commissioner.
  12. The intercom system shall include the following features:
    - a. Test button to verify audio circuit path.
    - b. All call buttons to initiate a call to all cars in the systems.
    - c. Priority button in the remote monitoring panel stations.
    - d. Visual acknowledgment for the hearing impaired.
  13. Provide a battery backup power supply for the intercom capable of providing sufficient power to operate the complete system for a minimum of four (4) hours.
  14. The system shall be capable of automatically dialing an outside line if an emergency call is not received by the building.
- E. Emergency Alarm/Battery Back-up and Common Alarm Bell
1. Provide a car-mounted battery unit including solid-state charger and testing means enclosed in common metal container.
    - a. The battery shall be rechargeable nickel cadmium with a 10-year minimum life expectancy.

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- b. The alarm bell shall be mounted directly to the battery/charger unit and connected to sound when any alarm push button or stop switch in the car enclosure is operated.
    - c. The bell shall be configured to operate from power supplied by the building emergency power generator.
  2. Provide a common alarm bell located in the elevator pit.
    - a. The bell shall be configured to operate when the alarm or stop switch of any elevator is activated, during both normal and battery back-up power conditions.
    - b. Existing common alarm bells may be rehabilitated and reused providing they meet the intent of this section and applicable codes.
- F. Car Position Indicator
  1. The position of the car in the hoistway shall be indicated by the illumination of the position indicator numeral corresponding to the floor at which the car has stopped or is passing.
    - a. Provide 2" high, 10-segment LED type position indicator with direction arrows, integral with the car operating panel.
    - b. Provide Lexan cover lens with hidden support frame behind fixture plate to protect the indicator readout.
    - c. Provide audible floor passing signal per ADA standards where not provided by the elevator signal control.
    - d. Flush mount fixture with cover to match selected car front or car operating panel finish as directed by the Commissioner.
- G. Corridor Push Button Station
  1. A riser of push button signal fixtures shall be provided on all floors.
  2. Each signal fixture shall consist of the following:
    - a. A flush-mounted faceplate.
    - b. Illuminating tamper-resistant push buttons measuring 3/4" at their smallest dimension as selected by the Commissioner.
    - c. A recessed mounting box, electrical conduit and wiring.
  3. Intermediate landings shall be provided with fixtures containing two (2) push buttons while terminal landings shall be provided with fixtures containing a single push button.
  4. Include firefighter key switch in the main lobby level station or other designated recall landing.
  5. Push button signal fixtures shall be installed at a centerline height of 42" above the floor and shall be installed both plumb and flush to the finished wall.
  6. Fixture faceplates shall be installed adjacent to the entrance frame on front wall.
  7. Provide a digital floor position indicator with 1" high numerals at all landings served.

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H. Car and Hall Call Buttons

1. Provide stainless steel vandal resistant convex type button as selected by the Designer from the manufacturer's premium line of push buttons.
  - a. The button shall have a small round LED call registered indicator centered on the button.
2. The pushbutton shall be the equal of type "HAMC" as manufactured by the G.A.L. Manufacturing Corporation.
3. Provide a jewel (which shall be illuminated by a readily replaceable LED type bulb) in each hall pushbutton. The use of a LED bulb(s) mounted on a printed circuit board is not acceptable. Activation of the call button shall cause the jewel to illuminate. The jewel shall remain illuminated until the car responds to the call. The holes for the jewel shall not be greater than 1/4" diameter at the surface with a slightly smaller diameter counterbored hole on the inside, to provide a stop so that the jewel cannot be pushed in. The jewel shall be fabricated of Lexan to provide a "press fit" in the outer hole. All inserts shall be replaceable. The light circuit for the jewel shall be independently circuit breaker protected from the hall button circuit. The lobby (street level) hall button shall be independently circuit breaker protected from all other hall buttons.
4. New wiring used from pushbutton to box in shaft shall be minimum of No. 16 AWG enclosed in 3/8 inch flexible steel conduit with PVC coating liquid tight Type "EF". Connectors shall have nylon insulated throat. Flexible steel conduit to shaft conduit boxes shall be properly supported with approved straps, etc.

I. Hoistway Access Switch

1. Install a cylindrical type keyed switch at top terminal in order to permit the car to be moved at slow speed with the doors open to allow authorized persons to obtain access to the top of the car.
2. Where there is no separate pit access door, a similar switch shall be installed at the lowest landing in order to permit the car to be moved away from the landing with the doors open in order to gain access to the pit.
3. Locate the switch in a separate fixture with a flush cover plate at a height of 78" above the finished floor. Cover plate shall be of a design and style as approved by the Commissioner.
4. This switch is to be of the continuous pressure spring-return type and shall be operated by a cylinder type lock having not less than a five (5) pin or five (5) disc combination with the key removable only in the "OFF" position.
  - a. The lock shall not be operable by any key which operates locks or devices used for other purposes in the building and shall be available to and used only by inspectors, maintenance men and repairmen in accordance with A17.1 applicable Security Group.
5. Existing provisions that meet the aforementioned criteria may be updated with keyed switches to match new apparatus provided for uniformity of systems within the building.

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J. Floor Position Indicator

1. Remove existing floor position indicator at all floors and provide new digital LED type unit.
2. New plate shall completely cover the present cutout and provide 2" numerals located on center.
3. Provide integral direction arrows that will indicate the direction in which the elevator is traveling.

K. Hall Direction Lanterns

1. Provide a visual and audible signal at each entrance to indicate the direction of travel and where applicable which car shall stop in response to the hall call.
  - a. Design lantern with up and down indication at intermediate landings and a single indication at terminal landings.
  - b. Lanterns shall sound once for the up direction and twice for the down direction.
    - 1) Provide an electronic chime with adjustable sound volume.
  - c. Provide adjustable signal time (3 to 10 seconds, with 1 second increments) to notify passengers which car shall answer the hall call and preset per ADAAG distance standards.

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

A. Inspection

1. Study the Contract Documents with regard to the work as specified and required so as to ensure its completeness.
2. Examine surface and conditions to which this work is to be attached or applied and notify the Commissioner in writing if conditions or surfaces are detrimental to the proper and expeditious installation of the work. Starting the work shall imply acceptance of the surfaces and conditions to perform the work as specified.
3. Verify, by measurements at the job site, dimensions affecting the work. Bring field dimensions which are at variance with those on the accepted shop drawings to the attention of the Commissioner. Obtain the decision regarding corrective measures before the start of fabrication of items affected.
4. Cooperate in the coordination and scheduling of the work of this section with the work of other sections so as not to delay job progress.

**3.2 INSTALLATION / PROJECT PHASING**

A. Installation

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1. Modernize the elevators, using skilled personnel in strict accordance with the final accepted shop drawings and other submittals.
2. Comply with the code, manufacturer's instructions and recommendations.
3. Coordinate work with the work of other building functions for proper time and sequence to avoid delays and to ensure right-of-way of system. Use lines and levels to ensure dimensional coordination of the work.
4. Accurately and rigidly secure supporting elements within the shaftways to the encountered construction within the tolerance established.
5. Provide and install motor, switch, control, safety and maintenance and operating devices in strict accordance with the submitted wiring diagrams and applicable codes and regulations having jurisdiction.
6. Arrange door tracks and sheaves so that no metal-to-metal contact exists.
7. Reinforce hoistway fascias to allow not more than 1/2" of deflection.
8. Install elevator cab enclosure on platform plumb and align cab entrance with hoistway entrances.
9. Sound isolate cab enclosure from car structure. Allow no direct rigid connections between enclosure and car structure and between platform and car structure.
10. Isolate cab fan from canopy to minimize vibration and noise.
11. Remove oil, dirt and impurities and give a factory coat of rust inhibitive paint to all exposed surfaces of struts, hanger supports, covers, fascias, toe guards, dust covers and other ferrous metal.
12. Prehang traveling cables for at least 24 hours with ends suitably weighted to eliminate twisting after installation.
13. After installation, touch up in the field, surfaces of shop primed elements which have become scratched or damaged.
14. Lubricate operating parts of system as recommended by the manufacturer.

**B. Project Phasing**

1. Phase I - Final design development and contractors' preliminary work procedures to be completed within three (3) weeks from date of contract award.
  - a. Prevailing conditions review and layout.
  - b. Selection meeting for aesthetic design and finishes with Commissioner.
  - c. Filing for required permits or other governing authorities work procedure requirements.
2. Phase II - Submittal approvals and confirmations shall be completed within four (four) weeks from date of contract award.
  - a. Selection confirmations.
  - b. Manufacturer's shop drawings applicable, i.e., fixtures, cab, machine room layouts, doors, etc.
  - c. Engineering data acknowledgment applicable, i.e., power, heat, structural loads.
  - d. Delivery dates for major component suppliers, i.e., controls, machinery, fixtures, cabs, etc.
  - e. Posting of permits or other governing agency authorizations to proceed.

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- f. Proposed work implementation schedule based on the aforementioned procedures/confirmations.

3. Phase III - Mobilization of Final Design Approvals

- a. Revision confirmations. (Equipment, etc.)
- b. Preliminary work procedures.
- c. Schedule confirmations.

- C. Removal of Elevators

1. If extenuating circumstances (i.e. separating controller interconnections, inspection, testing, etc.), require that multiple cars of a single elevator group be removed from service simultaneously, the work shall be performed outside of the normal business hours at a time mutually agreed to by the Commissioner and Contractor.
2. A minimum of five (5) days advance written notice shall be given to the Commissioner by the Contractor detailing the reasons for the simultaneous removal of the elevators from service along with the estimated out-of-service time.
3. The request shall be subject to review and approved by the Commissioner prior to the commencement of the work.
4. Costs for this work in addition to associated expenses shall be included as part of the Base Bid pricing.

- 3.3 FIELD QUALITY CONTROL

- A. Inspection and Testing

1. Upon completion of each work phase or individual elevator specified herein, the Contractor shall, at its own expense, arrange and assist with inspection and testing as may be required by the State and municipal governing authorities in order to secure a Certificate of Operation.

- B. Contractor's Superintendent

1. The Contractor shall assign a competent project superintendent during the work progress and any necessary assistant, all satisfactory to the Commissioner. The superintendent shall represent the Contractor and all instructions given to him shall be as binding as if given to the Contractor.

- 3.4 PROTECTION AND CLEANING

- A. Protection and Cleaning

1. Adequately protect surfaces against accumulation of paint, mortar, mastic and disfiguration or discoloration and damage during shipment and installation.

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2. Upon completion, remove protection from finished surfaces and thoroughly clean and polish surfaces with due regard to the type of material. Work shall be free from discoloration, scratches, dents and other surface defects.
3. The finished installation shall be free of defects.
4. Before final completion and acceptance, repair and/or replace defective work, to the satisfaction of the Commissioner, at no additional cost.
5. Remove tools, equipment and surplus materials from the site.

**B. Barricades and Hoistway Screening**

1. The Contractor shall provide whatever barricades are necessary in order to maintain adequate protection of areas in which work specified by the Contract Documents is being performed, including open hoistway entrances. Fabrication and erection as all barricades shall be in compliance with applicable OSHA regulations.
2. As required, the Contractor shall provide temporary wire mesh screening in the hoistway and of any elevator undergoing work specified in the Contract Documents. This screening shall be installed in such a manner as to completely segregate the hoistway from that of adjacent elevators. Screening shall be constructed from .041" diameter wire in a pattern that rejects passage of a 1" diameter ball.

**3.5 DEMONSTRATION**

**A. Performance and Operating Requirements**

1. Passenger elevators shall be adjusted to meet the following performance requirements:

- a. Speed: within 2% of rated speed under any loading condition.
- b. Leveling: within 1/4" under any loading condition.
- c. Typical Floor-to-Floor Time: (Recorded from the doors start to close on one floor until they are 3/4 open at the next floor.)

Passenger Elevators                      13.5 seconds.

- d. Door Operating Times

Door Type	Opening	Closing
Two Speed side opening	3.0 sec.	4.5 sec.

- e. Door dwell time for hall calls:                      4.0 sec with Advance lantern signals
- f. Door dwell time for hall calls:                      5.0 sec without Advance lantern signals
- g. Door dwell time for car calls:                      3.0 seconds

**TRACTION ELEVATORS**

- h. Reduced non-interference dwell time: 1.0 seconds.
2. Maintain the following ride quality requirements for the passenger elevators:
- a. Noise levels inside the car shall not exceed the following:
    - 1) Car at rest with doors closed and fan off - 40 dba.
    - 2) Car at rest with doors closed, fan running - 55 dba.
    - 3) Car running at high speed, fan off - 50 dba.
    - 4) Door in operation - 60 dba.
  - b. Vertical and horizontal accelerations shall not exceed 14 milli-g and horizontal accelerations shall not exceed 20 milli-g.
    - 1) The accelerometer used for this testing shall be capable of measuring and recording acceleration to nearest 0.01 m/s<sup>2</sup> (1 milli-g) in the range of 0-2 m/s<sup>2</sup> over a frequency range from 0-80 Hz with ISO 8041 filter weights applied. Accelerometer should provide contact with the floor similar to foot pressure, 60 kPA (8.7psi).
  - c. Amplitude of acceleration and deceleration shall not exceed 4.0 ft/sec<sup>2</sup>.
  - d. A sustained jerk shall not be more than twice the acceleration.
  - e. The rate of change in the acceleration/deceleration rate shall not be greater than 8.0 ft/sec<sup>3</sup>.

B. Acceptance Testing

- 1. Comply with the requirements of the "General Conditions".
- 2. The Contractor shall provide at least five (5) days prior written notice to the Commissioner regarding the exact date on which work specified in the Contract Documents will reach completion on any single unit of vertical transportation equipment.
- 3. In addition to conducting whatever testing procedures may be required by local inspecting authorities in order to gain approval of the completed work, and before seeking approval of said work by the Commissioner, the Contractor shall perform certain other tests in the presence of the Commissioner.
- 4. The Contractor shall provide test instruments, test weights, and qualified field labor as required to safely operate the elevator under load conditions that vary from empty to full rated load and, in so doing, to successfully demonstrate compliance with applicable performance standards set forth in the project specifications with regard to:
  - a. Operation of safety devices.
  - b. Sustained high-speed velocity of the elevator in either direction of travel.
  - c. Brake-to-brake running time and floor-to-floor time between adjacent floors.
  - d. Floor leveling accuracy.

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- e. Door opening/closing and dwell times.
  - f. Ride quality inside the elevator car.
  - g. Communication system.
  - h. Load settings at which anti-nuisance, load dispatch, and load non-stop features are activated.
5. Upon completion of work specified in the Contract Documents on the last car in any group of elevators, and in conjunction with the aforementioned testing procedures, the Contractor shall carry out additional testing of group dispatch/supervisory control features in the presence of the Commissioner.
6. The Contractor shall provide test instruments and qualified field labor as required to successfully demonstrate:
- a. The back-up operating mode for group dispatch failure
  - b. Simulated and actual emergency power operation
  - c. Firefighter, attendant and independent service operations
  - d. Restricted access security features and card reader controls
  - e. Zoning operations and floor parking assignments
  - f. Up/down peak operation
7. After hour tests of systems such as emergency generators, fire service, and security systems shall be conducted at no extra cost to the City of New York.

END OF SPECIFICATION

**TRACTION ELEVATORS**

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SECTION 22 00 02

PLUMBING SPECIAL CONDITIONS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The General and Supplementary Conditions accompanying these Specifications are hereby made a part of the requirements for the work under this Division of the Specification.

1.2 WORK INCLUDED

- A. Provide labor and materials required to install, test and place into operation the plumbing systems as called for in the contract documents, and according to applicable codes and regulations.
- B. Furnish and install all labor, materials, apparatus, and appliances essential to the complete functioning of the systems described and/or indicated herein, or which may be reasonably implied as essential whether mentioned in the Contract Drawings and Specifications or not.

1.3 SUBMITTALS

- A. Submit all shop drawings, manufacturer's data, samples and test reports as called for hereinafter.
- B. Submit a single guarantee stating that all parts of the work are in accordance with Contract requirements. Guarantee work against faulty and improper material and workmanship for a period of one (1) year from date of final acceptance by the City of New York, except that where guarantees or warranties for longer terms are specified herein, such longer term to apply. Within 24 hours after notification, correct any deficiencies which occur during the guarantee period at no additional cost to the City of New York, to the satisfaction of the City of New York and Commissioner.

1.4 QUALITY ASSURANCE

- A. Comply with current governing codes, ordinances and regulations, as well as with requirements of EPA, U.L. and all other applicable codes.
- B. Comply with the requirements of agencies or authorities having jurisdiction over any part of the work and secure all necessary permits.
- C. Where codes or standards are listed herein, the applicable portions apply.
- D. Plans, specifications, codes and standards are minimum requirements. Where requirements differ, apply the more stringent.

- E. Should any change in plans or specifications be required to comply with governing regulations, notify the Commissioner.
- F. Execute work in strict accordance with the best practices of the trades in a thorough, substantial, workmanlike manner by competent workmen. Provide a competent, experienced full-time Superintendent who is authorized to make decisions on behalf of the Contractor.

**1.5 ABBREVIATIONS AND DEFINITIONS**

**A. Abbreviations**

- 1. AABC American Association of Balancing Contractors
- 2. ABMA American Boiler Manufacturers Association
- 3. ADC Air Diffusion Council
- 4. AGA American Gas Association
- 5. AMCA Air Movement and Control Association
- 6. ANSI American National Standards Institute
- 7. ARI Air Conditioning and Refrigeration Institute
- 8. ASA Acoustical Society of America
- 9. ASHRAE American Society of Heating, Refrigerating, and Air Conditioning Engineers
- 10. ASME American Society of Mechanical Engineers
- 11. ASPE American Society of Plumbing Engineers
- 12. ASTM American Society For Testing and Materials
- 13. ASSE American Society of Sanitary Engineers
- 14. AWWA American Water Works Association
- 15. AWS American Welding Society
- 16. CTI Cooling Tower Institute
- 17. EPA Environmental Protection Agency
- 18. FM (FMS) Factory Mutual (Factory Mutual System)
- 19. FS Federal Specifications

- |     |        |  |
|-----|--------|--|
| 20. | IEEE   | Institute of Electrical and Electronic Engineers                     |
| 21. | NAPHCC | National Association of Plumbing Heating & Cooling Contractors       |
| 22. | NEBB   | National Environmental Balancing Bureau                              |
| 23. | NEC    | National Electric Code   |
| 24. | NEMA   | National Electrical Manufacturers Association                        |
| 25. | NFPA   | National Fire Protection Association                                 |
| 26. | OSHA   | Occupational Safety and Health Administration                        |
| 27. | SAE    | Society of Automotive Engineers                                      |
| 28. | SMACNA | Sheet Metal and Air Conditioning Contractors<br>National Association |
| 29. | U.L.   | Underwriters Laboratories  |

**B. Definitions**

1. "PROVIDE" means to "Furnish" and "Install".
2. "INSTALL" means to join, unite, fasten, link, attach, set up or otherwise connect together before testing and turning over to City of New York, complete and ready for regular operation, the particular work referred to.
3. "FURNISH" means to purchase and supply all materials, labor, equipment, testing apparatus, controls, tests, accessories and all other items customarily required for the proper and complete application for the particular work referred to.
4. "AS DIRECTED" means as directed by the Commissioner, or his representative.
5. "CONCEALED" means embedded in masonry or other construction, installed behind wall furring or within double partitions, or installed within hung ceilings or shafts.
6. "SUBMIT" means submit to Commissioner for review. Refer to Architectural General and Special Conditions for proper procedures.

**PART 2 - PRODUCTS**

**2.1 EQUIPMENT AND MATERIALS**

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- A. If products and materials are specified or indicated on the Drawings for a specific item or system, use those products or materials. If products and materials are not listed in either of the above, use first class products and materials, subject to approval of the Commissioner.
- B. Provide products and materials that are new, clean, free of defects and free of damage and corrosion.
- C. All products and materials used in this project will not contain asbestos, P.C.B.'s or any other material which is considered hazardous by the Department of Environmental Protection or any other agency having jurisdiction.
- D. Replace materials of less than specified quality as designated by the Commissioner and relocate work incorrectly installed as determined by the Commissioner.
- E. Provide name/data plates on all components of equipment with manufacturer's name, model number, serial number, capacity data and electrical characteristics attached in a conspicuous place.
- F. Install materials and equipment with qualified trades people.
- G. Maintain uniformity of manufacture for equipment used in similar applications and sizes.
- H. Applicable equipment and materials to be listed by Underwriters' Laboratories and manufactured in accordance with ASME, AWWA, or ANSI standards, and as approved by local authorities having jurisdiction.
- I. Fully lubricate equipment when installed.
- J. Do not operate gas, or water systems until piping has been cleaned and startup strainers are in place.
- K. Locate all floor mounted equipment on a 4" high concrete pad. Concrete work to be provided by another trade. Coordinate size and location with General Contractor providing concrete pads.
- L. Secure equipment with bolts, washers and locknuts of ample size to support equipment. Embedded anchor bolts to have bottom plate and pipe sleeves. Grout machinery set in concrete under the entire bearing surface. After grout has set, remove wedges, shims and jack bolts and fill space with grout.
- M. Locate valves, traps, damper operators, access doors, etc., to be easily accessible, either in mechanical spaces or through access panels as specified hereinafter, or as required. Coordinate and obtain Commissioner's approval of access panel locations.

- N. Follow manufacturers' instructions for installing, connecting, and adjusting equipment. Provide one copy of such instructions to the Commissioner before installing any equipment. Provide a copy of such instructions and attach to the equipment during work on the equipment.
- O. Pressure vessels and relief valves shall be selected, built and labeled in accordance with ASME. Obtain a certificate from the City Inspector having jurisdiction showing such acceptance, and mount this certificate in a black frame under glass or laminated plastic adjacent to each pressure vessel and relief valve.
- P. Where factory testing of equipment is required to ascertain performance and attendance by the Commissioner is required to witness such tests, associated travel costs and subsistence shall be borne by the Contractor.
- Q. Equipment capacities, etc., are scheduled or specified for job site operating conditions. Equipment sensitive to altitude shall be derated with the method of derating identified on shop drawings.

**2.2 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

- A. Within two (2) months after notice to proceed by the City of New York or Commissioner, or after execution of City of New York/Contractor Agreement, submit to the Commissioner for review, a complete typed list of all mechanical equipment manufacturers and material suppliers for the equipment intended to be furnished and installed on this project as well as names of all subcontractors.
- B. Within four (4) months after notice to proceed by the City of New York or Commissioner, prepare an index of all submittals for the project. Include a submittal identification number, a cross-reference to the Specification sections or Drawing number, and an item description. Prefix the submittal identification number by the Specification sections to which they apply. Indicate on each submittal, the submittal identification number in addition to the other data specified. All subcontractors will utilize the assigned submittal identification number.
- C. After the Contract is awarded, obtain complete shop drawings, product data and samples from the manufacturers, suppliers, vendors, and all subcontractors, for all materials and equipment specified in the various sections of the specification. Submit data and details of such materials and equipment for review by the Commissioner. Prior to submission of the shop drawings, product data and samples to the Commissioner, review and certify that these items are in compliance with the Contract Documents. Check all materials and equipment upon their arrival on the job site and verify their compliance with the Contract Documents. Modify any work which proceeds prior to receiving accepted shop drawings as required to comply with the Contract Documents and the shop drawings, at no cost to the project.

- D. Prior to fabrication or installation of any work, completely coordinate work of all trades and prepare a complete set of Coordination Drawings.

**2.3 REVIEWS**

- A. Commissioner's review is for general compliance with the design concept and contract documents. Markings or comments or the lack thereof does not relieve the Contractor from compliance with the project plans and specifications. The Contractor remains solely responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes, for techniques of construction, for performing his work in a safe manner, and for coordinating his work with that of other trades.
- B. No part of the work shall be started in the shop or in the field until the Commissioner has reviewed the shop drawings and samples for that portion of the work.
- C. A minimum period of ten (10) working days, exclusive of transmittal time, will be required in the Commissioner's office each time a shop drawing, product data and/or samples are submitted for review. This time period must be considered by the Contractor when scheduling his work.
- D. Submit one sepia transparency and two prints of all sheet metal and piping drawings. Submit six (6) copies of catalog cuts.
- E. Submissions will be stamped as follows:

<u>No Exceptions Noted</u> <input type="checkbox"/> :	When directed, fabrication, manufacture or construction may proceed providing submittal complies with the Contract Documents.
<u>Exceptions Noted</u> <input type="checkbox"/> :	Work may proceed as above so long as the engineer's notations are complied with. <input type="checkbox"/> No Resubmission Required. <input type="checkbox"/> Resubmit For Record Only.
<u>Revise and Resubmit</u> <input type="checkbox"/> :	The submittal does not comply with the Contract Documents; do not proceed with fabrication, manufacture or construction. The work and shop drawings are not permitted at the job site. Resubmit appropriate shop drawings.



**PART 3- EXECUTION**

**3.1 DRAWINGS & PRODUCT DATA**

- A. Submit materials and equipment by manufacturer, trade name and model number. Include copies of applicable brochure or catalog material. Do not assume applicable catalogs are available in the Commissioner's office. Maintenance and operating manuals are not suitable substitutes for shop drawings.
- B. Identify each sheet of printed submittal pages (using arrows, underlining or circling) to show applicable sizes, types, model numbers, ratings, capacities and options actually being proposed. Cross out non-applicable information. Note specified features such as special tank linings, pump seals, materials or painting.
- C. Include dimensional data for roughing in and installation, technical data sufficient to verify that equipment meets requirements of drawings and specifications. Include wiring, piping and service connection data, motor sizes complete with voltage ratings and schedules.
- D. Maintain a complete set of reviewed and stamped shop drawings and product data on site.
- E. Prepare and submit detailed shop drawings for ductwork piping work and other distribution services in 3/8" = 1'-0" scale, including locations and sizes of openings in floor decks, walls and roofs.
- F. The Contractor is not relieved of the responsibility for dimensions or errors that may be contained on submissions reviewed by the Commissioner, or for deviations from requirements in the Contract Documents. Understand clearly that the Commissioner's noting some errors but overlooking others does not grant the Contractor permission to proceed in error. Regardless of any information contained in the shop drawings, product data and samples, the Contract Documents govern the work and are neither waived nor superseded in any way by the review of shop drawings, product data and samples.
- G. Inadequate or incomplete shop drawings, product data and/or samples will not be reviewed by the Commissioner and will be returned to the Contractor for resubmittal.
- H. Indicate in the lower right hand corner of each shop drawing, and each product data brochure on the front cover, the following: The submittal identification number; title of the sheet or brochure; name and location of the Project; names of the Architect, Engineer, Contractor, Subcontractor, manufacturer, supplier, and vendor; the date of submittal; and the date of

each correction and version and revision. Number all pages and drawings in product data brochures consecutively from beginning to end. Unless the above information is included, the submittal will be returned for resubmission. Include with resubmittals of product data or brochures a cover letter summarizing the corrections made in response to the review comments and the submittal page numbers which were revised.

**3.2 CONTRACTOR'S COORDINATION DRAWINGS**

- A. Coordinate efforts of all trades and furnish, in writing, any information necessary to permit the work of all trades to be installed satisfactorily and with the least possible interference or delay.
- B. Prepare a complete set of construction Coordination Drawings indicating the equipment actually purchased and the exact routing for all lines such as piping, busway, conduit, ductwork, etc., including conduit embedded in concrete. Use the sheetmetal shop drawings as the base drawings to which all other contractors will add their work. Complete each Coordination Drawing and have signed-off by the other subcontractors and the Contractor prior to the installation of the work in the area covered by the specific drawing.
- C. Indicate piping loads and support points for all piping 4" and larger, racked piping, racked conduit, and busway, and submit to the Commissioner for review and approval. Indicate the elevation, location, support points, static, dynamic and expansion forces and loads imposed on the structure at support, anchor points, and size of all lines. Indicate all beam penetrations and slab penetrations sized and coordinated. Indicate all work routed underground or embedded in concrete by dimension to column and building lines.
- D. This requirement for Coordination Drawings is not authorization for the Contractor to make any unauthorized changes to the Contract Drawings. Maintain all Design Drawing space allocations such as ceiling height, eight (8) inch high zone directly above the ceiling for tenant buildout and flexibility, chase walls, equipment room size, etc., unless prior written authorization is received from the Commissioner to change them.
- E. Work installed which interferes with work of any other trade will be corrected at no cost to the project.

**3.3 COORDINATION OF WORK**

- A. The plumbing drawings show the general arrangement of equipment, ductwork, piping and appurtenances. Follow these drawings as closely as the actual construction and the work of other trades will permit. Provide offsets, fittings, and accessories which may be required but not shown on the drawings. Investigate the site, structural and finish ground conditions affecting the work, and arrange the work accordingly. Provide such work

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and accessories as may be required to meet such conditions, at no additional cost to the project.

- B. Certain materials will be provided by other trades. Examine the Contract Documents to ascertain these requirements.
- C. Carefully check space requirements with other trades to insure that material can be installed in the spaces allotted thereto with sufficient access space, including finished suspended ceilings.
- D. Wherever work interconnects with work of other trades, coordinate with other trades. Insure that they have the information necessary so that they may properly install the necessary connections and equipment. Identify items (valves, dampers, coils, cleanouts, etc.) requiring access in order that the Ceiling Trade will know where to install access doors and panels.
- E. Consult with other trades regarding equipment so that, wherever possible, motors, motor controls, pumps and valves are of the same manufacturer.
- F. Furnish and set sleeves for passage of pipes, ducts and conduits through structural masonry and concrete walls and floors and elsewhere as will be required for the proper protection of each pipe and duct passing through building surfaces.
- G. Properly provide firestopping around all pipes, conduits, ducts, sleeves, etc., which pass through rated walls, partitions and floors.
- H. Provide detailed information on openings and holes required in precast members for mechanical work. Cast holes 4 inches and larger in diameter. Field-cut holes smaller than 4 inches.
- I. Provide required supports and hangers for ductwork, piping and equipment, designed so as not to exceed allowable loadings of structures.
- J. Examine and compare the contract drawings and specifications with the drawings and specifications of other trades, and report any discrepancies between them to the Commissioner and obtain from him written instructions for changes necessary in the work. Install and coordinate the work in cooperation with other related trades. Before installation, make proper provisions to avoid interferences.
- K. Wherever the work is of sufficient complexity, prepare additional detail drawings to scale similar to that of the design drawings, prepared on tracing medium of the same size as contract drawings. With these layouts, coordinate the work with the work of other trades. Such detailed work to be clearly identified on the drawings as to the area to which it applies. Submit these drawings to the Commissioner for review. At completion include a set of such drawings with each set of as-built drawings.

- L. Before commencing work, examine adjoining work on which this work is in any way dependent for perfect workmanship and report conditions which prevent performance of first class work. Become thoroughly familiar with actual existing conditions to which connections must be made or which must be changed or altered.
  
- M. Adjust location of pipes, ducts, panels, equipment, etc., to accommodate the work to prevent interferences, both anticipated and encountered. Determine the exact route and location of each pipe and duct prior to fabrication.
  - 1. Right-of-Way: Lines which pitch have the right-of-way over those which do not pitch. For example: condensate, steam, and plumbing drains normally have right-of-way. Lines whose elevations cannot be changed have right-of-way over lines whose elevations can be changed.
  
  - 2. Make offsets, transitions and changes in direction in pipes and ducts as required to maintain proper head room and pitch on sloping lines. Furnish and install traps, air vents, drains, etc., as required to effect these offsets, transitions and changes in direction.
  
- N. Install plumbing work to permit removal (without damage to other parts) of coils, heat exchanger plates and tube bundles, fan shafts and wheels, filters, belt guards, sheaves and drives, and other parts requiring periodic replacement or maintenance. Arrange pipes, ducts, and equipment to permit access to valves, cocks, traps, starters, motors, and control components, and to clear the openings of swinging doors and access panels.
  
- O. In cases of doubt as to the work intended, or in the event of need for explanation thereof, request supplementary instructions from the Commissioner.

**3.4 EXCAVATION AND BACKFILL**

- A. Provide excavation inside the building for the work of this Division. Excavate all material encountered, to the depths indicated on the drawings or required. Remove from the site excavated materials not required or unsuitable for backfill. Provide grading as may be necessary to prevent surface water from flowing into trenches or other excavations. Remove any water accumulating therein. Provide sheeting and shoring as may be necessary for the protection of the work and for the safety of personnel.
  
- B. Provide trenches of widths necessary for the proper execution of the work. Grade bottom of the trenches accurately to provide uniform bearing and support the work on undisturbed soil at every point along its entire length. Except where rock is encountered, do not excavate below the depths indicated. Where rock excavations are required, excavate rock to a minimum overdepth of four inches below the trench depths indicated on the

drawings or required. Backfill overdepths in the rock excavation and unauthorized overdepths with loose, granular, moist earth, thoroughly machine tamped to a compaction level of at least 95% to standard proctor density or 75% relative density or as specified by the Commissioner. Whenever unstable soil that is incapable of properly supporting the work, as determined by the Commissioner, is encountered in the bottom of the trench, remove soil to a depth required and backfill the trench to the proper grade with coarse sand, fine gravel or other suitable material.

- C. Excavate trenches for utilities that will provide the required minimum depths of cover from existing grade or from indicated finished grade, whichever is lower, unless otherwise specifically shown.
- D. Trenches should not be placed within ten feet of foundation or soil surfaces which must resist horizontal forces.
- E. Do not backfill trenches until all required tests have been performed and the installation observed by the Commissioner. Comply with the requirements of other sections of these specifications. Backfill should consist of non-expansive soil with limited porosity. Deposit in 6 inch layers and thoroughly and carefully tamp until the work has a cover of not less than 1 foot. Backfill and tamp remainder of trench at 12 inch intervals until complete. Uniformly grade the finished surface.

### 3.5 CUTTING AND PATCHING

- A. Lay out the work in advance, fully coordinated with other trades. Where cutting, channeling, chasing or drilling of floors, walls, partitions, ceilings or other surfaces is necessary for the proper installation, support or anchorage of ductwork, piping or other equipment, do the work carefully so as not to damage adjacent work. Repair any damage to the building, piping, equipment or defaced finish plaster, woodwork, metalwork, etc., using skilled mechanics of the trades involved at no additional cost to the City of New York.
- B. Do no cutting, channeling, chasing or drilling of unfinished masonry, tile, etc., unless permission from the Commissioner is first obtained. If permission is granted, perform this work in a manner approved by the Commissioner.
- C. Where piping or equipment are mounted on a painted finished surface, or a surface to be painted, paint to match the surface. Cold galvanize bare metal whenever support channels are cut.
- D. Provide slots, chases, openings and recesses through floors, walls, ceilings, and roofs as required to properly install work. Be responsible to properly locate such openings and provide for any cutting and patching caused by the neglect to do so.

### 3.6 RESPONSIBILITY FOR EVALUATION

- A. The Commissioner makes no representations, regarding the character or extent of the subsoils, water levels, existing structural, mechanical and electrical installations, above or below ground, or other subsurface conditions which may be encountered during the work. This Contractor must make his own evaluation of existing conditions which may affect methods or cost of performing the work, based on his own examination of the facility or other information. Failure to examine the drawings or other information does not relieve the Contractor of his responsibility for satisfactory accomplishment of the work.

**3.7 FIRE ACCESS TO FIRE APPARATUS**

- A. Do not interfere with access to hydrants and fire alarm boxes. In no case allow material or equipment to be within twenty (20) feet of a hydrant or fire alarm box.

**3.8 EQUIPMENT PAD AND ANCHOR BOLTS**

- A. Concrete pads for various pieces of equipment will be furnished by the Contractor under another Division. Pads will be provided in all mechanical equipment rooms. This shall include floor mounted equipment, equipment mounted on legs and pipe support stands. Generally conform equipment pads to the shape of the piece of equipment it serves with a minimum 3" margin around the equipment and supports. Pads will be a minimum of 4" high and made of a minimum 28 day, 2500 psi concrete reinforced with 6" x 6" 6/6 gauge welded wire mesh. Trowel tops and sides of pad to smooth finishes, equal to those of the floors, with all external corners bullnosed to a 3/4" radius. Use shop drawings stamped "NO EXCEPTIONS" for dimensional guidance in sizing pads.
- B. Furnish and install galvanized anchor bolts for all equipment placed on concrete equipment pads, inertia blocks, or on concrete slabs. Provide bolts of the size and number recommended by the manufacturer of the equipment and locate by means of suitable templates. When equipment is placed on vibration isolators, secure the equipment to the isolator and secure the isolator to the floor, pad, or support as recommended by the vibration isolation manufacturer.
- C. Where control panels, motor controllers, etc., are mounted on gypsum board partitions, the mounting screws will pass through the gypsum board and be securely attached to the partition studs. At the Contractor's option, the mounting screws may pass through the gypsum board and be securely attached to 6" square, 18 gauge galvanized metal backplates which are attached to the gypsum board with an approved non-flammable adhesive. Toggle bolts installed in gypsum board partitions will not be acceptable.

**3.9 DELIVERY, DRAYAGE AND HAULING**

- A. Include all drayage, hauling, hoisting, shoring and placement in the building of equipment specified herein. Be responsible for the timely delivery and

introduction of equipment to the project as required by the construction schedule for this project. If any item of equipment is received prior to the time it is required, be responsible for its proper storage and protection until such time as it may be required. Pay for all costs of demurrage or storage.

- B. If any item of equipment is not delivered to or installed at the project site in a timely manner as required by the project construction schedule, be solely responsible for disassembly, re-assembly, manufacturer's supervision, shoring, general construction modification, delays, overtime costs, etc. No additional cost or delays to be incurred by the City of New York.

**3.10 EQUIPMENT AND MATERIAL PROTECTION**

- A. Protect the work, equipment and materials of all other trades from damage by work or workmen of this trade, and correct all damage thus caused without additional cost to the City of New York.
- B. Be responsible for all work, materials and equipment until finally inspected, tested and accepted; protect work against theft, injury or damage; and carefully store material and equipment received on site which are not immediately installed. Close open ends of work with temporary covers or plugs during construction to prevent entry of obstructing material. Cover and protect in an acceptable manner to the City of New York, all equipment and materials from damage due to water, spray-on fireproofing, construction debris, etc.
- C. Provide adequate means for fully protecting finished parts of the materials and equipment against damage from whatever cause during the progress of the work until final acceptance. Protect materials and equipment in storage and during construction in such a manner that no finished surfaces will be damaged or marred, and moving parts kept clean and dry. If items are damaged, do not install, but take immediate steps to obtain replacement or repair.

**3.11 ELECTRICAL EQUIPMENT AND ELECTRICAL ROOM PRECAUTIONS**

- A. In general, do not install any piping systems not included as part of the electrical work, in any switchgear, transformer, elevator equipment, telephone, or electrical equipment room.
- B. Do not install piping above switchboards, panelboards, control panels, motor control centers, individual motor controllers, etc.
- C. Provide drip pans under all piping installed in any electrical equipment room. Pan shall be water tight, extending 4" in each direction from the pipe wall and turned up at least one-half the diameter of the pipe, but not less than 2". The pan shall extend at least 1 foot beyond the electrical equipment. Provide a drain pipe to spill into floor drain or service sink.

**3.12 EQUIPMENT GUARDS**

- A. Provide easily removable expanded metal guards for all moving parts of machinery. Provide tachometer openings in the guards at least 2" in diameter, for all belt-driven or variable speed machinery. Comply with OSHA requirements for all equipment guards.

**3.13 LUBRICATION**

- A. Provide means for lubricating all bearings and other machine parts. If a part requiring lubrication is concealed or inaccessible, extend a metallic lubrication tube with suitable fitting to an accessible location and suitably identify it.
- B. After installation, properly lubricate all parts requiring lubrication and keep them adequately lubricated with a lubricant recommended by the equipment manufacturer until the City of New York issues a Certificate of Substantial Completion for the specific equipment item or system.

**3.14 DATE OF COMPLETION AND TESTING OF MECHANICAL SYSTEMS**

- A. Comply with the project construction schedule for the date of final performance and acceptance testing, and be sufficiently in advance of the Contract completion date to permit the execution of the testing prior to occupancy and the closeout of the Contract. Complete any adjustments and/or alterations which the final acceptance tests indicate as necessary for the proper functioning of all equipment prior to the completion date. See individual sections for extent of testing required.
- B. Provide a detailed schedule of completion indicating when each system is to be completed and outlining when tests will be performed. Submit completion schedule to the Commissioner and City of New York for review within six (6) months after the notice to proceed by City of New York or Commissioner has been given. Update this schedule periodically as the project progresses.

**3.15 OPERATING INSTRUCTIONS**

- A. Provide the services of a factory trained specialist to supervise the operation of all equipment specified herein and to instruct the City of New York's operators for a five (5) day operating instruction period. The operating instruction period is defined as straight time working hours and not including nights, weekends or travel time to and from the project. See individual sections for additional instructions by manufacturer's trained specialists.
- B. Notify the City of New York in writing at least two (2) weeks before each operating instruction period begins. Commence no instruction period until the City of New York has issued his written acceptance of the starting time.

**3.16 OPERATING AND MAINTENANCE BOOKS**



- A. Provide operating instructions and maintenance data books for all equipment and materials furnished under this Division.
- B. Submit three (3) final copies of operating and maintenance data books for review at least ten (10) weeks before final review of the project. Assemble all data in a completely indexed volume or volumes in three-ring binders and identify the size, model, and features indicated for each item. Print the project name and logo on the outside of the binders.
- C. Deliver two (2) initial copies of the operation and maintenance data books to the Commissioner six (6) months after notice to proceed has been given by the City of New York or Commissioner. Include in the initial copies all the information in Paragraph E. below, except Item E.4.
- D. Maintenance instruction manuals to include complete oiling, cleaning, and servicing data compiled in clearly and easily understandable form. Show all model numbers of each piece of equipment, complete lists of replacement parts, motor ratings, and actual loads.
- E. Include the following information where applicable:
  - 1. Identifying name and mark number.
  - 2. Locations (where several similar items are used, provide a list).
  - 3. Complete nameplate data.
  - 4. Certified Record Drawings and "Final Reviewed" Shop Drawings.
  - 5. Parts list.
  - 6. Performance curves and data.
  - 7. Wiring diagrams.
  - 8. Lubrication charts.
  - 9. Manufacturers' recommended operating and maintenance instructions with all non-applicable information deleted.
  - 10. List of spare parts recommended for normal service requirements.
  - 11. Assembly and disassembly instructions with exploded view drawings where available.
  - 12. Trouble shooting diagnostic instructions where applicable.

3.17 RECORD DRAWINGS

- A. Maintain on a daily basis at the project site a complete black and white set of "As-Built Drawings", reflecting an accurate dimensional record of all deviations between work shown on drawings and that actually installed.
- B. Record dimensions clearly and accurately to delineate the work as installed; suitably identify locations of all equipment by at least two dimensions to permanent structures. In addition, mark the Record Drawings to show the precise location of concealed work and equipment, including concealed or embedded piping and valves and all changes and deviations in the mechanical work from that shown on the Contract Documents. This requirement is not construed as authorization for the Contractor to make changes in the layout or work without written instructions from the Commissioner.
- C. Mark all As-Built Drawings on the front lower right hand corner with a rubber stamp impression that states the following:  
  
"AS-BUILT DRAWINGS" (3/8" high letters)  
To be used for recording Field Deviations and  
Dimensional Data Only." (5/16" high letters).
- D. The Record Drawings will also consist of a set of prints of the final "Signed Off" Contractor's "Coordination Drawings" prepared by the Subcontractors.

**3.18 CERTIFICATION**

- A. Any certifications required by the Specifications, in addition to those required for shop drawings, product data, equipment and other items, are to be so certified by the City of New York, a Partner, or a Corporate Officer of the firm required to provide the Certification, or by another person duly authorized to sign binding agreements for and in behalf of the City of New York, Partner or Corporation.

**3.19 FINAL REVIEW**

- A. At a time designated by the City of New York, the entire system will be reviewed for compliance with the Contract Drawings and Specifications. Be available at all times during this review.
- B. Demonstrate to the City of New York and/or the Commissioner's personnel prior to the Final Review that all systems and all equipment have been properly balanced and adjusted and are in compliance with the requirements of the Contract Documents. After these demonstration tests are satisfactorily completed, but prior to the Final Review field visit, the Contractor will submit to the Commissioner a written certification that: 1) attests to the Contract Document compliance for this Project prior to the Commissioner's Final Review field visit, and 2) certifies that the equipment and materials installed in this project under this Division contain no asbestos or P.C.B.

- C. Operate the entire system properly with all systems balanced and all controls adjusted.
- D. Certificates and Documents required herein to be in order and presented to the Commissioner at least two (2) weeks prior to the Final Review.
- E. After the review, any changes or corrections noted as necessary for the work to comply with these specifications and the Drawings to be accomplished without delay in order to secure final acceptance of the work.

3.20 EARLY OCCUPANCY

- A. Be responsible for completing those systems which are necessary to allow partial occupancy of the buildings even if systems in the unoccupied areas are incomplete. Refer to the Section entitled "Special Conditions" in the Architectural Specifications Documents for the schedule completion dates assigned to the various portions of the project.
- B. Verify requirements for temporary occupancy with the local Building Department.

END OF SECTION

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SECTION 22 00 03

PLUMBING SCOPE OF WORK

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide plumbing systems in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. This specification is not intended to be a complete itemization of plumbing required, but is for guidance of this contractor in estimating his work. This contractor shall examine the architectural, mechanical, electrical, fire protection and plumbing plans for all plumbing work required and shall provide same.
- B. It is intended that all items of material, fixtures and equipment mentioned in this specification and shown on the plans shall be read as if the word "Provide" were prefixed thereto.
- C. Sanitary Drainage System
1. Sanitary Drainage Piping.
  2. Sanitary Vent Piping.
  3. Cleanouts.
- D. Storm Water System
1. Sump Pumps and Controls.
  2. Sump Pump Piping.
  3. Sump Pit Covers.
  4. Cleanouts.
- E. Miscellaneous Items
1. Sleeves in Walls and Floor Slabs.
  2. Access doors.
  3. Firestopping.
  4. Hangers and Supports.

5. Painting.
6. Pipe Labeling.
7. Testing.
8. Permits.
9. Fees.

**PART 2- PRODUCTS**

2.1 NOT USED.

**PART 3 - EXECUTION**

3.1 NOT USED.

END OF SECTION

SECTION 22 05 17

SLEEVES AND SLEEVE SEALS FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide sleeves and U.L. approved firestopping system in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Firestop Compounds.
- B. Damming Material.
- C. Sleeves.

1.3 SUBMITTALS

- A. Submit shop drawings, product data, and manufacturer's installation instructions for all materials and prefabricated devices, providing descriptions sufficient for identification at the job site. Literature shall indicate product characteristics, typical use, performance and limitation criteria and test data.
- B. Submit shop drawings showing proposed material, reinforcement, anchorage, fastenings, and method of installation. Construction details shall accurately reflect actual job conditions.
- C. Submit Material Safety Data Sheets with product delivered to job site.
- D. U.L. Tested Systems: Submit drawings showing typical installation details for the methods of installation. Indicate which firestop materials will be used and thickness for different hourly ratings, and approved UL system number.
- E. Engineering Judgements: Submit manufacturer's drawings for all non-standard applications where no U.L. tested system exists. All drawings must indicate the "Tested" U.L. system upon which the judgement is based so as to assess the relevance of the judgement to some known performance.
- F. Submit manufacturer's installation procedures for each type of product.
- G. Approved Applicator: Submit document from manufacturer wherein manufacturer recognizes the installer as qualified or submit a list of past projects to demonstrate capability to perform intended work.

**SLEEVES AND SLEEVE SEALS FOR  
PLUMBING PIPING**

**22 05 17-1**

- H. Upon completion, installer shall provide written certification that materials were installed in accordance with the manufacturer's installation instruction and details.

1.4 QUALITY ASSURANCE

- A. Firestop system installation shall conform to requirements of qualified designs or manufacturer approved modifications, as supported by engineering reports. Field inspections shall be carried out by the firestop manufacturer to verify that the installation is in accordance with the manufacturer requirements.
- B. Install firestop materials and systems as required by these Contract Documents and meet and be accepted for use by applicable design building and construction codes.
- C. Submit manufacturer's product data, letter of certification, or certified laboratory test report that the material or combination of materials (firestop system) meets the requirements specified in accordance with the applicable referenced standards.
- D. The firestop compound shall not contain any solvents or inorganic fibers. The penetration seal material must be unaffected by moisture and must maintain the integrity of the floor or wall assembly for its rated time period when tested in accordance with ASTM E814 (UL1479). The system shall be U.L. Classified for up to and including 3 hours.
- E. Firestopping materials shall be asbestos and lead free and shall not incorporate or not require the use of hazardous solvents.
- F. Firestopping sealants must be flexible, allowing for normal pipe movement.
- G. All fire stopping materials shall be manufactured by one manufacturer.
- H. Installation of firestopping systems shall be performed by a Contractor trained or approved by the firestop manufacturer.
- I. Material used shall be in accordance with the manufacturer's written installation instructions.
- J. Submit a line-by-line statement of compliance or non-compliance with this specification section.



**PART 2- PRODUCTS**

**2.1 GENERAL**

- A. The following specifications represent desired design, material, and construction standards for the various items of work. Manufacturer names and model numbers are used to describe specific types, styles and quality.

**2.2 SLEEVES**

- A. Provide sleeves for each pipe passing through walls, partitions, and floors.

**B. Sleeve Materials**

Type	Sleeve Materials
1	#18 gauge, galvanized steel.
2	Standard weight galvanized steel pipe.
3	Cast iron body with flashing clamp and underdeck clamp similar to J.R. Smith, figure 1720.

**C. Sleeve Sizes**

1. Sleeves shall be of adequate diameter to allow pipe, insulation, and fire stopping to fit.
2. Sleeves shall provide a minimum 1" clearance around pipes smaller than 4" and 2" clearance around pipes 4" and larger.

**D. Sleeve Lengths**

Location	Sleeve Length
Floor	All floor drains to extend minimum of 2" above finished floor level.
Stair Landing	Equal to depth of construction and terminated flush with finished surfaces.
Walls and Partitions	Equal to depth of construction and terminated flush with finished surfaces.

2.3 GENERAL

- A. The following specifications represent desired design, material, and construction standards for the various items of work. Manufacturer names and model numbers are used to describe specific types, styles and quality.

2.4 FIRESTOPPING

- A. Provide firestop compounds for caulk, pour, trowel or pump application. Material must be capable of sealing openings around single or multiple pipes against fire, smoke and toxic gases, and maintaining rating with a thickness no greater than the structure.
- B. Provide a damming material, where required, per manufacturer's recommendations and as shown on the Drawings.
- C. Provide a firestop system consisting of a material, or combination of materials, to retain the integrity of fire-rated construction by maintaining an effective barrier against the spread of flame, smoke or gases through penetrations in fire-rated barriers. It shall be used in specific locations as follows:
  - 1. Penetrations for the passage of piping through fire-rated vertical barriers (walls and partitions), horizontal barriers (floor slabs and floor/ceiling assemblies), and vertical service shafts.
  - 2. Locations shown specifically on the drawings or where specified in other sections of these specifications.

2.5 MATERIALS

- A. Firestopping materials/systems shall be flexible to allow for normal movement of building structure and penetrating item(s) without affecting the adhesion or integrity of the system.
- B. Firestopping materials shall not require hazardous waste disposal of used containers/packages.
- C. Provide firestopping materials free of solvents which will not experience shrinkage while curing.
- D. Firestopping materials shall be unaffected by moisture.

2.6 ACCEPTABLE MANUFACTURERS

- A. Specified Technologies, Inc.
- B. Dow Corning
- C. Flamesafe

D. International Protective Coatings

**PART 3 - EXECUTION**

- 3.1 Deliver materials to site in original unopened containers or packages bearing the manufacturer's name, brand designation, product description and U.L. Classification Mark.
- 3.2 Coordinate delivery of materials with scheduled installation date to allow minimum storage time at job site.
- 3.3 Store materials under cover and protect from weather and damage in compliance with manufacturer's requirements.
- 3.4 Comply with recommended procedures, precautions or remedies described in Material Safety Data Sheets as applicable.

3.5 **EXAMINATION**

- A. Examine areas and conditions under which work is to be performed and notify the Contractor in writing of conditions detrimental to proper and timely completion of the work.
- B. Verify that openings are properly sized and in suitable condition to receive the work of this section.
- C. Verify manufacturer's printed instructions for installation and when applicable, curing in accordance with temperature and humidity. Conform to ventilation and safety requirements.
- D. Verify the condition of the substrates before starting work.
- E. Verify Weather Conditions. Do not proceed with installation of firestop materials when temperatures fall outside the manufacturer's suggested limits.
- F. Verify that firestopping materials are installed so as not to contaminate adjacent surfaces.
- G. Schedule firestopping after installation of penetrants but prior to concealing the openings.
- H. Where firestopping is installed at locations which will remain exposed in the completed work, provide protection as necessary to prevent damage to adjacent surfaces and finishes, and protect as necessary against damage from other construction activities.
- I. Verify that all pipe, conduit, ducting which penetrate fire-rated construction have been permanently installed prior to installation of firestop.

3.6 PREPARATION

- A. Clean substrate of dirt, dust, grease, oil, loose materials, rust or other matter that may affect the proper fitting or adhesion of the firestopping materials.
- B. Clean metal and glass surfaces with a non-alcohol solvent.

3.7 INSTALLATION

- A. Installation of firestops shall be performed by an applicator/installer qualified and trained by the manufacturer. Installation shall be performed in strict accordance with manufacturer's details installation procedures.
  - B. Apply firestops in accordance with fire test reports, fire resistance requirements, acceptable sample installations, and manufacturer's recommendations.
  - C. Unless specified and approved, all insulation used in conjunction with through-penetrations shall remain intact and undamaged and may not be removed.
  - D. Seal holes and penetrations to ensure an effective smoke seal.
  - E. In areas of high traffic, protect firestopping materials from damage. If the opening is large, install firestopping materials capable of supporting the weight of a human.
  - F. Insulation types specified in other sections shall not be installed in lieu of firestopping material specified herein.
  - G. All combustible penetrants (e.g. non-metallic pipes or insulated metallic pipes) shall be firestopped using products and systems tested in a configuration representative of the field condition.
  - H. Dam Construction
    - 1. When required to properly contain firestopping materials within openings, damming or packing materials may be utilized. Combustible damming material must be removed after appropriate curing. Noncombustible damming materials may be left as a permanent component of the firestop system.
- 3.8 Firestopping may be required by other Subcontractors under related sections of the project specifications. Identify all locations requiring firestopping and coordinate the work of this section with work performed under other sections of the project to provide a uniform system of firestopping.
- 3.9 Schedule installation of firestopping after completion of penetrating item installation but prior to covering or concealing of openings.

- 3.10 Do not proceed with installation of firestop materials when temperatures exceed the manufacturer's recommended limitations for installation.
- 3.11 Firestop systems do not re-establish the structural integrity of load bearing partitions. Contractor shall consult the Commissioner prior to penetrating any load bearing assembly.
- 3.12 Firestop systems are not intended to support live loads or traffic. Contractor shall consult the Commissioner if he has reason to believe these limitations may be violated.
- 3.13 The installation of firestop materials shall be inspected on site by a representative of the firestopping manufacturer and verified in writing that the installation is in accordance with the manufacturer's requirements. This shall be done for each firestop penetration installed on this project.
- 3.14 **FIRESTOPPING**
  - A. **Un-Insulated Cold Pipes**
    - 1. Install a pipe sleeve through the wall or slab to be penetrated with an inside diameter large enough to include the specified pipe & firestopping.
    - 2. Install firestop material at each end of sleeve to form a U.L. approved system.
    - 3. Mark penetration in an approved manner to verify manufacturer's inspection.
    - 4. Cover firestopping with escutcheon cover.
- 3.15 **FIELD QUALITY CONTROL**
  - A. Prepare and install firestopping systems in accordance with manufacturer's printed instruction and recommendations.
  - B. Follow safety procedures recommended in the Material Safety Data Sheets.
  - C. Finish surfaces of firestopping which are to remain exposed in the completed work to a uniform and level condition.
  - D. All areas of work must be accessible until inspection by the applicable Code Authorities.
  - E. Correct unacceptable firestops and provide additional inspection to verify compliance with this specification.

3.16 CLEANING

- A. Remove spilled and excess materials adjacent to firestopping without damaging adjacent surface.
- B. Leave finished work in neat, clean condition with on evidence of spill overs or damage to adjacent surfaces.

END OF SECTION

SECTION 22 05 18

ESCUTCHEONS FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide complete plumbing systems in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Escutcheons

1.3 SUBMITTALS

- A. Provide the following Manufacturer's Specifications and Engineering Data:

- 1. Materials
- 2. Parts
- 3. Devices
- 4. Finish
- 5. Performance Data
- 6. Area of Use

- B. Provide samples as follows: Where manufacturer's catalog information does not satisfactorily indicate materials, engineering design, quality of construction or aesthetics of proposed equipment, samples shall be submitted as requested with no additional cost to the City of New York.

1.4 QUALITY ASSURANCE

- A. NYC Building Code.
- B. Plumbing and Drainage Institute (PDI).
- C. ANSI.
- D. National Sanitary Foundation (NSF).
- E. ASTM.
- F. Underwriters Laboratories (UL).

**PART 2 - PRODUCTS**

2.1 **GENERAL**

- A. The following specifications represent desired design, material, and construction standards for the various items of work. Manufacturer names and model numbers are used to describe specific types, styles and quality.

2.2 **ESCUTCHEONS**

- A. Provide escutcheons on all exposed piping through walls, floors, partitions and ceilings.
- B. Provide escutcheons on all piping passing through fire rated walls.
- C. Escutcheons shall be held in place by set screws.
- D. Escutcheon Application

Location	
Finished Spaces	Chrome plated brass
Unfinished spaces: including mechanical equipment rooms.	Cast iron

- E. Two-piece or hinged escutcheons will not be permitted.
- F. Escutcheons shall be installed on both sides of pipe penetrations.

**PART 3 - EXECUTION**

3.1 **NOT USED.**

END OF SECTION



SECTION 22 05 29

HANGERS, SUPPORTS, ANCHORS AND GUIDES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work of this Section shall conform to the requirements of the Contract Documents.

1.2 WORK INCLUDED

- A. Hangers equipment.
- B. Supports

1.3 SUBMITTALS

- A. Manufacturer's literature, catalog data and illustrations.
- B. Shop Drawings indicating:
  - 1. Dimensions
  - 2. Construction details of hangers, inserts, anchors and guides
  - 3. Materials
  - 4. Maximum Load
  - 5. Locations
  - 6. Recommended installation procedures

1.4 QUALITY ASSURANCE

- A. Codes and Authorities
  - 1. Federal Specification WW-H171b
  - 2. ASA Code for Pressure Piping
  - 3. ASTM A-575-73
  - 4. MSS SP-58-67
  - 5. MSS SP-69-66
  - 6. Underwriters Laboratories

7. NYC Plumbing Code

**PART 2 - PRODUCTS**

2.1 **HANGERS**

- A. All bracket, clamp and rod sizes indicated in this specification are minimum sizes only. All structural hanging materials shall have a built-in safety factor of 5.
- B. Provide pipe roller support where longitudinal movement due to expansion and contraction may occur.
- C. All hangers shall be U.L. listed.
- D. Pipe Hanger Schedule

	Carpenter & Patterson 'Witch'	Grinnell	I. R. Rauch's & Sons
C-Clamp with Retaining Clip and Locknut (pipe sizes 2" & smaller)	47 with 22	86 with 89	47 with 22
Beam Clamp	293	228	82
Multi-J Hook	---	---	228
J Hook	---	---	221
Clevis Hanger	100	260	100
Clevis Hanger w/Saddle	100SH	---	100SH
180° Shield	265P	168	265P
Single Rod Roll Hanger	140	181	140
Double Rod Roll Hanger	142	171	142
Trapeze	---	46	1600-1700
U-bolt Adjustable Pipe	283	137C	283
Stanchion Saddle	247	259	247
Welded Steel Bracket	84 or 139	199 or 195	84 or 139
Riser clamp	126	261	126
Welded Beam Attachment	113A	66	---
Welded Beam Attachment w/bolt & nut	113B	66	113A
Concrete Insert	108	282	180 or 181

**HANGERS, SUPPORTS, ANCHORS, AND  
GUIDES  
22 05 29-2**

	Carpenter & Patterson 'Witch'	Grinnell	I. R. Rauch's & Sons
Phillips Inserts	513	Phillips Insert	1000

E. Hanger Rod Schedule

Pipe Size	Rod Diameter
2" and smaller	3/8"
2-1/2" - 3-1/2"	1/2"
4" - 5"	5/8"
6"	3/4"
8" - 12"	7/8"

F. Acceptable Manufacturers

1. I. R. Rauch's & Sons
2. Grinnell Company, Inc.
3. Carpenter & Patterson

2.2 FOUNDATIONS

- A. All equipment, piping, etc., shall be mounted on approved foundations, all as specified herein, or as shown on the drawings.
- B. All floor-mounted equipment shall be erected on 4" high concrete pads, provided under a separate section of the specifications, over the complete floor area of the equipment, unless specified to the contrary herein. Hereinafter, wherever vibration eliminating devices and/or concrete inertia blocks are specified, these items shall in turn be mounted upon aforementioned pads unless specified to the contrary herein.
- C. All floor-mounted equipment shall be erected on 4" high concrete pads, over the complete floor area of the equipment, unless specified to the contrary herein. Hereinafter, wherever vibration eliminating devices and/or concrete inertia blocks are specified, these items shall in turn be mounted upon aforementioned pads unless specified to the contrary herein. Refer to Section 15425 for Vibration Isolation.
- D. All concrete foundations and supports (and required reinforcing thereof) will be furnished and installed under this Section of the Specification. Furnish templates for all concrete foundations and supports, and all required hanger bolts and other appurtenances necessary for the proper installation

**HANGERS, SUPPORTS, ANCHORS, AND  
GUIDES**

of equipment. Submit shop drawings showing the complete details of all foundation bases including necessary concrete and steel work.

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

A.

Hanger Spacing Schedule			
Piping Material	Pipe Size	Maximum Hanger Spacing	Remarks
Cast iron (hub and spigot)	All sizes	5 feet	Provide hanger behind each hub.
Cast iron (hubless)	All sizes	5 feet	Provide hanger at each side of every joint.
Copper	1¼" and less	6 feet	
Copper	1½" and larger	10 feet	
Steel	All	10 feet	Provide hanger at each mechanical joint.

Note: Restraint assemblies consisting of pipe clamps, rods and nuts shall be fitted to each hubless vertical to horizontal fitting. Sway bracing must be provided for above ground piping 6" or larger.

- B. For flat slab construction only, support hangers from concrete inserts. Furnish, locate and set such inserts and make sure that such inserts are in place when the concrete is poured. Construct inserts of malleable iron or pressed steel with space for rods of all sizes. Install all inserts for pipes 3" and larger in size with a reinforcing rod ½" in diameter run through a slot in the insert specifically provided for this purpose.
- C. For flat slab construction only, if any pipe is to be hung in a space where no inserts have been provided, drill holes in the slab (subject to the Commissioner's prior approval) and provide rods and hanger attached to an approved fishplate or install double expansion shields connected by a 2" x 2" angle from which the hanger rod is to be suspended. For pipe size 2" and under, use single shields but the hanger spacing defined hereinbefore to be reduced to 5 feet. The carrying capacity and size of each shield to be calculated on the basis of the spacing indicated above but the minimum size to be \_". Install additional shields of the same size so that the number of hangers are of adequate size to support the loads which they carry. Shields may be used in flat concrete slabs only.

- D. Regardless of the type of construction (i.e., concrete, concrete-deck-steel or other variations) take particular care to support all main lines and all large and heavy pipes in an approved manner, including the furnishing and installation of supplementary steel, if required. Supplementary steel sections are to be mill-rolled. Submit shop drawings, indicating support methods, point loadings to the building structure and hanger locations for review sufficiently in advance of concrete pouring schedules to permit evaluation, critique and any necessary changes to handling and support methods.
- E. Set all inserts for all pipes in ample time to allow concrete work to be performed on scheduled time.
- F. Hangers may be directly attached to steel beams of building construction, where they occur, if approved by Commissioner. Smaller pipes may be suspended from crosspieces of pipe or steel angles, which in turn are to be securely fastened to building beams. The intention is to provide supports which, in each case, will be amply strong and rigid for the load, but which will not weaken or unduly stress the building construction.
- G. Provide approved roller support, floor stands, wall brackets, etc., for all lines running near the floor or near walls, which can be properly supported or suspended by the floors or walls. Pipelines near walls may also be hung by hangers carried from approved wall brackets at a level higher than the pipe.
- H. Do not hang piping from other piping. Support of hangers by means of vertical expansion bolts is not permitted.
- I. Support Locations for Vertical Piping
  - 1. Cast Iron Soil Piping: At every floor and at its base, but in no case greater than 20-foot intervals.
  - 2. Copper Tubing and Steel Pipe: At every floor but no more than 20-foot intervals.
- J. Hangers shall be installed outside of piping insulation with a semi-cylindrical galvanized shield set between the hanger and insulation.
- K. Trapeze hangers may be used instead of separate clevis hangers with suspension rods having double nuts and securely attached to the construction.
- L. All beam attachments shall be installed on clean, smooth, and non-fireproofed sections of the beam.

- M. All hangers, anchors, rods and supports shall be galvanized or painted.

END OF SECTION

SECTION 22 05 53

IDENTIFICATION OF PLUMBING PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide information of plumbing systems in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Pipe Labeling
- B. Valve and Equipment Tagging

1.3 SUBMITTALS

- A. Provide the following Manufacturer's Specifications and Engineering Data:
  - 1. Materials
  - 2. Parts
  - 3. Devices
  - 4. Finish
  - 5. Area of Use
- B. Provide samples as follows: Where manufacturer's catalog information does not satisfactorily indicate materials, engineering design, quality of construction or aesthetics of proposed equipment, samples shall be submitted as requested with no additional cost to the City of New York.

1.4 QUALITY ASSURANCE

- A. NYC Building Code.
- B. Plumbing and Drainage Institute (PDI).
- C. ANSI.
- D. National Sanitary Foundation (NSF).
- E. ASTM.
- F. Underwriters Laboratories (UL).

**PART 2 - PRODUCTS**

**2.1 GENERAL**

- A. The following specifications represent desired design, material, and construction standards for the various items of work. Manufacturer names and model numbers are used to describe specific types, styles and quality.

**2.2 PIPE LABELING**

- A. All piping shall be identified by stenciled lettering, or self adhesive pipe markers which legend conforms to OSHA/ANSI standards including but not limited to the identification of flow direction, pressure, supply/return, pump discharge, cold water, hot water, hot water return, etc.
- B. There shall be at least one lettering identification for each pipe in each space and at all valve locations.
- C. For painted identification use color sharply contrasting with background. If necessary, paint a strip background of black or white to obtain contrast.
- D. Vertical piping shall be labeled at each floor. Horizontal piping shall be labeled every 10', both sides of partitions, before and after turns, and close to valves and flanges.
- E. Each set consisting of one (1) band on which the name of the service is printed in black letters not less than 1½ inches high, and one (1) band on which is printed a black directional arrow. Apply bands where they can be easily read and with their long dimension parallel to the axis of the pipe. Provide bands with backgrounds of different colors from the various service groups.
- F. Adhesive Bands: "Quick-Label B-350 Perma-Code Film Markers" (W.H. Brady Company).

**2.3 VALVE & EQUIPMENT TAGGING**

- A. Tag valves with identifying number and system. Number valves by floor level.
- B. For valves, etc., use metal tags 2" minimum in diameter with 1" painted letters fabricated of brass, stainless steel or aluminum. Attach tags with chain of same material.
- C. Prepare lists of all tagged valves showing location, floor level, tag number and use. Prepare separate lists for each system. Mount lists under a sheet of clear acrylic in Equipment Room. Include copies in each maintenance manual.
- D. Provide charts showing equipment lubrication points, lubrication required and frequency, and columns for date and initials.

**IDENTIFICATION OF PLUMBING PIPING  
AND EQUIPMENT**



- E. Stencil equipment with identifying letters and numbers as used on drawings. Where space is available use full name of equipment.
- F. Identify all controls such as motor starters not in motor control centers, float switches and alarms.

**PART 3 - EXECUTION**

3.1 **NOT USED**

END OF SECTION

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**January 5, 2015**

**IDENTIFICATION OF PLUMBING PIPING  
AND EQUIPMENT  
22 05 53-4**

SECTION 22 05 80

PLUMBING ACCESS DOORS IN GENERAL CONSTRUCTION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Furnish access doors located in general construction in accordance with the Contract Documents for setting under general construction work.

1.2 WORK INCLUDED

- A. Access Doors in Drywall.
- B. Access Doors in Ceilings.
- C. Access Doors in Masonry.
- D. Fire Rated Access Doors.
- E. Color Coded Buttons.

1.3 SUBMITTALS

- A. Provide manufacturer's data on access doors to be furnished in each type of general construction, by location, within the project.

PART 2 - PRODUCTS

- 2.1 Wherever access is required through walls or ceilings, to valves, gauges, alarm devices, or other concealed equipment installed under this Division, furnish a hinged access door with flush screwdriver operated cam locks and frame as follows:

- A. Drywall construction--Milcor Style DW.
- B. Finished acoustical tile ceiling--Milcor Style AT.
- C. Finished plaster ceiling--Milcor Style AP.
- D. Finished plaster walls or ceramic tile--similar to doors required for finished acoustical tile ceiling.
- E. Plaster or masonry walls and ceilings outside offices and in other finished areas exposed to view--Milcor Style K or M.
- F. Provide access doors in rated construction with "B" label fire construction. Furnish a U.L. label on each access door.

- G. Access doors will be installed under another Division. Coordinate all sizes and locations with Contractor.
  - H. No access door shall be installed until location and type have been approved by the Commissioner.
- 2.2 Furnish color coded buttons or tabs to indicate location of valves or other equipment located above removable type ceilings where access doors are not required.
- 2.3 Make access door size a minimum of 18" x 18".

**PART 3 - EXECUTION**

3.1 **GENERAL**

- A. Coordinate sizes and location of all access doors.
- B. Direct location and setting of access doors in hung ceilings, furred spaces, walls, etc., to provide access to all concealed work items requiring maintenance and/or adjustment and as directed by the Commissioner. Obtain acceptance of the Commissioner for the locations and sizes of such access doors.
- C. Locate and group equipment requiring access doors so that access door locations are aesthetically acceptable. Coordinate location of equipment requiring access with other trades to minimize number of access doors in one area. Prepare drawings of valve locations indicating proposed access door locations for review by the Commissioner prior to installation of valves, etc. Include equipment of other trades on the Drawing.

END OF SECTION

SECTION 22 05 90

TESTING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide testing for all plumbing systems in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Test all new systems.

1.3 SUBMITTALS

- A. Provide all test certifications.
- B. Approvals.

1.4 QUALITY ASSURANCE

- A. AWWA
- B. New York City Building Code
- C. International Fuel Gas Code
- D. International Plumbing Code
- E. NFPA-54
- F. Utility Requirements

PART 2 - PRODUCTS

2.1 NOT USED.

PART 3 - EXECUTION

3.1 SOIL, WASTE, VENT AND STORM WATER SYSTEMS

- A. Except for outside leaders and perforated or open jointed drain tile (subsoil drains), the piping of sanitary and storm drainage and vent systems shall be verified as to materials and shall be tested upon completion of the rough piping installation and prove to be water tight. The removal of cleanout plugs may be required to ascertain that the prescribed pressure has been

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reached in all parts of the system. Testing of sections shall be done in order to permit general construction and other work to proceed. Such tests shall be made in the presence of the Building Department Inspectors, Commissioner and any other authorities having jurisdiction.

- B. **Water Test.** A water test shall be applied to the drainage system either in its entirety or in sections after rough piping has been installed. If applied to the entire system, all openings in the piping, except the highest opening, shall be tightly closed and the system filled with water to the point of overflow. If the system is tested in sections, each opening, except the highest opening of the section under test, shall be tightly plugged and each section filled with water. No section shall be tested with less than a ten foot head of water. In testing successive sections, at least the upper ten feet of the following section shall be tested, so that no joint or pipe in the building (except the uppermost ten feet of the system) shall have been submitted to a test of less than ten foot head of water. The water shall be kept in the system or in the portion under test for at least four (4) hours before inspection starts; the system shall then be tight at all points.
  
- C. **Air Test.** An air test may be used only when permission for this type of test is obtained from the Commissioner. The air test shall be made by attaching an air compressor testing apparatus to any suitable opening and, after closing all other inlets and outlets of the system, forcing air into the system until there is a uniform gauge pressure of five psi or sufficient pressure to balance a column of mercury ten inches in height. This pressure shall be held, without introducing additional air, for a period of at least thirty minutes.
  
- D. **Buried Piping**
  - 1. In addition to the hydrostatic testing indicated above all buried piping shall be videotaped twice. Once after backfilling is complete and a second time after the slabs have been poured. A report and videotape shall be given to the Commissioner after each test.

END OF SECTION

SECTION 22 13 16

SANITARY WASTE AND VENT PIPING AND FITTING MATERIALS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide piping and fitting materials in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Piping.
- B. Fittings.
- C. Related Accessories.

1.3 SUBMITTALS

- A. Submit a list of all proposed piping materials including system/material (use schedule).
- B. Submit complete back-up material where proposed materials differ from those specified.

1.4 QUALITY ASSURANCE

- A. Local Plumbing Code.
- B. Each pipe length shall have the manufacturer's name cast, stamped or rolled on.
- C. Each fitting shall have the manufacturer's name cast, stamped or rolled on.
- D. The following are references to the specifications standards of recognized authorities to which pipe and fitting materials must conform to be acceptable. All references shall be the latest edition in force at the time of bidding.

<b>Material</b>	<b>Authority Spec. Numbers</b>
Sleeve Pipe, Black and Galvanized	ANSI B36.20
Steel Pipe, Black and Galvanized	ANSI B36.20
Extra Heavy and Service Weight Cast Iron Soil Pipe and Fittings	CS188-66
Caulking Lead, Type I	FS-QQ-L156(1)

**SANITARY WASTE AND VENT PIPING AND  
FITTING MATERIALS**

Material	Authority Spec. Numbers
Neoprene or Rubber Gasket, Compression	CISPI HSN-75
Hubless Cast Iron Soil Pipe and Fittings	CISPI 301
Ductile Iron	ANSI A21.51
Ductile Iron Fittings	ANSI A21.10, A21.11
Cast Iron Threaded Drainage Fittings	ANSI B16.12

## **PART 2 - PRODUCTS**

### **2.1 CAST IRON SOIL PIPE (SV)**

- A. Pipe: Service weight centrifugally spun cast iron soil pipe hub and spigot type with weight per foot and maker's name clearly stamped or cast on each length.
- B. Fittings: Hub and spigot service weight cast iron.
- C. Joints: Oakum and lead, Neoprene or rubber gasket, compression.
- D. Application:
  - 1. Horizontal portions or offsets of sanitary stacks including one floor above and below the offset.

### **2.2 CAST IRON SOIL PIPE (HUBLESS)**

- A. Pipe: Hubless cast iron soil pipe coated inside and out.
- B. Fittings: Hubless service weight, cast iron.
- C. Joints: Neoprene gasket and heavy duty type 304 stainless steel shield and four stainless steel bands for sizes 1½" through 4", six bands minimum for sizes 5" and larger. Clamps as manufactured by Clamp-All Corporation or Husky as manufactured by Anaheim Foundry Co. (ANACO).
- D. Application:
  - 1. Above ground branch sanitary and vent piping.
  - 2. Above ground sanitary stacks except all horizontal sanitary stacks and the 90° stack fittings shall be hub and spigot.

### **2.3 GALVANIZED STEEL PIPE**

- A. Pipe: Galvanized steel pipe, Schedule 40 with maker's name rolled into each length.



B. Fittings

1. Threaded: Galvanized malleable iron with flat band steam pattern. Cast iron drainage pattern for waste piping.
2. Mechanical Joint: Victaulic couplings Style 07 for grooved piping only, with gasket.

C. Joints: Teflon tape for threaded, Victaulic couplings with gasket for mechanical joint.

D. Application

1. Schedule 40 steel for sewage ejector discharges.
2. Schedule 40 steel for indirect waste piping.
3. Schedule 40 steel for sanitary drainage greater than 15".

2.4 BRASS PIPE

A. Pipe: Seamless red brass, 85% copper, Schedule 40.

B. Fittings: Cast brass, 85% copper, Schedule 40.

C. Joints: Teflon tape.

D. Application:

1. All exposed fixture pipe, chrome plated.
2. Indirect waste pipe, chrome plated.

2.5 CHROMIUM PLATING

A. All exposed piping shall be chrome plated in accordance with U.S. Government Standards. Clean and polish materials before plating. Apply plating thoroughly and evenly to prevent stripping and peeling. Copper plate steel and cast iron pipe and nickel plate copper and brass pipe before applying chromium plating. Polished or satin finish as selected.

**PART 3 - EXECUTION**

3.1 JOINTS

A. Caulked Joints: Firmly pack joints with an oakum gasket and seal with molten virgin pig lead. Use twelve ounces of molten lead for each inch in diameter of pipe used at each joint. Run lead in one pouring and caulk tight. Seal and smoothly face the joints.

- B. Threaded Joints: Do not damage fitting surface, remove burrs and ream smooth. Apply Teflon tape to male threads only. Clean joint thoroughly of excess jointing material.
- C. Flanged Joints: Use matched flange faces and 1/16" thick compressed gaskets.
- D. Compression Joints: Lubricate neoprene gasket and slip into hub end of pipe. Draw spigot end of pipe into the gasketed hub. Provide restrained joints at all changes in pipe sizes, at all changes in direction of run and at all dead ends.
- E. Mechanical (Grooved) Joints: Joints shall be made with neoprene or synthetic rubber gaskets.
- F. Make joints between different piping materials with adaptor fittings of a type suitable for the purpose intended.
- G. Make joints between pipes of dissimilar metals with dielectric union or flanges.
- H. Exposed threads on exposed finished piping at plumbing fixtures and equipment will not be accepted.
- I. Graphite shall be used on all cleanout plugs or caps.
- J. All mechanical joint fittings and couplings shall be made by the same manufacturer.

**3.2 BRACING**

- A. Hubless cast iron pipe shall have bracing installed as required by CISPI and the manufacturer.

**3.3 SOIL, WASTE AND VENT STORM WATER SYSTEMS**

- A. Except for outside leaders and perforated or open jointed drain tile (subsoil drains), the piping of sanitary and storm drainage and vent systems shall be verified as to materials and shall be tested upon completion of the rough piping installation and prove to be water tight. The removal of cleanout plugs may be required to ascertain that the prescribed pressure has been reached in all parts of the system. Testing of sections shall be done in order to permit general construction and other work to proceed. Such tests shall be made in the presence of the Building Department Inspectors, Commissioner and any other authorities having jurisdiction.
- B. Water Test. A water test shall be applied to the drainage system either in its entirety or in sections after rough piping has been installed. If applied to the entire system, all openings in the piping, except the highest opening, shall be tightly closed and the system filled with water to the point of overflow. If the system is tested in sections, each opening, except the

**SANITARY WASTE AND VENT PIPING AND  
FITTING MATERIALS**

highest opening of the section under test, shall be tightly plugged and each section filled with water. No section shall be tested with less than a ten foot head of water. In testing successive sections, at least the upper ten feet of the following section shall be tested, so that no joint or pipe in the building (except the uppermost ten feet of the system) shall have been submitted to a test of less than ten foot head of water. The water shall be kept in the system or in the portion under test for at least four (4) hours before inspection starts; the system shall then be tight at all points.

- C. Air Test. An air test may be used only when permission for this type of test is obtained from the Commissioner. The air test shall be made by attaching an air compressor testing apparatus to any suitable opening and, after closing all other inlets and outlets of the system, forcing air into the system until there is a uniform gauge pressure of five psi or sufficient pressure to balance a column of mercury ten inches in height. This pressure shall be held, without introducing additional air, for a period of at least thirty minutes.
- D. Buried Piping
  - 1. In addition to the hydrostatic testing indicated above all buried piping shall be videotaped twice. Once after backfilling is complete and a second time after the slabs have been poured. A report and videotape shall be given to the Commissioner after each test.

#### 3.4 INSTALLATION

- A. All materials shall be new and installed in a first class manner.
- B. All drainage piping, unless otherwise indicated, shall be pitched at a minimum rate of 1/8 inch per foot in direction of flow. Branch connections to stacks or main drains shall not be made in a manner which will permit backflow.
- C. All vent piping shall be arranged to drain any condensate back to waste piping.
- D. Nipples: Any piece of pipe 8 inch in length and less shall be considered a nipple. All nipples shall be of weight corresponding to fitting connected. Only shoulder nipples shall be used unless otherwise directed.
- E. Where indicated on the drawings, plugged outlets shall be left in drainage and vent piping for future fixtures.

END OF SECTION

**SANITARY WASTE AND VENT PIPING AND  
FITTING MATERIALS**

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**SANITARY WASTE AND VENT PIPING AND  
FITTING MATERIALS  
22 13 16-6**

SECTION 22 13 19

SANITARY WASTE PIPING SPECIALTIES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide complete sanitary and storm drainage systems in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Traps.
- B. Cleanouts.
- C. Trap Primers.

1.3 SUBMITTALS

- A. Manufacturers Data Sheet.

1.4 QUALITY ASSURANCE

- A. Applicable Standards
  - 1. Local Plumbing Code.
  - 2. Local authorities having jurisdiction.
  - 3. PDI.

PART 2 - PRODUCTS

2.1 TRAPS

- A. All traps for showers and drains shall be brass or cast iron (threaded or caulked joint pattern) of approved types and water seal. Traps provided with cleanouts shall have heavy brass threaded plugs with solid brass heads.
- B. Fixture traps shall be as specified under Plumbing Fixtures.
- C. All traps shall be set as close to the fixtures as possible and in no event shall this distance exceed 2 feet horizontal and 4 feet vertical. All traps shall be set level with regard to their water line.

**2.2 CLEANOUTS**

- A. Provide cleanouts at the base of all soil, waste and leader stacks.
- B. Cast Iron Pipe Cleanouts: Tapped extra heavy cast iron ferrule, caulked into cast iron fittings, and extra heavy lead seal plug with solid hexagonal nut or countersunk plug to suit.
- C. No-Hub Cast Iron Pipe Cleanouts: No-Hub cast iron cleanout plug or extra heavy brass threaded plug in tapped cast iron fittings, with solid hexagonal nut or countersunk plug to suit.
- D. Steel Pipe Cleanouts: Extra heavy brass threaded plug in drainage fitting.
- E. Cleanout Plugs: Comply with the Plumbing Code; American Standard pipe threads with "Permacel" or approved Teflon tape applied to the male threads.
- F. Extend cleanouts to walls and floor with long sweep ells or "y" and 1/8 bends with plugs and face or deck plates to conform to the architectural finish in the room. Where no definite finish is indicated on the architectural and/or mechanical drawings, use stainless steel wall plates and floor plates of nickel bronze.
- G. Cleanouts shall be not more than 50 feet apart in horizontal drainage lines. Accessible cleanouts shall be installed at each change of direction greater than 45° on all horizontal drainage lines. All cleanouts shall be installed so that the cleanout opens in the direction of flow or at right angles thereto. Cleanouts shall be of same size as pipes up to 4 inches and not less than 4 inches for larger piping.
- H. Cleanouts and Plates: J.R. Smith models as indicated in the following tabulation:

Type	Location	Piping
4405-98		Exposed C.I. pipe
4472		Exposed steel pipe
4402-97	Wall	Concealed C.I. pipe
4472	Wall	Concealed steel pipe
4025	Concrete Floor	Steel or C.I.
4160FC	Waterproof Slab Floor	Steel or C.I.
4145	Asphalt Tile Floor	Steel or C.I.
4045	Ceramic Tile Floor	Steel or C.I.

Type	Location	Piping
4105	Heavy Duty Traffic Floor	Steel or C.I.
4020	Concrete Floor	No-Hub
4020FC	Waterproof Slab Floor	No-Hub
4140	Asphalt Tile Floor	No-Hub
4040	Ceramic Tile Floor	No-Hub
4100	Heavy Duty Traffic Floor	No-Hub

**2.3 TRAP PRIMER**

- A. Pressure operated all brass trap seal primer with ½" inlet and outlet. Four hole view built-in air gap and removable filter screen.
- B. Provide trap seal distribution unit when more than one drain is being primed.

**2.4 ACCEPTABLE MANUFACTURERS**

- A. Cleanouts
  - 1. Wade
  - 2. Zurn
  - 3. J.R. Smith
  - 4. Ancon
- B. Trap Primers
  - 1. MIFAB
  - 2. Sioux Chief

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

- A. All materials shall be new and installed in a first class manner.

3.2 OPERATING INSTRUCTIONS PERIOD

- A. Provide one day of instructions.

END OF SECTION



SECTION 22 14 29

SUMP PUMPS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide sump pumps in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Elevator Sump Pumps.

1.3 SUBMITTALS

- A. Catalog Data: Manufacturer's literature and illustrations.
- B. Shop Drawings
1. Dimensions.
  2. Detail of valving and piping arrangements.
  3. Wiring diagram of prewired controllers required control wiring and power wiring diagrams.
  4. Written description of sequence of operation.
  5. Pump curves indicating service conditions.
- C. Installation: Manufacturer's installation instructions.
- D. Operating Instructions: Written operating instructions including start-up and shutdown.
- E. Maintenance Data
1. Written instructions on items requiring periodic maintenance.
  2. Parts List.
- F. Factory Tests and Certificates
1. Pumps hydraulically tested for pressure/flow performances.
  2. Provide certified test data.

G. Responsibility of Manufacturer

1. The manufacturer shall be responsible for the complete pumping system and shall guarantee pumps, motors, controls and all components of the pumping system.

1.4 QUALITY ASSURANCE

- A. U.L.
- B. NEMA

PART 2 - PRODUCTS

2.1 GENERAL

- A. Pumping systems shall be complete with all necessary controls, starters, alarms, timers, wiring of factory-assembled components, etc.
- B. Construct all apparatus of materials and pressure ratings suitable for the conditions encountered during continuous operation.
- C. Select pumps so that when operating at rated RPM, the pump motor cannot be overloaded despite variations in pumping head.

2.2 SUMP PUMP

- A. Provide submersible Simplex sump pump units of size and capacity indicated on the drawings. Pumps shall have cast iron casing with rubber asphalt painted external parts. Impeller shall be cast iron, epoxy coated. Provide mechanical seals, stainless steel shaft and flanged discharge connection.
- B. Motor
  1. Provide motor with voltage tolerance of 10% and capable of running dry continuously, non-overloading at all points.
  2. Provide terminal board connection for submersible motor cable entry.
- C. Guarantee
  1. One year guarantee for entire duplex system, commencing from start-up of system.

D. Control Panel

1. The control panel shall consist of the following:
  - a. NEMA 4x Panel
  - b. Across-the-line starter.
  - c. Lockable ambient-compensated disconnect switches located in elevator pit.
  - d. H.O.A. switches.
  - e. Automatic alternator.
  - f. Control transformer with fused primary and secondary.
  - g. Elapsed time meters.
2. Panel shall provide the following alarms and indications:
  - a. Pump running lights one (1) per pump.
  - b. High water level alarm light one (1).
  - c. Power available light one (1).
  - d. Pump fail to run one (1) per pump.

E. Level Sensors:

1. Provide four sensors and ground. Sensors shall be Flygt Model ENH-10 or Peerless Series P Sealtrode Floatless Pump Controllers.

F. General

1. All wiring will be done provided by this Contractor who shall be responsible for the complete installation.
2. Alarms, alarm wiring and control wiring shall be provided by this trade.
3. The installation shall be complete with all accessories required.
4. Provide a horizontal swing check valve in the discharge from each pump. The valve shall be equipped with a lever weight for quick closure.
5. Sump pumps shall not be used during construction without written approval from the Commissioner.

2.3 ACCEPTABLE MANUFACTURERS

- A. Sump Pumps
  - 1. Flygt Corporation
  - 2. Weil Pumps
  - 3. Stancor

**PART 3 - EXECUTION**

3.1 INSTALLATION

- A. Completely align and level pumps, motors and bases. Where pumps and motor are shipped as a unit, realign them in the field.
- B. Grout base plates completely to provide a non-deflecting support.
- C. Secure pumps to bases with proper size anchor bolts.
- D. Install and align mechanical seals in accordance with the manufacturer's recommendation.
- E. Pump manufacturer to set packing, adjust impellers and check alignment prior to start-up.

3.2 WARRANTY

- A. Provide a one (1) year warranty from the date of substantial completion.

END OF SECTION

SECTION 23 00 02

HEATING, VENTILATION & AIR CONDITIONING SPECIAL CONDITIONS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The General and Supplementary Conditions accompanying these Specifications are hereby made a part of the requirements for the work under this Division of the Specification.

1.2 WORK INCLUDED

- A. Provide labor and materials required to install, test and place into operation the heating, ventilating and air conditioning systems as called for in the contract documents, and according to applicable codes and regulations.
- B. Furnish and install all labor, materials, apparatus, and appliances essential to the complete functioning of the systems described and/or indicated herein, or which may be reasonably implied as essential whether mentioned in the Contract Drawings and Specifications or not.
- C. The Contractor shall accept delivery of the pre-purchased equipment at the site, inspect the equipment on delivery for damage, and install the equipment. The Contractor shall be responsible for the equipment, provide all labor, material, and accessories as required for a complete functioning system. The Contractor shall have complete responsibility as if he provided the equipment including warranties.

1.3 SUBMITTALS

- A. Submit all shop drawings, manufacturer's data, samples and test reports as called for hereinafter.
- B. Submit a single guarantee stating that all parts of the work are in accordance with Contract requirements. Guarantee work against faulty and improper material and workmanship for a period of one (1) year from date of final acceptance by the City of New York, except that where guarantees or warranties for longer terms are specified herein, such longer term to apply. Within 24 hours after notification, correct any deficiencies which occur during the guarantee period at no additional cost to the City of New York, to the satisfaction of the City of New York and Commissioner. Obtain similar guarantees from subcontractors, manufacturers, suppliers and subtrade specialists.
- C. List of submittals.
- D. Life of materials and equipment manufacturers.

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CONDITIONING SPECIAL CONDITIONS**

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- E. Alternate equipment and material proposal.
- F. Detailed project schedule.
- G. Operating and maintenance manuals.
- H. Record "As-Built" drawings.

1.4 QUALITY ASSURANCE

- A. Comply with current governing codes, ordinances and regulations, as well as with requirements of EPA, U.L. and all other applicable codes.
- B. Comply with the requirements of agencies or authorities having jurisdiction over any part of the work and secure all necessary permits.
- C. Where codes or standards are listed herein, the applicable portions apply.
- D. Plans, specifications, codes and standards are minimum requirements. Where requirements differ, apply the more stringent.
- E. Should any change in plans or specifications be required to comply with governing regulations, notify the Architect/Engineer at the time of submitting this bid.
- F. Execute work in strict accordance with the best practices of the trades in a thorough, substantial, workmanlike manner by competent workmen. Provide a competent, experienced full-time Superintendent who is authorized to make decisions on behalf of the Contractor.

1.5 ABBREVIATIONS AND DEFINITIONS

A. Abbreviations

AABC	American Assoc. of Balancing Contractors
ABMA	American Boiler Manufacturers Association
ADC	Air Diffusion Council
AGA	American Gas Assoc.
AMCA	Air Movement and Control Association
ANSI	American National Standards Institute
ARI	Air Conditioning and Refrigeration Institute
ASA	Acoustical Society of America
ASHRAE	American Society of Heating, Refrigerating, and Air

**HEATING, VENTILATION AND AIR  
CONDITIONING SPECIAL CONDITIONS**

	Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASPE	American Society of Plumbing Engineers
ASTM	American Society For Testing and Materials
ASSE	American Society of Sanitary Engineers
AWWA	American Water Works Association
AWS	American Welding Society
CTI	Cooling Tower Institute
EPA	Environmental Protection Agency
FM (FMS)	Factory Mutual (Factory Mutual System)
FS	Federal Specifications
IEEE	Institute of Electrical and Electronic Engineers
MSS	Manufacturers Standardization Society
NAPHCC	National Association of Plumbing Heating & Cooling Contractors
NEBB	National Environmental Balancing Bureau
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Administration
SAE	Society of Automotive Engineers
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
U.L.	Underwriters Laboratories

**B. Definitions**

1. "PROVIDE" means to "Furnish" and "Install".

2. "INSTALL" means to join, unite, fasten, link, attach, set up or otherwise connect together before testing and turning over to City of New York, complete and ready for regular operation, the particular work referred to.
3. "FURNISH" means to purchase and supply all materials, labor, equipment, testing apparatus, controls, tests, accessories and all other items customarily required for the proper and complete application for the particular work referred to.
4. "AS DIRECTED" means as directed by the Commissioner, or his representative.
5. "CONCEALED" means embedded in masonry or other construction, installed behind wall furring or within double partitions, or installed within hung ceilings or shafts.
6. "SUBMIT" means submit to Engineer for review. Refer to Architectural General and Special Conditions for proper procedures.

## **PART 2 - PRODUCTS**

### **2.1 EQUIPMENT AND MATERIALS**

- A. If products and materials are specified or indicated on the Drawings for a specific item or system, use those products or materials. If products and materials are not listed in either of the above, use first class products and materials, subject to approval of the Commissioner.
- B. Provide products and materials that are new, clean, free of defects and free of damage and corrosion.
- C. All products and materials used in this project shall not contain asbestos, P.C.B.'s or any other material which is considered hazardous by the Department of Environmental Protection or any other agency having jurisdiction.
- D. Replace materials of less than specified quality as designated by the Commissioner and relocate work incorrectly installed as determined by the Commissioner.
- E. Provide name/data plates on all components of equipment with manufacturer's name, model number, serial number, capacity data and electrical characteristics attached in a conspicuous place.
- F. Provide M.E.A./BS&A numbers for all submitted equipment.
- G. Install materials and equipment with qualified trades people.



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- H. Maintain uniformity of manufacture for equipment used in similar applications and sizes.
- I. Applicable equipment and materials shall be listed by Underwriters' Laboratories and manufactured in accordance with ASME, AWWA, or ANSI standards, and as approved by local authorities having jurisdiction.
- J. Fully lubricate equipment when installed.
- K. Do not operate air or vacuum systems until ductwork is complete, temporary filters are in place and construction debris is removed. Provide one-inch thick fiberglass filter media across the face of each intake air opening prior to start of each air system during temporary system operation and system clean-out.
- L. Do not operate gas, water or steam systems until piping has been cleaned, tested and startup strainers are in place.
- M. Locate all floor mounted equipment on a 4" high concrete pad. Concrete work to be provided by another trade. Coordinate size and location with General Contractor providing concrete pads.
- N. Secure equipment with bolts, washers and locknuts of ample size to support equipment. Embedded anchor bolts to have bottom plate and pipe sleeves. Grout machinery set in concrete under the entire bearing surface. After grout has set, remove wedges, shims and jack bolts and fill space with grout.
- O. Locate valves, traps, damper operators, access doors, etc. to be easily accessible, either in mechanical spaces or through access panels as specified hereinafter, or as required. Coordinate and obtain Commissioner's approval of access panel locations.
- P. Follow manufacturers' instructions for installing, connecting, and adjusting equipment. Provide one copy of such instructions to the Commissioner before installing any equipment. Provide a copy of such instructions and attach to the equipment during work on the equipment.
- Q. Pressure vessels and relief valves shall be selected, built and labeled in accordance with ASME. Obtain a certificate from the City Inspector having jurisdiction showing such acceptance, and mount this certificate in a black frame under glass or laminated plastic adjacent to each pressure vessel and relief valve.
- R. Where factory testing of equipment is required to ascertain performance and attendance by the Commissioner is required to witness such tests, associated travel costs and subsistence shall be borne by the Contractor.

- S. Equipment capacities, etc., are scheduled or specified for job site operating conditions. Equipment sensitive to altitude shall be derated with the method of derating identified on shop drawings.
- T. Where a sizing conflict occurs in the documents, such as different pipe or duct sizes shown for the same run, use the larger of the sizes until verification can be determined.

**2.2 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

- A. Within two (2) months after notice to proceed by the City of New York or Commissioner, or after execution of City of New York/Contractor Agreement, submit to the Commissioner for review, a complete typed list of all mechanical equipment manufacturers and material suppliers for the equipment intended to be furnished and installed on this project as well as names of all subcontractors.
- B. Within four (4) months after notice to proceed by the City of New York or Commissioner, and prior to any submission, prepare an index of all submittals for the project. Include a submittal identification number, a cross-reference to the Specification sections or Drawing number, and an item description. Include the anticipated date of each submission. Prefix the submittal identification number by the Specification sections to which they apply. Indicate on each submittal, the submittal identification number in addition to the other data specified. All subcontractors will utilize the assigned submittal identification number.
- C. After the Contract is awarded, obtain complete shop drawings, product data and samples from the manufacturers, suppliers, vendors, and all subcontractors, for all materials and equipment specified in the various sections of the specification. Submit data and details of such materials and equipment for review by the Commissioner. Prior to submission of the shop drawings, product data and samples to the Commissioner, review and certify that these items are in compliance with the Contract Documents. Check all materials and equipment upon their arrival on the job site and verify their compliance with the Contract Documents. Modify any work which proceeds prior to receiving accepted shop drawings as required to comply with the Contract Documents and the shop drawings, at no cost to the project.
- D. Prior to fabrication or installation of any work, completely coordinate work of all trades and prepare a complete set of Coordination Drawings.
- E. All shop drawings shall be prepared using AutoCAD 2000 drawing format.

**2.3 REVIEWS**

- A. Commissioner's review is for general compliance with the design concept and contract documents. Markings or comments or the lack thereof does not relieve the Contractor from compliance with the project plans and

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specifications. The Contractor remains solely responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes, for techniques of construction, for performing his work in a safe manner, and for coordinating his work with that of other trades.

- B. No part of the work shall be started in the shop or in the field until the Commissioner has reviewed the shop drawings and samples for that portion of the work.
- C. A minimum period of ten (10) working days, exclusive of transmittal time, will be required in the Commissioner's office each time a shop drawing, product data and/or samples is submitted for review. This time period must be considered by the Contractor when scheduling his work.
- D. Submit two prints of all sheet metal and piping drawings, and four (4) copies of catalog cuts.
- E. Submissions will be stamped as follows:

No Exceptions Noted [ ]:	When directed, fabrication, manufacture or construction may proceed providing submittal complies with the Contract Documents.
Exceptions Noted [ ]:	Work may proceed as above so long as the engineer's notations are complied with. [ ] No Resubmission Required. [ ] Resubmit For Record Only.
Revise and Resubmit [ ]:	The submittal does not comply with the Contract Documents; do not proceed with fabrication, manufacture or construction. The work and shop drawings are not permitted at the job site. Resubmit appropriate shop drawings.

**PART 3 - EXECUTION**

3.1 **DRAWINGS & PRODUCT DATA**

- A. Submit materials and equipment by manufacturer, trade name and model number. Include copies of applicable brochure or catalog material. Do not

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assume applicable catalogs are available in the Commissioner's office. Maintenance and operating manuals are not suitable substitutes for shop drawings.

- B. Identify each sheet of printed submittal pages (using arrows, underlining or circling) to show applicable sizes, types, model numbers, ratings, capacities and options actually being proposed. Cross out non-applicable information. Note specified features such as special tank linings, pump seals, materials or painting.
- C. Include New York City M.E.A./BS&A numbers on all equipment cuts.
- D. Include dimensional data for roughing in and installation, technical data sufficient to verify that equipment meets requirements of drawings and specifications. Include wiring, piping and service connection data, motor sizes complete with voltage ratings and schedules.
- E. Maintain a complete set of reviewed and stamped shop drawings and product data on site.
- F. Prepare and submit detailed shop drawings for ductwork, piping work and other distribution services in  $3/8" = 1'-0"$  scale, including locations and sizes of openings in floor decks, walls and roofs.
- G. All shop drawings shall be prepared using AutoCAD 2000 drawing format.
- H. The Contractor is not relieved of the responsibility for dimensions or errors that may be contained on submissions reviewed by the Commissioner, or for deviations from requirements in the Contract Documents. Understand clearly that the Commissioner's noting some errors but overlooking others does not grant the Contractor permission to proceed in error. Regardless of any information contained in the shop drawings, product data and samples, the Contract Documents govern the work and are neither waived nor superseded in any way by the review of shop drawings, product data and samples.
- I. Inadequate or incomplete shop drawings, product data and/or samples will not be reviewed by the Commissioner and will be returned to the Contractor for resubmittal.
- J. Indicate in the lower right hand corner of each shop drawing, and each product data brochure on the front cover, the following: The submittal identification number; title of the sheet or brochure; name and location of the Project; names of the Architect, Engineer, Contractor, Subcontractor, manufacturer, supplier, and vendor; the date of submittal; and the date of each correction and version and revision. Number all pages and drawings in product data brochures consecutively from beginning to end. Unless the above information is included, the submittal will be returned for resubmission. Include with resubmittals of product data or brochures a

cover letter summarizing the corrections made in response to the review comments and the submittal page numbers which were revised.

**3.2 CONTRACTOR'S COORDINATION DRAWINGS**

- A. Coordinate efforts of all trades and furnish, in writing, any information necessary to permit the work of all trades to be installed satisfactorily and with the least possible interference or delay.
- B. Coordinate all new work with existing structure and with existing work which is to remain. Note all existing conditions which may interfere with new work as shown on the documents of this trade and of all other trades which are part of this project. Inform the Commissioner of all such conditions in writing with sufficient time to address the conflicts so as not to affect project schedule.
- C. Prepare a complete set of construction Coordination Drawings indicating the equipment actually purchased and the exact routing for all lines such as piping, busway, conduit, ductwork, etc., including conduit embedded in concrete. Use the sheetmetal shop drawings as the base drawings to which all other contractors will add their work. Complete each Coordination Drawing and have signed-off by the other subcontractors and the General Contractor prior to the installation of the work in the area covered by the specific drawing. Maintain a set of these drawings on site for inspection by the Commissioner. These drawings shall not be required to be reviewed by Commissioner.
- D. Indicate piping loads and support points for all piping 4" and larger, racked piping, racked conduit, and busway, and submit to the Commissioner for review and approval. Indicate the elevation, location, support points, static, dynamic and expansion forces and loads imposed on the structure at support, anchor points, and size of all lines. Indicate all beam penetrations and slab penetrations sized and coordinated. Indicate all work routed underground or embedded in concrete by dimension to column and building lines.
- E. This requirement for Coordination Drawings is not authorization for the Contractor or Subcontractor to make any unauthorized changes to the Contract Drawings. Maintain all Design Drawing space allocations such as ceiling height, eight (8) inch high zone above the ceiling (measured from finished ceiling) for tenant buildout and flexibility, chase walls, equipment room size, etc., unless prior written authorization is received from the Commissioner to change them.
- F. Work installed which interferes with work of any other trade will be corrected at no cost to the project.

3.3 COORDINATION OF WORK

- A. The mechanical drawings show the general arrangement of equipment, ductwork, piping and appurtenances. Follow these drawings as closely as the actual construction and the work of other trades will permit. Provide offsets, fittings, and accessories which may be required but not shown on the drawings. Investigate the site, structural and finish ground conditions affecting the work, and arrange the work accordingly. Provide such work and accessories as may be required to meet such conditions, at no additional cost to the project.
- B. Certain materials will be provided by other trades. Examine the Contract Documents to ascertain these requirements.
- C. Carefully check space requirements with other trades to insure that material can be installed in the spaces allotted thereto with sufficient access space, including finished suspended ceilings.
- D. Wherever work interconnects with work of other trades, coordinate with other trades. Insure that they have the information necessary so that they may properly install the necessary connections and equipment. Identify items (valves, dampers, coils, cleanouts, etc.) requiring access in order that the Ceiling Trade will know where to install access doors and panels.
- E. Consult with other trades regarding equipment so that, wherever possible, motors, motor controls, pumps and valves are of the same manufacture.
- F. Furnish and set sleeves for passage of pipes, ducts and conduits through structural masonry and concrete walls and floors and elsewhere as will be required for the proper protection of each pipe and duct passing through building surfaces.
- G. Properly provide firestopping around all pipes, conduits, ducts, sleeves, etc. which pass through rated walls, partitions and floors.
- H. Provide detailed information on openings and holes required in precast members for mechanical work. Cast holes 4 inches and larger in diameter. Field-cut holes smaller than 4 inches.
- I. Provide required supports and hangers for ductwork, piping and equipment, designed so as not to exceed allowable loadings of structures.
- J. Examine and compare the contract drawings and specifications with the drawings and specifications of other trades, and report any discrepancies between them to the Commissioner and obtain from him written instructions for changes necessary in the work. Install and coordinate the work in cooperation with other related trades. Before installation, make proper provisions to avoid interferences.

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- K. Wherever the work is of sufficient complexity, prepare additional detail drawings to scale similar to that of the design drawings, prepared on tracing medium of the same size as contract drawings. With these layouts, coordinate the work with the work of other trades. Such detailed work to be clearly identified on the drawings as to the area to which it applies. Submit these drawings to the Commissioner for review. At completion include a set of such drawings with each set of as-built drawings.
  
- L. Before commencing work, examine adjoining work on which this work is in any way dependent for perfect workmanship and report conditions which prevent performance of first class work. Become thoroughly familiar with actual existing conditions to which connections must be made or which must be changed or altered.
  
- M. Adjust location of pipes, ducts, panels, equipment, etc., to accommodate the work to prevent interferences, both anticipated and encountered. Determine the exact route and location of each pipe and duct prior to fabrication.
  - 1. Right-of-Way: Lines which pitch have the right-of-way over those which do not pitch. For example: condensate, steam, and plumbing drains normally have right-of-way. Lines whose elevations cannot be changed have right-of-way over lines whose elevations can be changed.
  
  - 2. Make offsets, transitions and changes in direction in pipes and ducts as required to maintain proper head room and pitch on sloping lines. Furnish and install traps, air vents, drains, etc., as required to effect these offsets, transitions and changes in direction.
  
- N. Install mechanical work to permit removal (without damage to other parts) of coils, heat exchanger plates and tube bundles, fan shafts and wheels, filters, belt guards, sheaves and drives, and other parts requiring periodic replacement or maintenance. Arrange pipes, ducts and equipment to permit access to valves, cocks, traps, starters, motors, and control components, and to clear the openings of swinging doors and access panels.
  
- O. Changes in the cross-sectional dimensions of ductwork are permissible when required to meet job conditions. Maintain at least the same equivalent cross-sectional duct area in accordance with the latest edition of the ASHRAE Guide. Secure the approval of the Commissioner prior to fabrication of ductwork requiring such changes.
  
- P. Provide access panels in equipment, ducts, etc., as required for inspection and maintenance of internal equipment, dampers, plenums, etc.
  
- Q. Ensure proper access to all damper actuators including but not limited to FSD, SD and ALD.

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- R. In cases of doubt as to the work intended, or in the event of need for explanation thereof, request supplementary instructions from the Commissioner.
- S. Where a sizing conflict occurs in the documents, such as different pipe or duct sizes shown for the same run, use the larger of the sizes until verification can be determined.

**3.4 EXCAVATION AND BACKFILL**

- A. Provide excavation inside the building for the work of this Division.
- B. Excavation inside the building to be provided by Contractor. All requirements must be coordinated.
- C. Excavate all material encountered, to the depths indicated on the drawings or required. Remove from the site excavated materials not required or unsuitable for backfill. Provide grading as may be necessary to prevent surface water from flowing into trenches or other excavations. Remove any water accumulating therein. Provide sheeting and shoring as may be necessary for the protection of the work and for the safety of personnel, including all OSHA requirements.
- D. Provide trenches of widths necessary for the proper execution of the work. Grade bottom of the trenches accurately to provide uniform bearing and support the work on undisturbed soil at every point along its entire length. Except where rock is encountered, do not excavate below the depths indicated. Where rock excavations are required, excavate rock to a minimum overdepth of four inches below the trench depths indicated on the drawings or required. Backfill overdepths in the rock excavation and unauthorized overdepths with loose, granular, moist earth, thoroughly machine tamped to a compaction level of at least 95% to standard proctor density or 75% relative density or as specified by the Commissioner. Whenever unstable soil that is incapable of properly supporting the work, as determined by the Commissioner, is encountered in the bottom of the trench, remove soil to a depth required and backfill the trench to the proper grade with coarse sand, fine gravel or other suitable material.
- E. Excavate trenches for utilities that will provide the required minimum depths of cover from existing grade or from indicated finished grade, whichever is lower, unless otherwise specifically shown.
- F. Trenches should not be placed within ten feet of foundation or soil surfaces which must resist horizontal forces.
- G. Do not backfill trenches until all required tests have been performed and the installation observed by the Commissioner. Comply with the requirements of other sections of these specifications. Backfill should consist of non-expansive soil with limited porosity. Deposit in 6 inch layers and thoroughly and carefully tamp until the work has a cover of not less



than 1 foot. Backfill and tamp remainder of trench at 12 inch intervals until complete. Uniformly grade the finished surface.

**3.5 CUTTING AND PATCHING**

- A. Lay out the work in advance, fully coordinated with other trades. Where cutting, channeling, chasing or drilling of floors, walls, partitions, ceilings or other surfaces is necessary for the proper installation, support or anchorage of ductwork, piping or other equipment, do the work carefully so as not to damage adjacent work. Repair any damage to the building, piping, equipment or defaced finish plaster, woodwork, metalwork, etc. using skilled mechanics of the trades involved at no additional cost to the City of New York.
- B. Do no cutting, channeling, chasing or drilling of unfinished masonry, tile, etc., unless permission from the Commissioner is first obtained. If permission is granted, perform this work in a manner approved by the Commissioner.
- C. Where ductwork, piping or equipment are mounted on a painted finished surface, or a surface to be painted, paint to match the surface. Cold galvanize bare metal whenever support channels are cut.
- D. Provide slots, chases, openings and recesses through floors, walls, ceilings, and roofs as required to properly install work. Be responsible to properly locate such openings and provide for any cutting and patching caused by the neglect to do so.

**3.6 RESPONSIBILITY FOR EVALUATION**

- A. The Commissioner makes no representations, regarding the character or extent of the subsoils, water levels, existing structural, mechanical and electrical installations, above or below ground, or other subsurface conditions which may be encountered during the work. The Contractor must make his own evaluation of existing conditions which may affect methods or cost of performing the work, based on his own examination of the facility or other information. Failure to examine the drawings or other information does not relieve the Contractor of his responsibility for satisfactory accomplishment of the work.

**3.7 FIRE ACCESS TO FIRE APPARATUS**

- A. Do not interfere with access to hydrants and fire alarm boxes. In no case allow material or equipment to be within twenty (20) feet of a hydrant or fire alarm box.

**3.8 EQUIPMENT PAD AND ANCHOR BOLTS**

- A. Concrete pads for various pieces of equipment will be furnished by the Contractor. Pads will be provided in all mechanical equipment rooms. This

shall include floor mounted equipment, equipment mounted on legs and pipe support stands. Generally conform equipment pads to the shape of the piece of equipment it serves with a minimum 3" margin around the equipment and supports. Pads will be a minimum of 4" high and made of a minimum 28 day, 2500 psi concrete reinforced with 6" x 6" 6/6 gauge welded wire mesh. Trowel tops and sides of pad to smooth finishes, equal to those of the floors, with all external corners bullnosed to a 3/4" radius. Use shop drawings stamped "NO EXCEPTIONS" for dimensional guidance in sizing pads.

- B. Furnish and install galvanized anchor bolts for all equipment placed on concrete equipment pads, inertia blocks, or on concrete slabs. Provide bolts of the size and number recommended by the manufacturer of the equipment and locate by means of suitable templates. When equipment is placed on vibration isolators, secure the equipment to the isolator and secure the isolator to the floor, pad, or support as recommended by the vibration isolation manufacturer.
- C. Where control panels, motor controllers, etc., are mounted on gypsum board partitions, the mounting screws will pass through the gypsum board and be securely attached to the partition studs. At the Contractor's option, the mounting screws may pass through the gypsum board and be securely attached to 6" square, 18 gauge galvanized metal backplates which are attached to the gypsum board with an approved non-flammable adhesive. Toggle bolts installed in gypsum board partitions will not be acceptable.

### 3.9 DELIVERY AND HAULING

- A. Include all costs for hauling, hoisting, shoring and placement in the building of equipment specified herein. Be responsible for the timely delivery and introduction of equipment to the project as required by the construction schedule for this project. If any item of equipment is received prior to the time it is required, be responsible for its proper storage and protection until such time as it may be required. Pay for all costs of demurrage or storage.
- B. If any item of equipment is not delivered to or installed at the project site in a timely manner as required by the project construction schedule, be solely responsible for disassembly, re-assembly, manufacturer's supervision, shoring, general construction modification, delays, overtime costs, etc. No additional cost or delays to be incurred by the City of New York.

### 3.10 EQUIPMENT AND MATERIAL PROTECTION

- A. Protect the work, equipment and materials of all other trades from damage by work or workmen of this trade, and correct all damage thus caused without additional cost to the City of New York.
- B. Be responsible for all work, materials and equipment until finally inspected, tested and accepted; protect work against theft, injury or damage; and carefully store material and equipment received on site which are not

immediately installed. Close open ends of work with temporary covers or plugs during construction to prevent entry of obstructing material. Cover and protect in an acceptable manner to the City of New York, all equipment and materials from damage due to water, spray-on fireproofing, construction debris, etc.

- C. Provide adequate means for fully protecting finished parts of the materials and equipment against damage from whatever cause during the progress of the work until final acceptance. Protect materials and equipment in storage and during construction in such a manner that no finished surfaces will be damaged or marred, and moving parts kept clean and dry. If items are damaged, do not install, but take immediate steps to obtain replacement or repair.

### 3.11 ELECTRICAL EQUIPMENT AND ELECTRICAL ROOM PRECAUTIONS

- A. In general, do not install any piping systems not included as part of the electrical work, in any switchgear, transformer, elevator equipment, telephone, or electrical equipment room.
- B. Do not install piping above switchboards, panelboards, control panels, motor control centers, individual motor controllers, etc.
- C. Provide drip pans under all piping installed in any electrical equipment room. Pan shall be water tight, extending 4" in each direction from the pipe wall and turned up at least one-half the diameter of the pipe, but not less than 2". The pan shall extend at least 1 foot beyond the electrical equipment. Provide a drain pipe to spill into floor drain or service sink.

### 3.12 EQUIPMENT GUARDS

- A. Provide easily removable expanded metal guards for all belts, couplings, exposed fan inlets and outlets, and other moving parts of machinery. Provide tachometer openings in the guards at least 2" in diameter, for all belt-driven or variable speed machinery. Comply with OSHA requirements for all equipment guards.

### 3.13 LUBRICATION

- A. Provide means for lubricating all bearings and other machine parts. If a part requiring lubrication is concealed or inaccessible, extend a metallic lubrication tube with suitable fitting to an accessible location and suitably identify it.
- B. After installation, properly lubricate all parts requiring lubrication and keep them adequately lubricated with a lubricant recommended by the equipment manufacturer until the City of New York issues a Certificate of Substantial Completion for the specific equipment item or system.

**3.14 DATE OF COMPLETION AND TESTING OF MECHANICAL SYSTEMS**

- A. Comply with the project construction schedule for the date of final performance and acceptance testing, and be sufficiently in advance of the Contract completion date to permit the execution of the testing prior to occupancy and the closeout of the Contract. Complete any adjustments and/or alterations which the final acceptance tests indicate as necessary for the proper functioning of all equipment prior to the completion date. See individual sections for extent of testing required.
- B. Provide a detailed schedule of completion indicating when each system is to be completed and outlining when tests will be performed. Submit completion schedule to the Commissioner and City of New York for review within six (6) months after the notice to proceed by City of New York or Commissioner has been given. Update this schedule periodically as the project progresses.

**3.15 OPERATING INSTRUCTIONS**

- A. Provide the services of a factory trained specialist to supervise the operation of all equipment specified herein and to instruct the City of New York's operators for a five (5) day operating instruction period. The operating instruction period is defined as straight time working hours and not including nights, weekends or travel time to and from the project. See individual sections for additional instructions by manufacturer's trained specialists.
- B. In addition, the manufacturer of the water chilling units will furnish the services of factory trained specialists to instruct the City of New York's operators as set forth in various sections. The operating instruction periods are as defined in the immediately preceding paragraph.
- C. Notify the City of New York in writing at least two (2) weeks before each operating instruction period begins. Commence no instruction period until the City of New York has issued his written acceptance of the starting time.

**3.16 OPERATING AND MAINTENANCE BOOKS**

- A. Provide operating instructions and maintenance data books for all equipment and materials furnished under this Division.
- B. Submit three (3) final copies of operating and maintenance data books for review at least ten (10) weeks before final review of the project. Assemble all data in a completely indexed volume or volumes in three-ring binders and identify the size, model, and features indicated for each item. Print the project name and logo on the outside of the binders.
- C. Deliver two (2) initial copies of the operation and maintenance data books to the Commissioner six (6) months after notice to proceed has been given

by the City of New York or Commissioner. Include in the initial copies all the information in Paragraph E. below, except Item E.4).

- D. Maintenance instruction manuals to include complete oiling, cleaning, and servicing data compiled in clearly and easily understandable form. Show all model numbers of each piece of equipment, complete lists of replacement parts, motor ratings, and actual loads. Include for each piece of equipment the name, address, e-mail address, and phone number of service personnel.
- E. Include the following information where applicable:
  - 1. Identifying name and mark number.
  - 2. Locations (where several similar items are used, provide a list).
  - 3. Complete nameplate data.
  - 4. Certified Record Drawings and "Final Reviewed" Shop Drawings.
  - 5. Parts list.
  - 6. Performance curves and data.
  - 7. Wiring diagrams.
  - 8. Lubrication charts.
  - 9. Manufacturers' recommended operating and maintenance instructions with all non-applicable information deleted.
  - 10. List of spare parts recommended for normal service requirements.
  - 11. Assembly and disassembly instructions with exploded view drawings where available.
  - 12. Trouble shooting diagnostic instructions where applicable.
  - 13. Copies of all factory test reports.

**3.17 RECORD DRAWINGS**

- A. Maintain on a daily basis at the project site a complete black and white set of "As-Built Drawings", reflecting an accurate dimensional record of all deviations between work shown on drawings and that actually installed.
- B. Record dimensions clearly and accurately to delineate the work as installed; suitably identify locations of all equipment by at least two dimensions to permanent structures. In addition, mark the Record Drawings to show the precise location of concealed work and equipment, including concealed or embedded piping and valves and all changes and

deviations in the mechanical work from that shown on the Contract Documents. This requirement is not construed as authorization for the Contractor to make changes in the layout or work without written instructions from the Commissioner.

- C. Mark all As-Built Drawings on the front lower right hand corner with a rubber stamp impression that states the following:

"AS-BUILT DRAWINGS" (3/8" high letters)

To be used for recording Field Deviations and Dimensional Data Only". (5/16" high letters).

- D. The Record Drawings will also consist of a set of prints of the final "Signed Off" Contractor's "Coordination Drawings" prepared by the Subcontractors.

**3.18 CERTIFICATION**

- A. Any certifications required by the Specifications, in addition to those required for shop drawings, product data, equipment and other items, are to be so certified by the City of New York, a Partner, or a Corporate Officer of the firm required to provide the Certification, or by another person duly authorized to sign binding agreements for and in behalf of the City of New York, Partner or Corporation.

**3.19 FINAL REVIEW**

- A. At a time designated by the City of New York, the entire system will be reviewed for compliance with the Contract Drawings and Specifications. Be available at all times during this review.
- B. Demonstrate to the City of New York and/or the Commissioner's personnel prior to the Final Review that all systems and all equipment have been properly balanced and adjusted and are in compliance with the requirements of the Contract Documents. After these demonstration tests are satisfactorily completed, but prior to the Final Review field visit, the Contractor will submit to the Commissioner a written certification that: 1) attests to the Contract Document compliance for this Project prior to the Commissioner's Final Review field visit, and 2) certifies that the equipment and materials installed in this project under this Division contain no asbestos or P.C.B.
- C. Operate the entire system properly with all systems balanced and all controls adjusted.
- D. Certificates and Documents required herein to be in order and presented to the Commissioner at least two (2) weeks prior to the Final Review.
- E. After the review, any changes or corrections noted as necessary for the work to comply with these specifications and the Drawings to be accomplished without delay in order to secure final acceptance of the work.

**3.20 EARLY OCCUPANCY**

- A. Be responsible for completing those systems which are necessary to allow partial occupancy of the buildings even if systems in the unoccupied areas are incomplete. Refer to the Section entitled "Special Conditions" in the Architectural Specifications Documents for the schedule completion dates assigned to the various portions of the project.
- B. Verify requirements for temporary occupancy with the local Building Department.

**3.21 CERTIFICATES OF APPROVAL**

- A. Upon completion of all work, furnish, in duplicate, certificates of inspections from the manufacturers stating that authorized factory engineers have inspected and tested the operation of their respective equipment and found same to be in satisfactory operating condition.

**3.22 OPENINGS IN EXTERIOR WALLS**

- A. Openings in exterior walls and roofs shall be kept properly plugged and caulked at all times, except when being worked on, to preclude the possibility of flooding due to storms or other causes. After completion of the work, openings for which this Contractor is responsible shall be permanently sealed and caulked in a manner approved by the Commissioner.

**3.23 CONTINUITY OF SERVICE AND SCHEDULING OF WORK**

- A. Continuity of all services shall be maintained in all areas which will be occupied during the construction period. If and interruption of service becomes necessary, such shall be made only upon consent of the City of New York and at a time outside normal working hours (off hours) as he/she shall designate.
- B. Refer to the overall scheduling of the work of the project. Schedule work to conform to this schedule and install work to not delay nor interfere with the progress of the project.

**3.24 REMOVAL WORK**

- A. Particular care shall be taken to avoid creating hazards on the site or causing disruption of service in the adjoining buildings.
- B. All existing equipment indicated to be removed shall be done in a neat and workmanlike manner. All existing equipment indicated to be turned over the City of New York shall be presented to the City of New York in good condition to a location designated by City of New York. All other equipment shall be removed from the premises.

- C. Follow state and federal regulations for disposal of any hazardous materials (such as CFC Refrigerant and Glycol).
- D. Provide written documentation to the City of New York that all hazardous materials have been disposed of properly.

3.25 ASBESTOS REMOVAL

- A. Should the Contractor encounter any asbestos and/or asbestos related products or materials (the "asbestos materials") during the performance of its work, the Contractor shall stop work immediately and so inform the Commissioner and the City of New York of the presence of asbestos.

END OF SECTION



SECTION 23 00 03

HVAC SCOPE OF WORK

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. The work includes the construction described in the Contract Documents, including all labor necessary to perform and complete such construction, all materials and equipment incorporated or to be incorporated in such construction, and all services, facilities, tools and equipment necessary or used to perform and complete such construction. The work includes, but is not limited to the following:
- B. Demolition Work
1. In the Sub-Basement Level, remove the existing low pressure steam piping located in the pit of Elevator 43/44. Confirm with the shelter if the steam system piping is active and temporarily disconnect from existing service. Provide and install provisions for temporary piping connection if steam system is active.
  2. In the Roof Level East Penthouse, remove four (4) existing fans, associated housekeeping pads, ductwork, louvers, dampers, electrical, controls, etc.
  3. In the Roof Level East Penthouse, remove existing fin tube radiators, cut back and cap associated piping and patch penetrations to match existing.
  4. In the Lower Elevator Machine Room (Elevator 45), remove existing fin tube radiators, cut back and cap associated piping and patch penetrations to match existing.
- C. New Work
1. In the Sub-Basement Level, provide and install new low pressure steam piping. Relocate piping out of the pit of Elevator 43/44 and into a trench in the corridor. Disconnect temporary piping and reconnect to new. Provide and install steel cover plates for the new trench. Coordinate with architectural and structural drawings.
  2. In the Basement Level, provide and install new split air conditioning system to serve the Transformer Room. Provide and install air cooled condensing unit ACCU-C-1, fan coil unit FCU-C-1, associated housekeeping pads, ductwork, piping and accessories, electrical controls, etc., as shown on the drawings and as necessary for a complete installation.

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3. On the Roof Level, provide and install a new rooftop air conditioning unit, AC-R-1 and associated housekeeping pad, vibration isolation, ductwork, dampers, electrical controls, etc., as shown on the drawings and as necessary for a complete installation. Contractor shall include all rigging associated.
4. In the Roof Level East Penthouse and Lower Elevator Machine Room, provide and install all distribution ductwork, hanger support dampers and air outlets, as shown on the drawings and as necessary for a complete installation.
5. In the new Roof Level Storage Room, provide and install all distribution ductwork and piping, hanger support, dampers, etc., as shown on the drawings and as necessary for a complete installation.
6. In the new Roof Level Storage Room, provide and install fan EF-R-1, distribution ductwork, hanger support, dampers, etc., as shown on the drawings and as necessary for a complete installation.
7. In the Roof Level East Penthouse, Lower Elevator Machine Room and Storage Room, provide and install electric unit heaters, hanger support, electrical controls, etc., as shown on the drawings and as necessary for a complete installation.
8. In the Roof Level East Penthouse, provide and install new variable air volume boxes VAV-R-1 and VAV-R-2, accessories, electrical, controls, etc., as shown on the drawings and as necessary for a complete installation.

**D. General Work**

1. Install duct sensors required for the operation of the automated Building Management System and the operation of the control system. Install automatic temperature dampers and thermostats.
2. Operating and maintenance manuals and instructions.
3. Identification of systems.
4. System cleaning, balancing, testing, adjusting and inspections.
5. Sound and vibration isolation.
6. Prime painting.
7. Supports, anchors, hangers and auxiliary structural members required for support of mechanical work. Drawings, templates, structural steel, anchor bolts, isolation materials, formwork for concrete and other equipment supports.

8. Electric motors.
9. Internal wiring of factory-assembled prewired equipment.
10. Counter flashing of pipe and duct roof penetrations.
11. Automatic temperature controls.
12. Installation of domestic hot water steam control valves.
13. Systems activation and start-up.
14. Furnishing individual electric motor starters not included in motor control centers for installation by the Electrical trade.
15. Firestopping of wall and floor duct and pipe penetrations.
16. Rigging, hoisting and scaffolding.
17. Alternates as described in the Drawings and Specifications.

**PART 2 - PRODUCTS**

2.1 NOT USED.

**PART 3 - EXECUTION**

3.1 NOT USED.

END OF SECTION

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SECTION 23 00 05

HVAC ACCESS DOORS IN GENERAL CONSTRUCTION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Furnish access doors located in general construction in accordance with the Contract Documents for setting under general construction work.

1.2 WORK INCLUDED

- A. Access Doors in Drywall.
- B. Access Doors in Ceilings.
- C. Fire Rated Access Doors.
- D. Color Coded Buttons.

1.3 SUBMITTALS

- A. Provide manufacturer's data on access doors to be furnished in each type of general construction by location within the project.

PART 2 - PRODUCTS

- 2.1 Wherever access is required through walls or ceilings to valves, fire dampers, fire and smoke dampers, automatic and balancing dampers, or other concealed equipment installed under this Division, furnish access doors as follows:

- A. Flush door in drywall:
  - 1. Milcor – Type DW
  - 2. KARP – Type KDW
  - 3. Williams Brothers – Type WB
  - 4. Elmdor – Type AP
- B. Recessed door in walls and ceilings:
  - 1. Milcor – Type AP
  - 2. Karp – Type RDW
  - 3. Williams Brothers – Type WB-RDW

4. Elmor – Type AT
- C. Recessed door in finished plaster or ceramic tile:
1. Milcor – Type AP
  2. Karp – Type KATR
  3. Williams Brothers – Type WB-AP
  4. Elmdor – Type AP
- D. In fire rated construction:
1. Milcor – Type UFR
  2. Karp – Type 350 FR
  3. Williams Brothers – Type WB-ATR
  4. Elmdor – Type FR
- E. Provide access doors in rated construction with "B" label fire construction. Furnish a U.L. label on each access door.
- F. Access doors will be installed under another Division. Coordinate all sizes and locations with the Contractor.
- G. No access door shall be installed until location and type have been approved by the Commissioner.
- 2.2 Furnish color coded buttons or tabs to indicate location of valves, dampers or other equipment located above removable type ceilings where access doors are not required.
- 2.3 Make access door size a minimum of 18" x 18".
- 2.4 ACCEPTABLE MANUFACTURERS:
- A. Miller
  - B. Karp
  - C. Williams Brothers
  - D. Elmdor

**PART 3 - EXECUTION**

3.1 **GENERAL**

- A. Coordinate sizes and location of all access doors with the Contractor.
- B. Direct location and setting of access doors in hung ceilings, furred spaces, walls, etc., to provide access to all concealed work items requiring maintenance and/or adjustment and as directed by the Commissioner. Obtain acceptance of the Commissioner for the locations and sizes of such access doors.
- C. Locate and group equipment requiring access doors so that access door locations are aesthetically acceptable. Coordinate location of equipment requiring access with other trades to minimize number of access doors in one area. Prepare drawings of valve and damper locations indicating proposed access door locations for review by the Commissioner prior to installation of valves, dampers, etc. Include equipment of other trades on the Drawing.

END OF SECTION

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**HVAC ACCESS DOORS IN GENERAL  
CONSTRUCTION  
23 00 05-4**



SECTION 23 02 00

FIRESTOPPING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide a U.L. approved firestopping system in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Firestop Compounds.
- B. Damming Material.

1.3 SUBMITTALS

- A. Submit shop drawings, product data, and manufacturer's installation instructions for all materials and prefabricated devices, providing descriptions sufficient for identification at the job site.
- B. Submit shop drawings showing proposed material, reinforcement, anchorage, fastenings, and method of installation. Construction details shall accurately reflect actual job conditions.
- C. Submit Material Safety Data Sheets with product delivered to job site.
- D. Submit certification by local authorities and U.L. for the complete system of firestopping for each type penetration.
- E. Submit complete details of each type of penetration to be used indicating the proper U.L. approved firestop system and U.L. system number.

1.4 QUALITY ASSURANCE

- A. Firestop system installation shall conform to requirements of qualified designs or manufacturer approved modifications, as supported by engineering reports.
- B. Install firestop materials and systems as required by these Contract Documents and meet and be accepted for use by applicable design building and construction codes.
- C. Submit manufacturer's product data, letter of certification, or certified laboratory test report that the material or combination of materials (firestop system) meets the requirements specified in accordance with the applicable referenced standards.

- D. The firestop compound shall not contain any solvents or inorganic fibers. The penetration seal material must be unaffected by moisture and must maintain the integrity of the floor or wall assembly for its rated time period when tested in accordance with ASTM E814 (UL1479). The system shall be U.L. Classified for up to and including 3 hours.

<b>Line #</b>	<b>Penetrating Item</b>	<b>Type of Rated Wall/Floor</b>	<b>Rating (Hrs.)</b>	<b>U.L. System #</b>
1	Steel Pipe (12" or smaller)	Concrete or Concrete Block	3	399
2	Steel Pipe or EMT Conduit	Concrete or Concrete Block	2	215, 216, 223
3	Steel Pipe or EMT Conduit	Concrete or Concrete Block	1	221
4	Steel Pipe or EMT Conduit	Gypsum Wall	2	425
5	Steel Pipe or EMT Conduit	Wood Floor Assembly	2	306
6	Copper Pipe (not insulated)	Concrete or Concrete Block	2	400
7	Insulated Steel Pipe/Conduit	Concrete or Concrete Block	2	301
8	Insulated Copper Pipes(s)	Concrete or Concrete Block	2	310, 402, 403
9	Joints (up to 3" wide)	Concrete or Concrete Block	2	214
10	Blank Opening	Concrete or Concrete Block	2	311

**PART 2 - PRODUCTS**

**2.1 FIRESTOPPING**

- A. Provide firestop compounds for caulk, pour, trowel or pump application. Material must be capable of sealing openings around single or multiple against fire, smoke and toxic gases, and maintaining rating with a thickness no greater than the structure.
- B. Provide a damming material, where required, per manufacturer's recommendations and as shown on the Drawings.
- C. Provide a firestop system consisting of a material, or combination of materials, to retain the integrity of fire-rated construction by maintaining an effective barrier against the spread of flame, smoke or gases through

penetrations in fire-rated barriers. It shall be used in specific locations as follows:

1. Penetrations for the passage of through fire-rated vertical barriers (walls and partitions), horizontal barriers (floor slabs and floor/ceiling assemblies), and vertical service shafts.
2. Locations shown specifically on the drawings or where specified in other sections of these specifications.

## **2.2 MATERIALS**

- A. Firestopping materials/systems shall be flexible to allow for normal movement of building structure and penetrating item(s) without affecting the adhesion or integrity of the system.
- B. Firestopping materials shall not require hazardous waste disposal of used containers/packages.
- C. Provide firestopping materials free of solvents which will not experience shrinkage while curing.

## **2.3 ACCEPTABLE MANUFACTURERS**

- A. Hilti
- B. Dow Corning
- C. Flamesafe
- D. International Protective Coatings

## **PART 3 - EXECUTION**

- 3.1 Deliver materials to site in original unopened containers or packages bearing the manufacturer's name, brand designation, product description and U.L. Classification Mark.
- 3.2 Coordinate delivery of materials with scheduled installation date to allow minimum storage time at job site.
- 3.3 Store materials under cover and protect from weather and damage in compliance with manufacturer's requirements.
- 3.4 Comply with recommended procedures, precautions or remedies described in Material Safety Data Sheets as applicable.

3.5 EXAMINATION

- A. Examine areas and conditions under which work is to be performed and notify the Contractor in writing of conditions detrimental to proper and timely completion of the work.
- B. Verify that openings are properly sized and in suitable condition to receive the work of this section.

3.6 PREPARATION

- A. Clean substrate of dirt, dust, grease, oil, loose materials, rust or other matter that may affect the proper fitting or adhesion of the firestopping materials.
- B. Clean metal and glass surfaces with a non-alcohol solvent.

3.7 INSTALLATION

- A. Install firestop materials as indicated in accordance with design requirements and manufacturer's instructions.
- B. Seal all holes or voids made by penetrations to ensure an air, smoke and water-tight seal.

3.8 Firestopping may be required by other Subcontractors under related sections of the project specifications. Identify all locations requiring firestopping and coordinate the work of this section with work performed under other sections of the project to provide a uniform system of firestopping.

3.9 Schedule installation of firestopping after completion of penetrating item installation but prior to covering or concealing of openings.

3.10 Do not proceed with installation of firestop materials when temperatures exceed the manufacturer's recommended limitations for installation.

3.11 Firestop systems do not re-establish the structural integrity of load bearing partitions. Contractor shall consult the Commissioner prior to penetrating any load bearing assembly.

3.12 Firestop systems are not intended to support live loads or traffic. Contractor shall consult the Commissioner if he has reason to believe these limitations may be violated.

3.13 FIRESTOPPING

A. Insulated Cold Pipes

- 1. Install a pipe sleeve with an inside diameter large enough to include the specified thickness of insulation.

2. Eliminate insulation for depth of wall and fill space between with firestop expanding foam leaving sufficient space at each end of sleeve for proper depth of firestop.
3. Install firestop material at each end of sleeve to form a U.L. approved system.
4. Insulate pipe on each side of wall and caulk all around insulation at joint of wall and insulation.

**B. Hot Pipes (Up to 220°F)**

1. Install a pipe sleeve with an inside diameter large enough to include the specified thickness of insulation.
2. Eliminate insulation for depth of wall and, using section of specified insulation as backing, install proper depth of firestop material on each end of sleeve to form a U.L. approved system.
3. Insulate pipe on each side of wall and caulk all around insulation at joint of wall and insulation.

**END OF SECTION**

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SECTION 23 05 13

ELECTRIC MOTORS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide electric motors in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Electric Motors.

1.3 SUBMITTALS

- A. Shop Drawings: Submit electric motor characteristics with each equipment submission.
- B. Product Data: Manufacturer's latest published data for materials, equipment, accessories and installation.

1.4 QUALITY ASSURANCE

- A. Motor efficiency is Guaranteed Minimal Efficiency according to NEMA Standard MG-1-12.53a when tested in accordance with IEEE Standard 112.

PART 2 - PRODUCTS

2.1 ELECTRIC MOTORS

- A. Provide high efficiency electric motors for driving the mechanical equipment. Motors to be of proper power, construction and speed to suit the specified makes of equipment; if other makes of equipment are accepted, the proper adjustment of motor speed, power, and work of Division 26 must be included without additional cost to the Contract.
- B. 1/2 horsepower and larger motors to be rated at 460 volts for operation on 480 volt, 3 phase, 60 hertz, alternating current systems, except as otherwise noted. 1/3 horsepower and smaller motors to be rated at 115 volts for operation on 120 volt, single phase, 60 hertz, alternating current systems, except as otherwise noted.
- C. Motors to be of constant speed, squirrel-cage type. Single phase motors to be capacitor start, induction run, or split phase type as approved for the service. Motors over 100 horsepower to be suitable for operation with reduced-voltage auto-transformer type starters.

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- D. All 1/2 horsepower and larger motors to have Class B insulation suitable for ambient temperature of 40°C. when operated at 115% load.
- E. All motors to be of quiet operation, guaranteed to fulfill the specified requirements without producing any sound audible outside of Machine Rooms. All belt connected motors to have adjustable bases and set screws to maintain proper belt tension; provide proper belt guards.
- F. All motors and accessories to comply in all respects with NEMA standards.
- G. Coordinate the NEMA type of each motor with the torque and inertia load of the equipment served, and the inrush characteristics of the motor with the starter selection, so that all items furnished constitute a properly related package. No motor to operate in the service factor range.
- H. Cooling tower motors to be TEFC; others to be drip-proof construction. Motors 1 horsepower or larger to have encapsulated stator windings of the epoxy or silicone type.
- I. Fan motors to be capable of accelerating their respective fans from 0 revolutions per minute to design or synchronous revolutions per minute within a maximum of 10 seconds. Submit for approval curves which plot time versus revolutions per minute for the particular motor and fan combination.
- J. All motors used in variable speed applications to be suitable for use with variable frequency drives.
- K. Motorized equipment rated at more than 1000 watts to have a power factor not less than 95 percent under rated nameplate conditions. Provide corrective devices where required to achieve this.
- L. Provide thermistor protection for windings on all motors 25 horsepower and above. Where motors are controlled by individual motor starters, provide relays for installation under Division 26. Relays in "motor control centers" to be provided by the Contractor.
- M. All vertical motors 150 horsepower and above to be provided with bearing temperature detectors on thrust bearing. Provide contactors and circuitry to give remote alarm at temperatures above 175°F.

**2.2 ACCEPTABLE MANUFACTURERS**

- A. General Electric
- B. Marathon
- C. Lincoln
- D. Siemens-Allis



**PART 3 - EXECUTION**

3.1 **WIRING**

- A. Wiring between motor and controllers will be performed under Division 26.
- B. Review Division 26 and any controls documents (by Commissioner or rooftop unit manufacturer) for required accessories, interlocks, etc. Failure to fully coordinate this item with the other Divisions in no way relieves the Contractor from providing a complete, functional, and coordinated system as described.

END OF SECTION

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**January 5, 2015**

**ELECTRIC MOTORS**  
**23 05 13-4**

SECTION 23 05 29

HANGERS, ANCHORS AND SUPPORTS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide hangers, anchors and supports in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Hangers.  
B. Structure Attachments.

1.3 SUBMITTALS

- A. Shop Drawings: Submit details of pipe hangers, anchors and supports for each pipe size and pipe service. Submit details of support methods and point loadings, and anchor reactions.  
B. Product Data: Manufacturer's latest published data for materials, equipment and installation.

1.4 QUALITY ASSURANCE

- A. Hangers and supports to be constructed and applied according to the following standards:
1. Manufacturer's Standardization Society MSS SP-58, SP-69 and SP-89.
  2. Power Piping Code, ANSI B31-1.

PART 2 - PRODUCTS

- 2.1 Provide hangers of heavy construction suitable for the size of pipe to be supported. All materials to be of steel, except rollers which are to be of wrought or malleable iron. Hangers for pipes up to and including 5 inches to be adjustable swivel ring, split ring, wrought pipe clamp, or adjustable wrought clevis type. Hangers for pipes 6 inches and above to have 2 rods and cross-rod with cast iron pipe roll complete with adjustable sockets and nuts.
- 2.2 Support vertical piping with double bolt riser clamps attached to the pipe, resting on the floor slab. In general, use one clamp for each two floors and one clamp at each floor for copper tubing. Where pipes are in open shafts, provide forged steel bar brackets fixed to wall.

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- 2.3 Support vertical piping risers on base elbow supports. Supports to be no less than one pipe size smaller than riser.
- 2.4 The following tables will establish a minimum level of acceptance for pipe hangers, supports and attachments.

A. Hangers and Supports

Service	Hanger Type	Grinnell Figure No.	Maximum Pipe Size
Uninsulated Steel	Clevis	260	5"
Uninsulated Copper	Clevis	CT-65	4"
All (Steel Pipe)	Riser Clamp	261	20"
(Copper Pipe)	Riser Clamp	CT-121	4"
All Insulated	Roller Hanger	171	24"
Chilled & Condenser Water	Base Plate & Roll	277	24"
Hot Water, Steam and Steam Condensate	Base Plate & Roll	274	24"
All	Trapeze	46	24"
All	Wall Bracket	195	5"
All	Wall Bracket	199	12"

B. Structure Attachments

Type	Grinnell Figure No.	Maximum Rod Size (Inches)	Maximum Pipe Size
Beam Clamp	218	7/8	8"
Beam Clamp	228	1½	24"
Side Mount Clamp	225	7/8	8"
Channel Clamp	226	7/8	8"
Expansion Shield	281	7/8	8"

**2.5 ACCEPTABLE MANUFACTURERS**

- A. Grinnell
- B. Pipe Shields Inc.
- C. C&S Manufacturing

**PART 3 - EXECUTION**

3.1 Support horizontal piping in accordance with the following schedule:

<b>Pipe Size</b>	<b>Maximum Hanger Spacing</b>	<b>Rod Size</b>
1" and smaller	6'-0"	3/8"
1¼" to 2"	9'-0"	3/8"
2½" to 3"	10'-0"	1/2"
4" to 5"	12'-0"	5/8"
6"	12'-0"	3/4"
8" to 12"	12'-0"	7/8"
14" to 16"	12'-0"	1"
18"	12'-0"	1-1/8"
20"	12'-0"	1-1/4"
24"	12'-0"	1-1/2"

3.2 Provide hangers at each change in direction and both sides of each valve.

3.3 Support hangers from concrete inserts or beam clamps. Furnish, locate and set such inserts and make sure that such inserts are in place when the concrete is poured. Construct inserts of malleable iron or pressed steel with space for rods of all sizes. Install all inserts for pipes 3" and larger in size with a reinforcing rod 5/8" in diameter run through a slot in the insert specifically provided for this purpose.

3.4 If any pipe is to be hung in a space where no inserts have been provided, drill holes in the slab (subject to the Commissioner's prior approval) and provide rods and hanger attached to an approved fishplate or install double expansion shields connected by a 2" x 2" angle, from which the hanger rod is to be suspended. For pipe size 2" and under, use single shields but the hanger spacing defined hereinbefore to be reduced to 5'-0". The carrying capacity and size of each shield to be calculated on the basis of the spacing indicated above but the minimum size to be 3/8". Install additional shields of the same size so that the number of hangers are of adequate size to support the loads which they carry. Shields may be used in concrete slabs only.

**HANGERS, ANCHORS AND SUPPORTS**

- 3.5 Regardless of the type of construction (i.e., concrete, concrete-deck-steel or other variations) take particular care to support all main lines and all large and heavy pipes in an approved manner, including the furnishing and installation of supplementary steel, if required. Supplementary steel sections are to be mill-rolled. Submit shop drawings, indicating support methods, point loadings to the building structure and hanger locations for review sufficiently in advance of concrete pouring schedules to permit evaluation, critique and any necessary changes to handling and support methods.
- 3.6 Set all inserts for all pipes in ample time to allow concrete work to be performed on scheduled time.
- 3.7 Hangers may be directly attached to steel beams of building construction, where they occur, if approved by Commissioner. Smaller pipes may be suspended from crosspieces of pipe or steel angles, which in turn, are to be securely fastened to building beams or hung from building concrete construction by means of rods and inserts. The intention is to provide supports which, in each case, will be amply strong and rigid for the load, but which will not weaken or unduly stress the building construction.
- 3.8 Provide approved roller support, floor stands, wall brackets, etc., for all lines running near the floor or near walls, which can be properly supported or suspended by the floors or walls. Pipelines near walls may also be hung by hangers carried from approved wall brackets at a level higher than the pipe.
- 3.9 Do not hang piping from other piping. Support of hangers by means of vertical expansion bolts is not permitted.
- 3.10 Wherever hangers using pipe rolls are used provide approved steel pipe covering protection saddles, spot welded to the piping at each hanger location. Vapor barrier jackets to cover shield.
- 3.11 Anchor piping where shown on Drawings and as required to localize expansion or to prevent undue strain on piping and branches. Anchors to be entirely separate from hangers. All anchor designs to be submitted for approval and to include piping reactions which respective anchors are capable of supporting. Provide all indicated or required expansion loops.
- 3.12 Support all lines of copper tubing individually by approved type hangers not more than 6' apart, or as shown on the drawings. Use hangers especially designed for copper tubing and of exact outside diameter of tubing. On hangers for covered tubing, use broad straps fitting outside of covering.
- 3.13 Hangers used for cold piping will support the pipe without piercing the insulation. Use insulation shields to protect the insulation on cold pipes. Weld insulation protection saddles to insulated hot pipes, or any piping subject to axial movement, at roller supports. Space between pipe and saddle to be filled with insulation. Wherever fibrous glass pipe insulation is installed, install calcium silicate of equal thickness in lieu thereof, wherever hangers and insulation shields bear on insulation. Vapor barrier jackets to cover shields.

- 3.14 For piping 4" and larger, support the elbows of the piping adjacent to the pumps with steel base elbow supports from the inertia base which pump is on to prevent loading heavy weights of piping on pump casing. Where inertia base is not provided, base elbows to be supported on floor with 1" neoprene pad.
- 3.15 Support risers using base elbow supports, no smaller than one pipe size, mounted on 1" neoprene pad and concrete housekeeping pad. Submit pipe loads to Commissioner for review.
- 3.16 ATTACHMENTS TO EXISTING STEEL DECK SLAB
- A. Attachments to existing steel deck to be limited to loads of 500 lbs. Heavier loads to be supported by supplementary structural steel connected to structural beams. Provide all required supplementary steel.
  - B. Attachments with loads only up to 500 lbs. is to be accomplished by drilled-in expansion shield type anchors located on the center line of the concrete filled ribs.
  - C. No attachments will be permitted to existing electrified decks. If hanger attachments are not existing, all new attachments to be supported from supplementary steel provided by Contractor.
  - D. 500 lb. load attachments must not be spaced less than 5'-0" apart, and are to be located as close to steel beams as possible.
  - E. Furnish and locate sleeves, cut holes through deck, reinforce deck, and set sleeves. Coordinate sleeve locations with Contractor and electrical distribution. Submit drawings showing location of holes and proposed reinforcing for approval before proceeding with installation.

END OF SECTION

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SECTION 23 05 48

VIBRATION ISOLATION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide vibration isolation in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Vibration isolation elements for piping and equipment.  
B. Equipment isolation bases.  
C. Seismic restraints.

1.3 SUBMITTALS

A. Manufacturer's Data

1. Catalog cuts and data sheets on specific vibration isolators to be utilized showing compliance with the specifications.
2. An itemized list showing the items of equipment or piping to be isolated, the isolator type or model number selected, isolator loading and deflection, and reference to specific drawings.
3. An itemized list of non-isolated equipment, piping, and ductwork to be seismically restrained.
4. Seismic restraint calculations.
5. Written approval of the base design to be obtained from the equipment manufacturer.

B. Shop Drawings

1. Drawings showing equipment base constructions for each machine, including dimensions, structural member sizes and support point locations.
2. Drawings showing methods of suspension, support guides for piping and ductwork.
3. Drawings showing methods for isolation of pipes and ductwork piercing walls and floor slabs.
4. Concrete and steel details for bases including anchor bolt locations.

5. Number and location of seismic restraints and anchors for each piece of equipment and of ductwork and piping.
6. Specific details of restraints, including anchor bolts for mounting and maximum loading at each location for each piece of equipment and lengths of ductwork and piping.
7. Provide installation instructions, drawings and field supervision to assure proper installation and performance.

1.4 QUALITY ASSURANCE

- A. Provide control of excessive noise and vibration in the buildings due to the operation of machinery or equipment, and/or due to interconnected piping, ductwork or conduit. Installation of vibration isolation units, and associated hangers and bases, under the direct supervision of the vibration isolation manufacturer's representative.
  1. All vibration isolators shall have either known undeflected heights or calibration markings so that, after adjustment, when carrying their load, the deflection under load can be verified, thus determining that the load is within the proper range of the device and that the correct degree of vibration isolation is being provided according to the design.
  2. All isolators shall operate in the linear portion of their load versus deflection curve. Furnish load versus deflection curves linear over a deflection range of not less than 50% above the design deflection.
  3. The ratio of lateral to vertical stiffness to be not less than 0.9 nor greater than 1.5.
  4. The theoretical vertical natural frequency for each support point, based upon load per isolator and isolator stiffness shall not differ from the design objectives for the equipment as a whole by more than  $\pm 10\%$ .
  5. All neoprene mountings shall have a Shore hardness of 40 to 65, after minimum aging of 20 days or corresponding oven-aging.
- B. Adhere to SMACNA Guidelines for Seismic Restraints of Mechanical Systems.
- C. Adhere to ASHRAE Guide 1995 Chapter 50.
- D. Design seismic restraints in accordance with Local Code for Seismic Zone that the project is located in.

- E. Manufacturer of vibration isolation equipment has the following responsibilities:
  - 1. Determine vibration isolation and seismic restraint sizes and locations.
  - 2. Guarantee specified isolation system deflection.
  - 3. Provide piping and equipment isolation systems and seismic restraints as scheduled or specified.
  - 4. Guarantee specified isolation system deflection.
  - 5. Provide installation instructions, drawings and field supervision to assure proper installation and performance.
- F. Structural or civil engineer's stamp verifying design and calculations for seismic restraining systems used.
- G. Substitution of internally isolated mechanical equipment in lieu of the specified isolation of this Section must be approved for individual equipment units and is acceptable only if above acceleration loads are certified in writing by the equipment manufacturer and stamped and sealed by a licensed civil or structural engineer.
- H. Purchased and/or fabricated equipment must be designed to safely accept external forces of 1.0g load in any direction for all rigidly and resiliently supported equipment, piping and ductwork without failure and permanent displacement of the equipment. Life safety equipment such as fire pumps, smoke exhaust fans, emergency generators and other life safety designated equipment must be capable of accepting external forces of up to 1.5g in any direction without permanent displacement or failure of the equipment.
- I. Vibration isolation firms having a minimum three (3) years' experience designing and installing vibration isolation and seismic restraint systems shall be qualified to provide the materials and installation required by this section. Project listings shall be provided including geographical location and a reference contact.

**PART 2 - PRODUCTS**

**2.1 MATERIALS**

- A. All vibration isolation devices to be the product of a single manufacturer.
- B. Where spring isolation systems are described in the following specifications, the mounting assemblies shall utilize bare springs with the spring diameter not less than 0.8 of the loaded operating height of the

**VIBRATION ISOLATION**

**23 05 48-3**

spring. Each spring isolator shall be designed and installed so that the ends of the springs remain parallel. The minimum deflection from loaded operating height to spring solid height shall be 50% of the rated static deflection of the spring.

- C. Where neoprene-in-shear isolation systems are described in the following specifications, the mounting assemblies shall utilize bare neoprene elements with unit type design molded in oil resistant neoprene. The neoprene shall be compounded to meet the following:
1. Shore hardness of 35 to 65  $\pm$ 5, after minimum aging of 20 days or corresponding oven-aging.
  2. Minimum tensile strength of 2000 PSI.
  3. Minimum elongation of 300%.
  4. Maximum compression at 25% of original deflection.
- D. All mounting systems, including seismic restraints, exposed to weather and other corrosive environments shall be protected with factory corrosion resistance. All metal parts of mountings (except springs and hardware) to be hot dip galvanized. Springs shall be cadmium plated and neoprene coated. Nuts and bolts shall be cadmium plated.

## 2.2 VIBRATION ISOLATORS

- A. Refer to schedule sheets for vibration isolator types to be used.
1. Type A: Bare spring isolators to incorporate the following:
    - a. Minimum ¼ inch thick neoprene acoustical base pad on underside, unless designated otherwise.
    - b. Designed and installed so that ends of springs remain parallel.
    - c. Non-resonant with equipment forcing frequencies or support structure natural frequencies.
    - d. Type SLF MII  
Type OSK VEC  
Type AN VMCI
  2. Type B: Spring isolators to be same as Type A, except:
    - a. Provide built-in vertical limit stops with minimum ¼" clearance under normal operation.
    - b. Tapped holes in top plate for bolting to equipment.

- c. Capable of supporting equipment at a fixed elevation during equipment erection. Installed and operating heights shall be identical.
- d. Shall incorporate snubbing restraint in all directions. Cast or aluminum housings are unacceptable. System to be field bolted or welded to deck with ability to resist forces of g acceleration.

Type SLR MII  
Type KW VEC  
Type AWR VMCI

3. Type C: Spring hanger rod isolators to incorporate the following:

- a. Spring element seated on a steel washer within a neoprene cup incorporating a rod isolation bushing.
- b. Steel retainer box encasing the spring and neoprene cup.
- c. Provide sufficient clearance between retainer box and spring hanger rod to permit minimum 15 degree allowable rod misalignment in any direction, total 30 degrees.
- d. Requires seismic restraint type III.

Type 30N MII  
Type SNRC VEC  
Type RSH-30A VMCI

Where operating weight differs from installed weight provide built-in adjustable limit stops to prevent equipment rising when weight is removed. Stops shall not be in contact during normal operation.

4. Type D: Elastomer isolators to incorporate the following:

- a. Bolt holes for bolting to equipment base.
- b. Bottom steel plates for bolting to sub-base as required.
- c. Unit type design molded in oil-resistant neoprene.
- d. Encased in ductile steel or iron casing and capable of withstanding external forces of up to 1.0 g. System to be field bolted or welded to deck with ability to resist forces of 1.0 g.

Type BR/RBA MII  
Type 368 SD VEC  
Type RD VMCI

5. Type E: Elastomer hanger rod isolators to incorporate the following:
- a. Molded unit type neoprene element with projecting bushing lining rod clearance hole.
  - b. Neoprene element to be minimum 1¾" thick.
  - c. Steel retainer box encasing neoprene mounting.
  - d. Clearance between mounting hanger rod and neoprene bushing shall be minimum \_".
  - e. Requires seismic restraint type III.
- Type HD    MII  
Type CD    VEC  
Type RHD   VMCI
6. Type F: Combination spring/elastomer hanger rod isolators to incorporate the following:
- a. Spring and neoprene isolator elements in a steel box retainer.
  - b. Other characteristics of steel box retainer and hanger rod swing as described for Type C isolators.
  - c. Requires seismic restraint type III.
7. Type G: Pad type elastomer mountings to incorporate the following:
- a. 0.750" minimum thickness.
  - b. 50 psi maximum loading.
  - c. Ribbed or waffled design.
  - d. .10" deflection per pad thickness.
  - e. 1/16" galvanized steel plate between multiple layers of pad thickness.
  - f. Suitable bearing plate to distribute load.
  - g. Requires seismic restraint type II or III as installation requires.
- Type Super W    MII  
Type 200N    VEC  
Type Shearflex    VMCI

- 8. Type H: Pad type elastomer mountings to incorporate the following:
  - a. Laminated canvas duck material and neoprene.
  - b. Maximum loading 1000 psi.
  - c. Suitable bearing plate to distribute load.
  - d. Minimum thickness, ½ inch.
  - e. Requires seismic restraint type II or III as installation requires.

Type HL    MII  
 Type Fabriflex    VMCI

**2.3 EQUIPMENT BASES**

**A. Integral Structural Steel Base, Type B-1**

- 1. Reinforced as required to prevent base flexure at start-up and misalignment of drive and driven units. Centrifugal fan bases complete with motor slide rails. Drilled for drive and driven unit mounting template.

Type WF, M    MII

**B. Concrete Inertia Base, Type B-2**

- 1. Concrete inertia bases to be formed in a structural steel perimeter base, reinforced as required to prevent flexure, misalignment of drive and driven unit or stress transferal into equipment. The base to be complete with motor slide rails, pump base elbow supports and complete with height saving brackets, reinforcing, equipment bolting provisions and isolators.
- 2. Minimum thickness of the inertia base to be according to the following tabulation:

Motor Size (hp)	Minimum Thickness (in)
5-15	6
20-50	8
60-75	10
100-250	12
300-500	18

Mason Type K, BMK, or as approved.

**C. Curb Mounted Base, Type B-3**

1. Curb mounted rooftop equipment shall be mounted on spring isolation curbs that directly sit on roof construction and are flashed and incorporated into roof's membrane waterproofing system.
2. All spring locations shall have removable waterproof covers to allow for spring adjustment and/or removal.
3. All spring mounts shall be as Isolator Type B.
4. Curb and spring mounting shall be capable of withstanding 110mph wind and 1.5g seismic loads.
5. Curbs shall be Mason Type CMAB or RSC (depending on deflection required), or approved equal.

**D. Isolated Rail Base, type B-4**

1. Rails shall be constructed from structural steel angles, as required, to prevent flexure and misalignment under load.
2. Each rail shall be the full length of the supported equipment and be welded to a series of vertically restrained spring isolators as Type B described above.
3. Angles shall have bolt-together ties at the ends and center to form one rigid base platform.

Mason Type TRSLR.

**E. Vaneaxial Fan Built-Up Casing Floating Base, Type B-5**

1. The vaneaxial fan casing, coils, filter assembly and inlet/discharge silencers shall be erected on top of a poured-in-place, reinforced concrete floating floor supported on Mason Industries Type EAFM 2" high mounting system, or as approved.
2. The mountings shall be oriented in the floating floor base for the weight and weight distribution of the supported equipment (casing, coils, filter silencers) on the floating floor.
3. The plywood form shall be Type AC exterior grade, 1/2" thick. Isolation mounts shall be 2" thick and shall be selected and oriented to provide deflections not exceeding 0.3" or 10 Hz frequency.
4. The fans shall be resiliently spring supported, and as described elsewhere, from concrete piers erected from the structural slab and isolated from the floating floor.



5. The design and installation of the vaneaxial fan built-up casing floating floor and fan isolation shall be coordinated with the vibration control vendor such that there will be no short circuit of the floating build-up casing base and the building structure.
6. Requires seismic restraint type II.

2.4 FLEXIBLE CONNECTORS

A. Elastomer Type FC-1

1. Manufactured of nylon tire cord and EPDM, both molded and cured with hydraulic presses.
2. Straight connectors to have two spheres reinforced with a molded-in external ductile iron ring between spheres.
3. Elbow shall be long radius reducing type.
4. Rated 250 psi at 170°F. Dropping in a straight line to 170 psi at 250°F for sizes 1½" to 12" elbows. Elbows shall be rated no less than 90% of straight connections.
5. Sizes 10" and 12" to employ control cables with neoprene end fittings isolated from anchor plates by means of ½" bridge bearing neoprene bushings.
6. Minimum safety factor of 4 to 1 at maximum pressure ratings.
7. Submittals to include test reports.

Mason Types SuperFlex MFNEC, MFLRR, MFTFU, MFTNC,  
MFTCR.

B. Flexible Stainless Hose, Type FC-2

1. Braided flexible metal hose.
2. 2 inch pipe size and smaller with male nipple fittings.
3. 2½ inch and larger pipe size with fixed steel flanges.
4. Suitable for operating pressure with 4:1 minimum safety factor.
5. Length as shown on Drawings.

Type BSS    MII  
Type MFP    VMCI

- C. Unbraided Exhaust Hose, Type FC-3
1. Low pressure stainless steel annularly corrugated.
  2. Fitted with flanged ends.
  3. Maximum temperature 1500°F.
- Mason Type SDL-RF.

2.5 SEISMIC RESTRAINTS

A. General

1. Provide restraints capable of safely accepting 1.0 "G" external forces without failure, or 1.5 "G" for life safety equipment to maintain equipment, piping, duct and fan powered boxes in a captive position. Restraints must not short circuit vibration isolation systems or transmit objectionable vibration or noise.
2. Submit calculations by a licensed Structural or Civil Engineer substantiating that all equipment mountings and foundations and their seismic restraints can safely accept external forces of 1.0g load for all rigidly and resiliently supported equipment, piping, and ductwork (1.5g load for all life safety equipment) without failure and permanent displacement. Restrain all resiliently mounted piping and ductwork with cable sway bracing by Mason Industries, or approved equal.

B. Seismic Restraint, Type I

1. Comply with general characteristics of spring isolators.
2. Provide vertical restraints that are capable of supporting equipment at fixed elevation during equipment erection.
3. Incorporate seismic snubbing restraint in all directions at specified acceleration loadings.
4. System to be field bolted to structure with minimum capability to withstand external forces of 1.5g.

Mason Type SSLF.

C. Seismic Restraint, Type II

1. Each corner or side seismic restraint shall incorporate minimum 2" thick pad limit stops. Restraints shall be made of plate, structural members or square metal tubing in a welded assembly, incorporating resilient pads. Angle bumpers are not acceptable. System to be field bolted to deck with 1.5g acceleration capacity.

2. Seismic spring mountings are described above are an acceptable alternative providing all seismic loading requirements are met.

Mason Industries Type Z-1011, Type Z-1225.

- D. Seismic Restraint, Type III

Metal cable type with approved end fastening devices to equipment and structure. System to be field bolted to deck or overhead structural members or deck with aircraft cable and clamps as per SMACNA guidelines.

## 2.6 ACCEPTABLE MANUFACTURERS

- A. Mason Industries, Inc. (MII)
- B. Vibration Mountings & Controls, Inc. (VMCI)
- C. Peabody Engineering (PE)
- D. Korfund Dynamics Corp. (KDC)
- E. Amber-Booth (AB)
- F. Vibration Eliminator Co. (VEC)

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. Install in accordance with manufacturer's written instructions. Vibration isolators must not cause any change of position of equipment or piping resulting in piping stresses or misalignment.
- B. Isolate mechanical equipment from the building structure by means of noise and vibration isolators as scheduled on the Drawings and in these specifications.
- C. Piping and ductwork to be isolated must pass freely through walls and floors without rigid connections. Maintain 3/4 inch to 1 1/4 inch clearance around outside surfaces of piping or ductwork at penetration points. Pack this clearance space tightly with fiberglass, and caulk airtight after installation of piping or ductwork.
- D. Make no rigid connections between equipment and building structure that degrades the noise and vibration isolation system specified herein.
- E. Loop electrical circuit connections to isolated equipment to allow free motion.

- F. Bring to the Commissioner's attention prior to installation any conflicts with other trades which will result in unavoidable rigid contact with equipment or piping as described herein, due to inadequate space or other unforeseen conditions. Corrective work necessitated by conflicts after installation will be at the responsible contractor's expense.
- G. Support vertical piping loads, including water strainers, and valves between pump base elbow supports and the suction and discharge header piping by means of the pump base spring isolators without stress or strain to the pump housing.
- H. Do not install any equipment, piping or conduit which makes rigid contact with the "building" unless permitted in this Specification. Building includes, but is not limited to, slabs, beams, columns, studs and walls.
- I. Coordinate work with other trades to avoid rigid contact with the building. Inform other trades following work, such as plastering or electrical, to avoid any contact which would reduce the vibration isolation.

**3.2 EQUIPMENT ISOLATORS**

- A. Mount floor mounted equipment on 4" high concrete housekeeping pads over complete floor area of equipment. Mount vibration isolating devices and related inertia blocks on concrete pad. Key housekeeping pads with hair pins, as required, to be integral with structural slab. Provide approved seismic restraint anchor plates flush with top of housekeeping pad.
- B. Support each fan and motor assembly on a single structural steel frame. Provide flexible duct connections at inlet and discharge of fans.
- C. Provide brackets to accommodate the isolator. Manufacturer to specify the vertical position and size of the bracket.
- D. Maintain a minimum operating clearance between the equipment frame on rigid steel base frame and the housekeeping pad of 1 inch. Maintain a minimum operating clearance between concrete inertia and base and housekeeping pad or floor of 2 inches.
- E. Temporarily support the structural steel or concrete inertia base with blocks or shims, as appropriate, prior to the installation of the machine or isolators.
- F. Install the isolators without raising the machine and frame assembly.
- G. Adjust the isolator after the entire installation is complete and under full operational load so that the load is transferred from the blocks to the isolator. When all isolators are properly adjusted, the blocks or shims will be barely free and shall be removed.
- H. Verify that all insulated isolator and mounting systems permit equipment motion in all directions. Adjust or provide additional resilient restraints to flexibly limit equipment start-up lateral motion to ½ inch.

- I. Prior to start-up, clean out all foreign matter between bases and equipment. Verify that there are no isolation short circuits in the base or isolators.

### 3.3 ADDITIONAL REQUIREMENTS

- A. Diagonal thrust restraint shall be as described for Type C hanger with the same deflection as specified for the spring mountings. The spring element shall be designed so it can be pre-set for thrust and adjusted to allow for a maximum of ¼" movement at start and stop. Diagonal restraints shall be attached at the centerline of thrust. Restraint shall be Mason Type WB, or as approved.
- B. All piping and ductwork to be isolated shall freely pass through walls and floors without rigid connections. Penetration points shall be sleeved or otherwise formed to allow passage of piping or ductwork, and maintain ¾" to 1¼" clearance around the outside surfaces. This clearance space shall be tightly packed with fiberglass, and caulked airtight after installation of piping or ductwork.
- C. All HVAC piping vertical risers larger than 2" in diameter shall be isolated from the building structure by means of noise and vibration isolation guides and supports.
- D. Isolators shall be installed with the isolator hanger box attached to, or hung as close as possible to, the structure. Hanger rods shall be aligned to clear the hanger box.
- E. Isolators shall be suspended from substantial structural members, not from slab diaphragm unless specifically permitted.
- F. Structural steel for cooling tower or other equipment must support the equipment without excessive deflection. The structural steel support shall not be resonant with the isolation system resonant frequencies or the driving frequencies of the supported equipment.

### 3.4 PIPING, BOILER BREECHING AND ENGINE EXHAUST ISOLATORS

- A. All piping, boiler breeching and engine exhaust, except fire standpipe systems, are included under this Section.
- B. Installation:
  1. Isolate piping, boiler breeching and engine exhaust outside of shafts as follows: All water, steam and glycol piping, boiler breeching and engine exhaust in machine rooms. Piping where exposed on roof. Water piping, boiler breeching and engine exhaust within 50 ft., or 100 diameters if greater than 50 ft. from connected rotating equipment and pressure reducing stations. All other piping shall be rigidly supported and provided with approved

seismic restraints to maintain the piping in a captive position without excessive motion.

2. All piping 2" and over located in mechanical equipment rooms, and for a minimum of fifty (50) feet or 100 pipe diameters, whichever is greater, from connection to vibrating mechanical or electrical equipment, shall be isolated from the building structure by means of noise and vibration isolation hangers, Type F.
3. Horizontal suspended pipe 2" and smaller and all steam piping shall be suspended by Type E isolator with a minimum   " deflection. Water pipe larger than 2" shall be supported by Type F isolator with a minimum 1", or same static deflection as isolated equipment to which pipe connects, whichever is greater.
4. Horizontal pipe floor supported at slab shall be supported via Type B, with a minimum static deflection of 1" or same deflection as isolated equipment to which pipe connects, whichever is the greater.
5. Vertical riser pipe supports shall utilize Type H.
6. Vertical riser guides, if required, shall avoid direct contact of piping with building.
7. Pipe anchors, where required, shall utilize resilient pipe anchors, Mason Industries Type ADA, or equivalent, to avoid direct contact of piping with building.
8. Pipe sway braces, where required, shall utilize two (2) neoprene elements (Type G or H to accommodate tension and compression forces).
9. Pipe extension and alignment connectors: Provide connectors at riser takeoffs, cooling and heating coils, and elsewhere as required, to accommodate thermal expansion and misalignment.
10. Adjust, as required, all isolators to eliminate all contact of the isolated rod with the hanger rod box retainer or short circuiting of the spring.

**3.5 GENERAL SEISMIC RESTRAINT REQUIREMENTS**

- A. All equipment whether isolated or not shall be bolted to structure to allow for minimum 1.0g of acceleration (1.5g for life safety equipment). Bolt points and diameter of inserts shall be submitted and verified as part of the contractor's submission for each piece of equipment and stamped and sealed by a civil or structural engineer.
- B. All suspended equipment, whether isolated or not, shall be seismically restrained at four points with Type III cable restraints.

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- C. Install seismic restraining system Type III taut for overhead suspended unisolated equipment, piping or ductwork, and slack with ½" cable deflection for isolated systems.
- D. Seismically restrain all piping and ductwork with center bracing or Type III restraining system in accordance with SMACNA guidelines to comply with UBC 1988 State of California with 1989 amendments as outlined below:
  - 1. All schedule 10, 20, or 40 piping shall be welded or laterally braced at 40 foot intervals and at turns of more than 4 feet. Longitudinally bracing shall be supplied at 80 foot intervals. No-hub piping shall be braced at 10 foot intervals or at 40 foot intervals if 1.0g rated couplings are used.
  - 2. Ductwork to be braced every 30 feet (9m) and at every turn and duct run ends. Longitudinal bracing to be provided at 60 foot intervals.
- E. Seismic restraints are not required for the following:
  - 1. Gas piping less than 1" internal diameter.
  - 2. Piping in boiler and MER room that is less than 1¼" internal diameter.
  - 3. All other piping and electrical conduit less than 2½" internal diameter.
  - 4. All rectangular ducts less than 6 sq. ft. in cross sectional area.
  - 5. All round ducts less than 28" in diameter.
  - 6. All piping suspended by individual hangers 12" in length or less from the point of the attachment to the duct to the bottom of the support for the hanger.
  - 7. All ducts suspended by hangers 12" or less in length from the point of the attachment to the duct to the bottom of the support for the hanger.
- F. Chimneys and stacks passing through floors are to be bolted at each floor level or secured above and below each floor with riser clamps or approved vibration isolation systems with seismic restraints.
- G. Chimneys and stacks running horizontally to be braced every 30 ft. with Type III restraining system.
- H. Where base anchoring is insufficient to resist seismic forces, supplementary restraining such as seismic restraint system Type III shall be used above system's center of gravity to suitably resist 'g' force levels. Vertically mounted tanks may require this additional restraint.

**VIBRATION ISOLATION**  
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- I. For overhead supported equipment, overstress of the building structure must not occur. Bracing may occur from:
  - 1. flanges of structural beams;
  - 2. upper or lower truss chords in bar joist construction at the panel points;
  - 3. cast-in-place inserts or drilled and shielded inserts in concrete structures.
  
- J. Each seismic restraint and snubbing device shall be installed after equipment is installed and fully operational. Each isolation mounting incorporating seismic restraint shall be adjusted to provide the minimum operating clearance in all directions to permit the operation of the equipment without objectional noise or vibration to any part of the building structure. The operating clearance for equipment seismic restraints shall not be greater than ¼" (6mm). Seismic restraints must not result in short-circuiting of isolated equipment.

3.6 INSPECTION

- A. On completion of installation of all vibration isolation and seismic restraint devices herein specified, the local representative of the isolation materials manufacturer shall inspect the complete system and report in writing any installation errors, improperly selected isolation or restraint devices, or other faults that could affect the performance of the system. Contractor shall submit a report to the Commissioner, including the manufacturer's representatives final report, indicating all isolation reported as properly installed or requiring correction, and include a report by the Contractor on steps taken to properly complete the isolation work.

END OF SECTION



SECTION 23 05 53

HVAC SYSTEMS IDENTIFICATION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide systems identification in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Valve Tags.
- B. Piping Identification.
- C. Equipment Identification.
- D. Duct Identification.
- E. Charts and Schedules.

1.3 SUBMITTALS

- A. Shop Drawings: Submit valve tag chart; pipe, duct and equipment labels, paint and color chart.
- B. Product Data: Manufacturer's latest published data for materials, equipment, and installation, including samples of valve tags, equipment identification and piping identification, showing size of lettering.
- C. Maintenance Manuals: Provide valve tag charts for inclusion in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Piping identification to be in accordance with ANSI A 13.1 - 1996 (latest edition) as to sizes, color, lettering and background color.

PART 2 - PRODUCTS

2.1 VALVE TAGS

- A. Use tags 2 inch minimum diameter, fabricated of brass, stainless steel, aluminum or shatterproof plastic. Attach tags with chain, S-hook or split ring as appropriate.

2.2 PIPING IDENTIFICATION

- A. Provide color coded bands for all piping systems per ANSI-A 13.1-1996.
- B. Adhesive bands to be B350, Perma Code Film markers for indoor use and Quick-Apply mechanically affixed markers for outdoors use, by W.H. Brandy Co.

2.3 EQUIPMENT IDENTIFICATION

- A. Identify mechanical equipment by means of nameplates permanently attached to the equipment. Provide black surface, white core laminated bakelite with engraved letters. Minimum size plates 3" long by 1" wide with white letters 3/8" high. Fan powered terminals do not require nameplates.
- B. Identification of Automatic Controls to be as per Automatic Temperature Control specification.

2.4 DUCT IDENTIFICATION

- A. Stencil system number and service (supply, return, exhaust) onto ducts at strategic locations. Provide arrows to show direction of flow.

2.5 CHARTS & SCHEDULES

- A. Provide two diagrammatic charts of all piping systems showing location, numbers and types of all valves, framed for mounting. Legend to show service (steam, chilled water, etc.) and valve number. Assign numbers by floor.

2.6 ACCEPTABLE MANUFACTURERS

- A. W.H. Brady
- B. Seton
- C. Marking Services Inc.
- D. Metalcraft Inc.
- E. Craftmark Inc.

PART 3- EXECUTION

3.1 PIPING SYSTEMS

- A. Identify all piping systems with color coded bands per ANSI A13.1-1996, sharply contrasting with background. Locate bands near strategic points, such as valves, items of equipment, changes in direction, wall penetrations,

capped stub out for future connection and every 40 feet of straight runs. If necessary, paint a strip background of black or white to obtain contrast.

- B. Each set of bands to consist of one (1) band on which the name of the service is printed in black letters not less than 1½" high, and two (2) bands on which is printed a black directional arrow located on each side of legend. Apply bands where they can be easily read and with their long dimension parallel to the axis of the pipe. Provide bands with backgrounds of different colors from the various service groups.
- C. Do not tag valves whose use is obvious, such as equipment isolation valves.
- D. Provide three schedules of all valves showing number, size, type and service of each valve, suitable for use with three ring binder. Provide separate list for each system.
- E. Drain piping serving mechanical equipment items for which the drain discharge is not visible from the equipment shall be marked in accordance with ANSI 13.1-1996 near the point of discharge indicating the item of equipment served.

### 3.2 EQUIPMENT

- A. Attach nameplates in a permanent manner in a location that will be clearly visible after installation is complete.
- B. Mask all labels prior to field painting of equipment. Labels that are painted over will be replaced by Contractor at no cost to the City of New York.

### 3.3 DUCTWORK

- A. Stenciling to be done after insulation and other duct coverings are completed.
- B. Systems on which duct identification has been covered or is otherwise not visible will not be accepted.

### 3.4 CHARTS & SCHEDULES

- A. Prepare valve charts in a framed mounting behind a clear covering, such as glass, for protection.
- B. All identifying numbers will correspond to those numbers as shown on Contract Documents, such as riser numbers, equipment numbering, piping and duct symbols, etc.

END OF SECTION

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SECTION 23 05 93

HVAC TESTING, ADJUSTING AND BALANCING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide testing, adjustment and balancing for all water and air systems in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Pressure testing of new piping and new duct systems.
- B. Preliminary and final adjustment of all new water systems.
- C. Preliminary and final adjustment of all new air systems.
- D. Verification of required air and water quantities from existing systems.
- E. Temporary pipe and duct connections, pipe caps, duct caps, tees, valves, dampers, etc.
- F. Performance testing of all HVAC systems.
- G. This section covers general duct, pipe and equipment testing. Additional specific equipment tests are covered in individual sections.
- H. Operation of mechanical systems as required for testing by other trades.
- I. Cooperate with independent agent performing controlled inspections.

1.3 SUBMITTALS

- A. Submit the following at least six (6) months prior to the execution of testing during the shop drawing phase:
  - 1. Complete brochure of proposed independent certified balancing firm, listing previous installations successfully balanced, length of time in business, names and qualifications of employees who will be assigned to the project, and list of instruments, equipment and elapsed time schedule to be used on the project.
  - 2. Procedures and recording forms for testing and adjusting each system and each item of equipment.
  - 3. Documentation of instrumentation calibration including date of calibration.

4. Complete test and balancing plan listing all testing and balancing procedures. For air and water systems the test and balancing plan submitted must be customized and reflect the actual systems within the project.
- B. Submit the following within two (2) weeks of completion of testing and adjusting.
1. Submit six (6) certified copies of each complete testing and adjustment report to the Commissioner for review and send two (2) copies of the report to the City of New York. The Contractor shall submit individual testing and adjustment reports for each individual air distribution system, each return and exhaust system, and each pumping system within two (2) weeks after completion of the testing and adjustment of each system.
- C. Inspection reports: List all system deficiencies found.
- D. Submit a statement of compliance or non-compliance with this specification section.

1.4 QUALITY ASSURANCE

A. Testing

1. SMACNA - 2002 Testing, Adjusting and Balancing.
2. ANSI/ASME B31.9 - 2008; Chapter VI Part 937.
3. ANSI/ASME B31.1 - 2010; Power Piping Code.
4. Local codes.

B. Balancing

1. AABC 2002 National Standards; Air and Hydronic.
2. NEBB 2005 Edition of the Procedural Standards for Testing, Adjusting and Balancing of Environmental Systems.
3. SMACNA - 2002 Testing, Adjusting and Balancing.

C. During the progress of the work, make tests as specified herein and as required by authorities having jurisdiction, including local authorities' Inspection Department, City of New York, City of New York's Insuring Agency, or Commissioner. Tests shall be conducted by the Contractor as part of the work of this Division. Include all qualified personnel, equipment apparatus, and services required to perform the tests.

D. Calibrate all instruments used for testing and adjusting within a period of six

(6) months prior to testing and/or balancing. Certify instrument calibration as specified in Section 23 00 02.

## PART 2 - PRODUCTS

### 2.1 PRESSURE AND TEMPERATURE SENSING TAPS

- A. Provide ½-inch pressure and temperature test plugs on the entering and leaving piping at all equipment and as indicated on the plans in order to complete the required system balancing. Coordinate with the mechanical contractor during the installation phase.

## PART 3 - EXECUTION

### 3.1 TESTING

#### A. General

1. Provide a complete set of approved mechanical and electrical shop drawings and equipment and product submittals to the balancing contractor.
2. Perform all tests required by Codes, Ordinances, and as specified herein, as well as demonstrations of operation for all equipment. Each final test to be witnessed by the City of New York or Commissioner. Give a minimum of seven (7) days written notice before performing tests.
3. Install all temporary and permanent equipment and instruments required for tests, as well as additional thermometer wells, gauge and instrument connections, at no additional cost to the City of New York.
4. Perform preliminary tests and repair all leaks before notifying the City of New York of final tests.
5. Repair leaks, damage, or defects discovered during or resulting from tests or replace to a like-new condition. Remove leaky pipe joints, ductwork, etc., and replace with acceptable materials. Retest systems repaired.
6. Maintain a log book of all tests, preliminary and final, showing dates, personnel, observers' initials, description of test, and test status. Provide updated log to City of New York each month throughout the construction period. Initial log submitted to include listing of all anticipated tests.
7. Testing, balancing, and adjusting will not relieve the Contractor of

the warranty requirements.

8. Furnish all fuel, water, and electricity required in performing the testing, balancing and adjustment of mechanical systems.
9. Clean all piping and ducts before testing. Refer to spec section 23-25-00.
10. Use calibrated test gauges with at least 4½" diameter dial. Gauge range not to be more than three (3) times test pressure.
11. Provide and demonstrate operation of all test equipment and apparatus required for the complete testing and inspection of all systems at such time and locations as may be directed by the Commissioner and/or by the authorities having jurisdiction.
12. When freezing is a hazard, take all precautions necessary to prevent damage. Correct any and all damage that results due to freezing at no expense to the City of New York.
13. All tests shall be successfully completed and approved prior to the application of insulation and prior to the concealment of any portion of the system being tested.

**B. Piping**

1. Before covering or enclosing piping of various systems, all piping must be tested tight for 4 hours. Start and coordinate testing to be completed by 4:30 PM on the day started. The maximum test pressure not to exceed 500 psig. Tests may be witnessed by the Commissioner if he so desires, and pronounced satisfactory before pressure is removed.
2. Equipment must be valved off during the test. Do not pressure test through new equipment if equipment pressure ratings cannot support the test pressure. Drain equipment and piping and protect against freeze-up anytime the ambient temperature is below freezing.
3. Mix water for each hydrostatic test with Nalco 41, or approved equal, to a ratio of fifty (50) gallons of Nalco 41 to 10,000 gallons of water, or a higher concentration if recommended by the chemical manufacturer. At least sixty (60) days prior to the start of hydrostatic leak testing, submit a two (2) foot long length of the typical piping installed on the project to Nalco or another chemical manufacturer acceptable to the City of New York, to determine the composition of the internal pipe coating. Provide injection pumps, water meters and coupon racks to control and monitor the concentration. After leak testing and a sufficient time period to allow the interior of the piping to be chemically coated to prevent



rust formation, drain the piping system until empty.

4. Test piping within conduit prior to encasement of joints.
5. Hydrostatically test water piping at 1.5 times actual maximum working pressure.
6. Hydrostatically test steam and condensate piping (less than 90 psig) for eight (8) hours at 150 psig.
7. Hydrostatically test steam and condensate piping (over 90 psig) for eight (4) hours at 1.5 times maximum working pressure.
8. In New York City all steam piping above 15 psig shall have welded joints 100% radiographed.
9. For all steam piping outside of New York City and above 15 psig, provide radiographic examination of 10% of all high pressure steam welds. City of New York to select welds to be tested. If any welds fail, test all other welds as directed by the City of New York at no cost to the City of New York.
10. Compressed Air Piping: Air test at 125% of relief valve setting of compressor but not exceeding 150 psig for four (4) hours.
11. Refrigerant Piping: Air test at 125% of maximum operating pressure but not exceeding 150 psig for four (4) hours.

C. Ductwork

1. Maximum system leakage shall not exceed 5% of system design capacity. When testing individual segments of a total system, prorate allowable leakage as follows:

$$\text{Maximum Leakage} = \frac{(\text{Surface Area of Test Section})}{(\text{Surface Area of System})} \times (.05) \times (\text{System CFM})$$

- a. Test recording form to include above calculation. When all sections of a system have been tested, submit confirmation that the sum of individual section surface areas is equal to the total system surface area.
2. Pressure tests shall be performed with a test blower. Rig with orifice plate. Test ducts/casings with positive pressure on the discharge side of the system fan and under negative pressure on the suction side of the system fan. Include testing of flexible runouts.

3. During construction, individually test each completed riser, each completed horizontal distribution section and each field erected casing/plenum, as required below.
4. Test ductwork as follows:
  - a. Low Pressure Ductwork (From -2 to +2 inches H<sub>2</sub>O inclusive):
    - (1) Exposed or Accessible: Visual and audible check for leaks that can be heard or felt under normal operating conditions.
    - (2) Concealed (i.e., within shafts and above sheetrock ceilings): Pressure test at 2 inches H<sub>2</sub>O (pos. or neg. as required).
  - b. Medium Pressure Ductwork (Below -2 inches and above +2 inches H<sub>2</sub>O): Pressure test at system pressure classification.

D. Equipment and Systems

1. Take vibration and alignment field measurements on every pump, fan and chiller over 1 HP. Readings shall include shaft alignment, equipment vibration, bearing housing vibration and foundation vibration. Building structure vibration shall be tested when directed by the Commissioner. Readings shall be made using portable IRD (or as approved) equipment capable of filtering out various unwanted frequencies. Maximum vibration at any point listed above, or where specified, shall not exceed 2 mils on air handling units and individual fans, and 2 mils on pumps, unless otherwise specified. Equipment manufacturers shall certify in writing that the field readings, which do not exceed the maximum specified, are acceptable to them.
2. Test each water chilling unit for refrigerant and air leaks at least two times; approximately six months after startup and at the end of the warranty period. The Contractor shall certify the condition of the refrigeration system in writing after each test. Seal any leaks detected and repeat the above test period. Use soap suds and Halide torch or electronic refrigerant detector for leak detection. Replace refrigerant and oil lost during warranty period at no cost to the City of New York.
3. Take sound level readings at twelve (12) locations in the building as selected by the Commissioner. Take the readings on an Octave Band Analyzer in a manner acceptable to the Project Acoustical Consultant and/or the Commissioner. Submit the test equipment data and reporting forms to the Commissioner for review at least three (3) months prior to the field testing. In order to reduce the

ambient noise level, take the readings at night. Perform all tests in the presence of the City of New York, Project Acoustical Consultant, and/or the Commissioner, if they so desire.

4. When each mechanical system is complete and functional, prove the capacity and performance of each item of equipment (i.e., fans, pumps, chillers, cooling towers, boilers, heat exchangers, etc.). Operate each item of equipment for a minimum of four (4) hours and record all associated operating data every 15 minutes (i.e., temperatures, flows, pressures, amps, volts, etc.). Verify all integral and external equipment controls and safeties are in proper working order. Complete system testing and demonstration to be done for both normal and emergency modes of operation. City of New York or Commissioner, including Commissioning Agent, may witness final tests.
5. Assist Contractor in demonstrating to City of New York or Commissioner, the proper operation of each control, monitor and alarm function of the Building Management System, and/or control system, along with all software routines. These functions and routines will be demonstrated from the front end and local panels under both normal and emergency power. Proper operation of battery back-up and downloading of software from the front end to the remote microprocessor panels will be verified. Coordinate with Controls Contractor all final testing and balancing readings to be incorporated into the Building Management System.
6. Demonstrate to City of New York or Commissioner, the proper operation of each control, monitor and alarm function of the control system, along with all software routines. Demonstrate these functions and routines from the front end and local panels under both normal and emergency power. Verify proper operation of battery back-up and downloading of software from the front end to the remote microprocessor panels.
7. Provide operation of all mechanical equipment required for systems testing by other trades (i.e., fuel oil systems, smoke exhaust systems, etc.).

### 3.2 ADJUSTMENT

#### A. General

1. Prior to start of air balancing, take traverse readings at all connections to building systems with all downstream dampers and VAV devices in fully open position and report results to Commissioner. Provide assistance if air quantities are below that shown on drawings.
2. Prior to start of water balancing, take ultra sonic flow readings at all

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connections to building systems with all downstream valves in full flow position and report results to Commissioner. Provide assistance if water quantities are below that shown on drawings.

3. After the entire installation has been completed, make required adjustments to balance valves, air vents, automatic controls, pumps, air dampers, VAV boxes, air distribution devices, pressure reducing valves, fans, sheaves, etc., until performance requirements are met. Make these adjustments with equipment operating. In addition, repeat these adjustments for each of the remaining three seasons of the year. During such periods of adjustment prior to the date of acceptance of the mechanical systems, operate equipment.
4. Permanently mark the balanced position of each balancing valve and damper on the pipe or duct or insulation.

B. Air Balancing

1. Adjust all air systems by AABC or NEBB certified contractor acceptable to the City of New York and Commissioner. Identify the proposed contractor to the City of New York.
2. Operate fan systems for as long a time as will be necessary to test air flow from openings, make necessary damper and other adjustments until even distribution is obtained, throughout the various systems, with the air quantities required at each outlet or inlet as shown on the Drawings. Make noise level measurements for the operation of mechanical equipment selected by the Commissioner in order to determine if the equipment produces excessive noise in occupied areas of the building.
3. Before any air balance work is done, test the system for duct leakage, install clean filters, check for correct fan rotation and equipment vibration, check automatic dampers for proper operation, and verify that all fire dampers are open.
4. Fans to be adjusted to deliver above system requirements to compensate for duct leakage.
5. Preliminary adjustment may be made prior to completion of systems; however, final balancing must be done with all systems completely installed and operating, including all air outlets and return grilles.
6. Record the pressure drop across the filters in air systems prior to balancing. Systems to be adjusted with clean filters.
7. Traverse main supply air ducts, using a pitot tube and manometer. Calibrate the manometer to read two (2) significant figures in all

velocity pressure ranges. A main duct is defined as any of the following:

- a. A duct serving five (5) or more outlets.
  - b. A duct serving two (2) or more branch ducts.
  - c. A duct serving a heating coil.
  - d. A zone duct from a VAV unit.
  - e. A duct emanating from a fan discharge or plenum and terminating at one or more outlets.
  - f. All supply and exhaust risers.
8. The intent of this operation is to measure by traverse the total air quantity supplied by the fan and to verify the distribution of air to zones.
  9. Submit data in support of all supply fan deliveries by the following four (4) methods:
    - a. By summation of the air quantity readings at outlets.
    - b. By duct traverses of main supply ducts.
    - c. By rotating vane traverse across a filter or coil bank.
    - d. By plotting revolutions per minute and static pressure readings on the fan curve. Air density corrections must be indicated.
  10. For return air and exhaust fans, the second and third methods listed above (b. & c.) can be omitted.
  11. Inspect fan scrolls and remove objects or debris. Inspect coils and remove debris or obstructions. Verify that all fire dampers are open and control dampers are in their proper position.
  12. Record the following design requirements for fans and fan motors from the design drawings and reviewed shop drawings:
    - a. Manufacturer, model and size.
    - b. Air quantities - cubic feet per minute.
    - c. Approximate fan speed - revolutions per minute.
    - d. Fan static pressure (total or external) - inches of water.

- e. Outlet velocity - feet per minute.
  - f. Fan brake horsepower.
  - g. Motor horsepower.
  - h. Volts, hertz, amperes and service factor at design conditions.
13. Record the following data from fans and fan motors installed at the project:
- a. Manufacturer, model and size.
  - b. Motor horsepower, service factor and revolutions per minute.
  - c. Volts, hertz, full load amperes and service factor.
  - d. Motor starter and heater size.
  - e. Equipment location.
14. Completely adjust fans and duct systems by the adjustment of sheaves, dampers, and other volume and diverting control devices, to obtain the air quantities indicated in the Contract Documents. Integral dampers in terminal outlets and inlets are not to be used for adjustment of duct branches. Adjust outside air and return air modulating dampers to admit the specified quantities of air under all cycles of operation. Adjust final air quantities within 5% of the design requirements. Balance air outlets with air pattern as shown on the Drawings.
15. Record the following test data for fans and fan motors installed at the project at final balanced conditions:
- a. Fan speed - revolutions per minute.
  - b. Fan suction, discharge and total static pressure (external or total) - inches of water.
  - c. Static pressure drops across filters, dampers, coils, washers and eliminators in the supply fan casings in inches of water.
  - d. Motor operating amperes and voltage per phase at operating conditions.
  - e. Fan cubic feet per minute as required above.

- f. Calculated brake horsepower.
16. Prepare single line diagrams of duct systems indicating terminal outlets identified by number. List on data sheets all such outlets denoted by the same numbers, including the outlet size, "K" factor, location, cubic feet per minute and jet velocity. Submit this data for supply, return and exhaust air systems.
  17. Adjust the minimum and maximum settings on all VAV and CV boxes.
  18. Adjust the outside air and return dampers to admit the required amounts of air under both summer and winter cycles. Record the outside, return and mixed air temperatures for both cycles after final adjustments.
  19. Adjust the minimum, maximum, return and exhaust/spill air dampers so that the respective fans deliver the correct cubic feet per minute at all damper positions. Should the observed air quantities be less than 95% or more than 105% of the specified amount, change driving pulley ratio to make acceptable changes to obtain the specified or scheduled air quantities.
  20. Balance and adjust supply air systems as follows:
    - a. Systems installed with trunk ducts only, with no air outlets, to be balanced by adding a volume damper at each end of the trunk duct (minimum of two (2) dampers per system if duct is looped). Make adjustments to the air handling units as required to deliver the volume of air within 10% of design flow at the static pressure and cold air supply temperature shown on the Drawings. Remove dampers and seal or re-cap openings after reports have been accepted by City of New York.
    - b. Systems installed with main duct capped at wall of fan room will be balanced by installing an opposed blade damper at each capped connection. Make adjustments as required to deliver the volume of air within 10% of design flow at the static pressure and cold air supply temperature shown on the Drawings. Remove dampers and re-cap openings after reports have been accepted by City of New York.
    - c. Systems installed partially complete will be balanced by installing a volume damper in duct allocated for remaining portion of system. Make adjustments as required to deliver the volume of air within 10% of design flow at the static pressure and cold air supply temperature shown on the Drawings. Remove damper and re-cap or seal openings after reports have been accepted by City of New York.

- d. Balance and adjust supply air systems installed in finished areas of the building (except for areas with inaccessible ceiling construction) as follows:
    - (1) After duct systems have been installed complete with all grilles, dampers, ducts, coils, automatic temperature controls, and other items hereinafter specified, make the adjustments to the air handling units and all outlets as required to deliver the volume of air within 5% of design flow as shown on the Drawings with design cold duct temperatures. After the finished area is occupied, readjust the air volumes if required, to properly balance the cooling and heating loads throughout the conditioned areas.
  - e. Balance and adjust completed supply air systems installed in areas with inaccessible ceilings as follows:
    - (1) After duct systems have been installed complete with all dampers, ducts, coils, and other items hereinafter specified, except for final connection to grille or air outlet, and prior to inaccessible ceiling installation, make adjustments, as required, to deliver the volume of air at each interior and perimeter air tap proportionally within 5% of design flow as shown on the Drawings.
    - (2) After each duct system has been adjusted, securely lock each manual damper, splitter, spin-in damper, etc., with sheetmetal screws prior to installation of ceiling.
    - (3) Submit balancing reports to the Commissioner for review and comment as specified hereinafter, prior to the installation of the inaccessible ceiling. Do not conceal duct system prior to the receipt of an air balance report which has been accepted by the City of New York for the system.
    - (4) After ceiling installation, install each air outlet with air patterns as shown on the Drawings. Make final air balance adjustment by increasing or decreasing the air handling fan powered terminal unit fan rpm.
21. The contractor shall visit the project site as often as necessary prior to the start of balancing procedures to verify that the duct systems have been properly installed complete with all grilles, dampers, ducts, coils, etc., and that the return air paths through walls, grilles, lighting fixtures, and slot diffusers are completely open and



unobstructed. The contractor shall also verify that adequate access to equipment and balancing devices has been provided and that the temporary plastic coverings on the lighting fixtures used for supplying conditioned air have been removed. The contractor shall submit a written report to the Commissioner and City of New York within one (1) week after each visit.

22. For balancing air outlets, use a flow hood for the air balance. The instrument to be complete with a flow hood kit complete with flow hood tops specifically designed to accurately measure the air outlets specified for this project. The flow hood's accuracy and the instrument calibration for measuring the air flow from the air distribution device specified for the project must be verified in an independent testing laboratory acceptable to the City of New York and Commissioner.
23. For garage supply and exhaust, all smoke supply and exhaust, toilet exhaust, and other exhaust air systems have been installed complete with all ductwork, grilles, dampers, fans, and other items as hereinafter specified, make adjustments, as required to deliver the volumes of air at each inlet or outlet within 10% of design flow.
24. After all miscellaneous ventilation systems have been installed complete with all duct, grilles, louvers, dampers, fans, and other items as hereinafter specified, make adjustments, as required to deliver to volumes of air, or differential static pressures in the case of the pressurization fans, at each air inlet and/or outlet within 10% of design flow.

3.3 FINAL REPORT

- A. If the work is completed during the heating season, perform the final tests of cooling equipment the following summer; if completed during the summer, perform test on heating system the following winter.
- B. After each seasonal adjustment is made, prepare a detailed report and submit to the Commissioner for approval.
- C. Demonstrate to the Commissioner and City of New York, prior to acceptance by the City of New York, that all systems and/or equipment have been balanced and adjusted properly, and that the system and/or equipment is in compliance with the Contract Documents.

END OF SECTION

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January 5, 2015

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SECTION 23 07 00

INSULATION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide thermal insulation in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Piping Insulation.
- B. Duct Insulation.
- C. Equipment Insulation.

1.3 SUBMITTALS

- A. Shop Drawings: Submit list of insulation to be used for each service.
- B. Product Data: Manufacturer's latest published data for materials, "R" values and installation.
- C. Provide BS&A or MEA numbers.

1.4 QUALITY ASSURANCE

- A. All insulating materials to be free of asbestos.
- B. Comply with all requirements of ASTM for thermal and moisture transmission.
- C. Provide insulation (including insulation jacket or facing and adhesives used to adhere the facing or jacket to the insulation) with non-combustible material meeting Code requirements and fire and smoke hazard ratings as tested by procedure ASTM E-84, National Fire Protection Association 255, and UL 723, not exceeding flame spread 25 and smoke developed 50. Adhesives, mastics, cements, etc. shall not exceed the same component ratings. Foam glass insulation to be manufactured in accordance with ASTM C552.
- D. All insulating products and coverings to be U.L. listed.
- E. All insulation thicknesses shall be at least the minimum thickness required by AHRAE 90.1 – 2001 for the respective services, materials and project location.

- F. Insulation materials, including all weather and vapor barrier materials, closures, hangers, supports, fitting covers, and other accessories, shall be furnished and installed in strict accordance with project drawings, plans, specifications and manufacturer's requirements.
- G. Insulation materials and accessories shall be installed in a workmanlike manner by skilled and experienced workers who are regularly engaged in commercial insulation work.

**1.5 DELIVERY AND STORAGE OF MATERIALS**

- A. All of the insulation materials and accessories covered by this specification shall be delivered to the job site and stored in a safe, dry place with appropriate labels and/or other product identification.
- B. The contractor shall use whatever means are necessary to protect the insulation materials and accessories before, during, and after installation. No insulation material shall be installed that has become damaged in any way. The contractor shall also use all means necessary to protect work and materials installed by other trades.
- C. If any insulation material has become wet because of transit or job site exposure to moisture or water, the contractor shall not install such material, and shall remove it from the job site.

**PART 2 - PRODUCTS**

**2.1 PIPE INSULATION**

**A. Materials**

- 1. When the temperature of a fluid falls within the following temperature ranges at any time during the system cycle, provide the insulation thickness indicated.

Service	Temp. Range °F	Material	Insulation Thickness In Inches for Pipe Sizes In Inches				
			less than 1 in.	1 in. to less than 1-1/2 in.	1-1/2 in. to less than 4 in.	4 in. to less than 8 in.	8 in. and larger
Steam (125 psig and higher) and HTHW	351 to 450	Glass Fiber	2-1/2	3	3	4	4
Steam (16 psig to 124	251 to	Glass Fiber	2	2-1/2	3	3	3

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Service	Temp. Range °F	Material	Insulation Thickness In Inches for Pipe Sizes In Inches				
			less than 1 in.	1 in. to less than 1-1/2 in.	1-1/2 in. to less than 4 in.	4 in. to less than 8 in.	8 in. and larger
psig) and MTHW	350						
Steam (15 psig and lower), steam condensate and boiler feed water.	201 to 250	Glass Fiber	1-1/2	1-1/2	2	2	2
Hot Water and glycol	141 to 250	Glass Fiber	1-1/2	1-1/2	2	2	2
Hot Water and glycol	105 to 140	Glass Fiber	1	1	1	1-1/2	1-1/2
Water, glycol, brine	40 to 60	Glass Fiber	1/2	1	1	1	1
Chilled water, glycol, brine	Below 40	Glass Fiber	1	1-1/2	1-1/2	1-1/2	1-1/2
Condensate drains above hung ceilings and in shafts	-	Glass Fiber	1/2	1/2	1/2	1	1
Refrigerant	Below 40	Glass Fiber	1	1-1/2	1-1/2	--	--
Domestic Fresh Water	-	Glass Fiber	1	1	1	1	1
Refrigerant hot gas (exposed)	Above 100	Glass fiber	1/2	1/2	1/2	-	-
Water, Brine Glycol	60 and below	Foam Glass	1	1	1	1 1/2	2

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Service	Temp. Range °F	Material	Insulation Thickness In Inches for Pipe Sizes In Inches				
			less than 1 in.	1 in. to less than 1-1/2 in.	1-1/2 in. to less than 4 in.	4 in. to less than 8 in.	8 in. and larger

- B. Provide insulation materials and thickness for steam piping and metering equipment at the building service entry in accordance with Utility Company requirements.
- C. Fiberglass Density: Fiberglass pipe insulation in equipment rooms and/or where exposed to be of the sectional type having 6 lbs./cu. ft. density. Other fiberglass insulation to be of the 1-piece type with at least 4 lbs./cu. ft. density.
- D. Thermal conductivity of fiberglass to be .23 BTU/hr/inch/sq.ft./°F/at a mean temperature of 75°F.
- E. Foam glass density to be 8 lbs/cu. ft.
- F. Thermal conductivity of calcium silicate to be .32 BTU/hr/inch/sq.ft./°F/at a mean temperature of 100°F.
- G. Thermal conductivity of foam glass to be .32 BTU-in/hr.ft.2 °F at a mean temperature of 75°F.
- H. Insulation Jackets
  - 1. Concealed pipes carrying fluids 105°F and above. Factory applied white fire retardant jacket, (ASJ), stapled and banded. Pipes banded with not less than 3 bands per section.
  - 2. Exposed pipes carrying fluids 105°F and above. Factory applied white fire retardant jacket, (ASJ), with butt strips stapled and banded. Pipes banded with not less than 3 bands per section.
  - 3. Pipes carrying fluids 60°F and below up to 14 inches. Factory applied white fire retardant vapor barrier jacket with self-sealing lap (ASJ) and butt strip. Ends of pipe insulation sealed off at valves, fittings and flanges with I.C. 301 or FB 30-35).
  - 4. Pipes carrying fluids 60°F and below over 14 inches. Factory applied white fire retardant vapor barrier jacket (ASJ) sealed with I.C. 215 (or BF 82-07) adhesive. All circumferential joints wrapped with a 3 inch wide strip of white fire retardant jacket adhered with I.C. 215 (or BF 72-07) adhesive. Ends of pipe insulation sealed off at valves,

fittings and flanges with I.C. 301 (or BF 30-35).

5. Finish calcium silicate with glass cloth adhered with I.C. 501 or BF 30-36.
6. Vapor barrier jacket permeability to be 0.02 perms.
7. Jacket Puncture Resistance to be 50 units (Beach).
8. When multiple layers are required, all inner layer(s) shall be No Wrap.
9. On cold systems, vapor barrier performance is extremely important. All penetrations of the ASJ and exposed ends of insulation shall be sealed with vapor barrier mastic. If humidities in excess of 90% are expected, the ASJ shall be protected with either a mastic coating or a suitable vapor retarding outer jacket. Vapor seals at butt joints shall be applied at every fourth pipe section joint and at each fitting to provide isolation of water incursion.

I. Fittings, Valves and Flanges

1. Where manufactured, use factory premolded fittings (of the same material and thickness as the pipe insulation) for fittings, flanges and valves.
2. Where premolded insulation fittings are not manufactured, insulate fittings, flanges and valves with mitered segments of the same thickness and density as the adjoining pipe covering.
3. On cold systems, particular care must be given to vapor sealing the fitting cover or finish to the pipe insulation vapor barrier. All valve stems shall be sealed with caulking to allow free movement of the stem but provide a seal against moisture incursion.

J. Piping located outdoors and exposed to the weather shall be insulated as indicated above. The insulation shall then be protected with the following weatherproof finishes:

1. Metal jacketing shall be 0.016" (0.4 mm) minimum aluminum or stainless steel with moisture barrier, secured in accordance with the jacket manufacturer's recommendations. Joints shall be applied so they will shed water and shall be sealed completely.
2. UV resistant PVC jacketing may be applied in lieu of metal jacketing provided jacketing manufacturer's limitations with regard to pipe size, surface temperature, and thermal expansion and contraction are followed.
3. Fittings shall be insulated as prescribed above, jacketed with preformed fitting covers matching outer jacketing used on straight pipe sections, with all joints weather sealed.

4. On outdoor chilled water and refrigerant lines, the insulation system shall be completely vapor sealed before the weather-resistant jacket is applied. The outdoor jacket shall not comprise the vapor barrier by penetration of fasteners, etc. Vapor stops at butt joints shall be applied at every fourth pipe section joint and at each fitting to provide isolation of water incursion.

**2.2 DUCTWORK INSULATION**

**A. Glass Fiber Blanket**

1. Glass fiber blanket insulation shall be insulated with 0.75 pcf (12 kg/m<sup>3</sup>) density, FSK-faced fibrous glass duct wrap insulation having a k-value of .28 Btu•in/(h•ft<sup>2</sup>•°F).
2. The duct wrap insulation shall consist of a blanket-type insulation composed of wool-type glass fibers firmly bonded with a thermosetting resin. Duct wrap material shall be factory-laminated to a scrim reinforced, foil-kraft (FSK) vapor retarder facing have a 2" (51 mm) stapling flange on one edge.
3. When installed in accordance with recommended installation procedures, duct wrap insulation shall provide installed R-values as follows:

<u>DENSITY</u>	<u>LABELED THICKNESS</u>	<u>INSTALLED R-VALUE</u>
.75# (12 kg/m <sup>3</sup> )	1-1/2" (38 mm)	4.2
.75# (12 kg/m <sup>3</sup> )	2" (51 mm)	5.6
.75# (12 kg/m <sup>3</sup> )	2-1/8" (54 mm)	6.0
.75# (12 kg/m <sup>3</sup> )	2-1/4" (57 mm)	6.5
.75# (12 kg/m <sup>3</sup> )	2-1/2" (64 mm)	7.0
.75# (12 kg/m <sup>3</sup> )	3" (76 mm)	8.5
1.0# (16 kg/m <sup>3</sup> )	1-1/2" (38 mm)	4.5
1.0# (16 kg/m <sup>3</sup> )	2" (51 mm)	6.1
1.5# (24 kg/m <sup>3</sup> )	1-1/2" (38 mm)	4.8
1.5# (24 kg/m <sup>3</sup> )	2" (51 mm)	6.4

**B. Fiberglass Duct Board**

1. Material to be high-density fiberglass duct board with foil kraft laminate facing, reinforced with scrim. Maximum thermal conductivity (K-value) at 75°F (24°C mean temperature to be 0.23 Btu – in/hr. – sq. ft. -°F (0.035 w/m - °C) when tested in accordance with ASTM C518 or ASTM C177.



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C. Application

<b>Service</b>	<b>Material</b>	<b>Insulation Thickness (inches)</b>
Heated or Cooled Supply Air Ducts, concealed in unconditioned spaces, including shafts and hung ceilings	Glass Fiber Blanket	1-1/2
Heated or Cooled Supply Air Ducts, in hung ceilings used as Return Air Plenums	Glass Fiber Blanket	3/4
Heated Supply Air Ducts exposed in unheated space	Glass Fiber Board	1-1/2
Cooled Supply Air Ducts exposed in unconditioned space	Glass Fiber Board	1-1/2
Return & Relief Air Ducts from heated or cooled spaces in unconditioned spaces including shafts and hung ceilings.	Glass Fiber Blanket	1
Return and relief air ducts from heated or cooled spaces in exposed locations.	Glass Fiber Rigid Board	1
Outside Air Intake Ducts & Plenums from intake louver to supply system	Glass Fiber Rigid Board	1-1/2
Outside air ducts in shafts.	Glass Fiber Blanket	1-1/2
Outside air ducts in hung ceilings	Glass Fiber Blanket	2 layers – 1-1/2 in. each
Unused portion of louvers where blanked off with sheetmetal	Glass Fiber Rigid Board	1-1/2
Exhaust or Relief Air Ducts from automatic louvered damper to discharge at exterior openings	Glass Fiber Rigid Board	1

D. Rigid Glass Fiber Board to be six (6) pound per cu. ft. density with factory applied white fire retardant jacket (ASJ). Apply with mechanical fasteners. Seal joints and breaks.

E. Kitchen Range Hood Exhaust: Calcium silicate wired on duct with joints pointed.

- F. Boiler Stacks and Breechings: Calcium silicate wired over 1 inch high rib lath.
- G. Ventilating systems (which are neither heated nor cooled) supply ducts need not be insulated.

**2.3 EQUIPMENT INSULATION**

**A. Materials**

<b>Service</b>	<b>Material</b>	<b>Insulation Thickness (inches)</b>
Steam valves	Custom Fit Cover	2

- B. Hot Equipment: Glass fiber board, 6 pounds per cu. ft. density or calcium silicate block. Finish with 1/2 inch thick cement over copper clad hexagonal wire.
- C. Cold Equipment: Glass fiber vaporseal board, 6 pounds per cu. ft. density faced with FRK jacket. Finish with 1/2 inch thick cement over vaporseal mastic and copper clad hexagonal wire.

**2.4 CUSTOM FIT COVERS**

A. **Materials:** All materials shall be new and undamaged. "Off spec" materials shall not be acceptable. Trade names and manufacturers referred to in this specification are intended to ensure a minimum quality of materials for construction. Any supplier or manufacturer not listed shall be submitted for approval before construction. Detailed information on fire resistance, thermal efficiencies, tensile strength and tear strengths shall be made available by a representative of the company upon request.

**B. Components:**

1. **Cover**

- Inner Jacketing: 18 oz. color-coded Teflon fiberglass cloth.
- Gussets: 18 oz. color-coded Teflon fiberglass cloth.
- Insulation: Chilled water systems: 2" thick fiberglass insulation
- Steam and Hot Water Systems: 2" thick 8# Ceramic-wool insulation.
- Outer Jacketing: 18 oz. color-coded Teflon fiberglass cloth.
- Sewing Thread: .021-20# tensile strength Teflon coated fiberglass thread.
- Steam Attachments: 18 oz., color-coded Teflon belts with stainless steel double D-rings and Velcro

I.D. Tags: tabs.  
304 stainless steel plate with ¼" embossed lettering. The tags shall be of sufficient size to allow imprinting of the vital identification legend and shall be permanently attached to the insulation cover with stainless steel rivets.

Terminal Ends: 18 oz. color-coded Teflon cloth flaps with Nomex drawcord.

All Hardware: 304 stainless steel.

2. Innerjacketing, Gussets, Outer Jacketing, Seam Attachment and Terminal Ends

Material shall be of impregnated Teflon fiberglass cloth with a nominal weight of at least 18 oz. per square yard and a service temperature rating of at least 550°F. Teflon coated fiberglass cloth shall be orange, yellow, dark green and dark blue in color manufactured by one of the following:

Manufacturer:	Trade Name:
Alpha Associated, Inc.	FCF 1800
Textiles Coated, Inc.	EJ 1800 TM

3. Insulation

Ceramic wool insulation shall be 2" thick and shall have a density of not less than 8# per cubic foot. Ceramic insulation shall be manufactured by one of the following:

<u>Manufacturer:</u>	<u>Trade Name:</u>
Premier Refractories & Chemicals	Cerea-WoolR
Great Lake Textiles	K-Lite RT

4. D-Rings

D-rings for use with seam attachment shall be welded double D-shaped rings of .12" or greater diameter Type 304 stainless steel wire.

5. Velcro

The Velcro fastening system for securement of loose strap ends and closing system for small covers shall be of heat and flame resistant nylon. This material shall be a minimum of 1" wide and suitable for attachment by sewing. The Velcro shall be manufactured by the following:

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Manufacturer:

Trade Name:

Velcro USA, Inc.  
Aplix, Inc.

Hook #80, LOOp#2000  
Aplix 820

6. Draw Cord

7. The draw cord for cinching of cover terminal ends around adjacent insulation, valve packing, etc., shall be of 3/16" braided Nomex cord.

8. Sewing Thread

9. This material shall be .021 – 20# tensile strength teflonR coated fiberglass suitable for machine stitching, and have a service temperature rating of at least 600F. The thread shall be manufactured by one of the following:

Manufacturer:

Trade Name:

Alpha Associates, Inc.  
Filtech

Alpha D1-18  
Style E-18

10. Identification Tags

11. The identification tags shall be of Type 302 or 304 stainless steel plate with 3 inch embossed lettering. The tags shall be of sufficient size to allow imprinting of the vital identification legend and shall be permanently attached to the insulation cover with stainless steel rivets.

C. Construction

1. Covers shall be constructed as a preformed single piece cover and the closing seam shall be located at the gravitational bottom.

2. All valves covers shall be manufactured as one (1) piece body and bonnet.

3. Individual covers thereof shall not weight more than 75#. All seams shall be sewn using a locked stitch with a minimum of eight (8) stitches per inch. The thread must be able to withstand the full process temperature without degradation.

4. Hog rings or staples shall not be used as a method of seam closure.

5. Insulation within the jacket shall be held in place with stainless steel quilt pins to prevent shifting.

6. Quilt pins shall not pierce the outer skin of the covers.

7. Cinch belts and Velcro flap shall be used to hold the cover in place. Belts shall be made of outer jacket materials and two stainless steel D-ring fasteners. Velcro hook and loop fasteners shall be used to secure end of belts to cover after cinching.
8. Belts and D-Rings and Velcro flaps shall be used on all parting faces. Securement of the belts and Velcro flap traps to the weather barrier (outer skin of the cover) shall be sewn to the cover and shall be sufficient to withstand the stress of removing and reinstalling the cover. Belts length and the number of straps utilized shall be sufficient to affect a snug and proper fit without gaps or sagging of the cover.
9. Each cover shall have a S.S. tag affixed to it identifying it's type, size and location.

2.5 ACCEPTABLE MANUFACTURERS

A. Insulation

1. Owens-Corning Fiberglass
2. Johns-Manville
3. Armstrong
4. Certain-Teed
5. Knauf

B. Adhesives and Sealers

1. Benjamin Foster (H.B. Fuller Co.)
2. Rubatex
3. Minnesota Mining and Mfg. Co. (3M)

C. Custom Fit Covers

1. Techhorizons of America

**PART 3 - EXECUTION**

**3.1 INSTALLATION OF INSULATION - GENERAL**

- A. Perform work in strict accordance with the manufacturer's recommendation and the best practice of the trade and the intent of this specification.
- B. Ensure that insulation is clean, dry, and in good mechanical condition with all factory-applied vapor or weather barriers intact and undamaged. Wet, dirty, or damaged insulation shall not be acceptable for installation.
- C. Apply insulation over clean dry surface, butting sections or surfaces firmly together and finishing as specified.
- D. Seal vapor barriers in a continuous manner throughout against moisture penetration.
- E. Insulation to be continuous through wall, floor and ceiling openings or sleeves. Do not cover any nameplates or identification tags.

**3.2 INSULATION OF DUCT WORK AND FITTINGS**

- A. No insulation shall be installed until ductwork has been pressure tested or leak tested as specified elsewhere to the satisfaction of the Commissioner.
- B. Before applying duct wrap, steel metal ducts shall be clean, dry, and tightly sealed at all joints and seams.
- C. All portions of duct designated to receive duct wrap shall be completely covered with duct wrap.
- D. To ensure installed thermal performance, duct wrap shall be cut to "stretch-out" dimensions as follows (P = perimeter of duct in inches/mm):

Labeled Thickness	Average Installed Thkns.	Thickness Calculation To Arrive at Correct Installed Thickness		
		Round Duct	Square Duct	Rectangular Duct
1-1/2" (38 mm)	1.125 (29 mm)	P+ 9.5" (241 mm)	P+ 8.0" (203 mm)	P+ 7.0" (178 mm)
2" (51 mm)	1.5" (38 mm)	P+ 12.0" (305 mm)	P+ 10.0" (254 mm)	P+ 8.0" (203 mm)
2-1/4" (57 mm)	1.69" (43 mm)	P+ 13.5" (343 mm)	P+ 11.5" (292 mm)	P+ 9.0" (229 mm)
2-1/2" (64 mm)	1.88" (48 mm)	P+ 14.5" (368 mm)	P+ 12.5" (318 mm)	P+ 9.5" (241 mm)
3" (75 mm)	2.25" (57 mm)	P+ 17.0" (432 mm)	P+ 14.5" (368 mm)	P+ 11.5" (292 mm)

- E. A 2" (51 mm) piece of insulation shall be removed from the facing at the end of the piece of insulation to form an overlapping stapling and taping flap
- F. Install duct wrap insulation with facing outside so that the stapling flap overlaps the insulation and facing at the other end of the piece of duct wrap. Adjacent sections of duct wrap insulation shall be tightly butted, with the 2" (51 mm) stapling and taping flap overlapping. If ducts are rectangular or square, install so insulation is not excessively compressed at corners. Seams shall be stapled approximately 6" (152 mm) on center, with ½" (13 mm) minimum, steel, outward-clinching, staples.
- G. Where a vapor barrier is required, seams shall be sealed with pressure-sensitive tape matching the insulation facing, either plain foil or fil-scrim-kraft (FSK). Seal all tears, punctures, and other penetrations of the duct wrap facing with tape or mastic to provide a vapor-tight system.
- H. Wherever external duct insulation is specified and internal acoustic treatment of equivalent insulating effect is also required (by Drawings or Specifications) for the same location, the external insulation may be omitted.
- I. Cover ductwork exposed to outdoor conditions, including spaces ventilated with outdoor air, with an additional 2-inch thickness of rigid glass fiber board 6 lbs./cu.ft., faced with factory applied all-service jacket, Johns-Manville Type 817 Spin-glas AP, or as approved.
- J. Apply vaporseal board by mechanical fasteners such as Graham pins and speed washers. Seal joints with an adhesive, as approved and reinforced with a glass cloth membrane over vinyl mastic, or self-sealing matching tape. Butter pinheads with an adhesive, as approved. If vaporseal board is wired, use tin edges to protect the corners of the board. Seal edges and joints.
- K. Enclose removable heads for equipment, (such as coolers, heat exchangers and horizontally split pumps) in aluminum sheetmetal boxes for easy removal with fiberglass board applied to inside of sheetmetal boxes of thickness as described above. Provide lifting handles for removal of boxes.
- L. Install equipment insulation furnished loose by the equipment manufacturer in accordance with manufacturer's instructions.

### 3.3 PIPING INSULATION

- A. No insulation must be installed at fittings and joints until the piping systems have been hydrostatically tested as specified elsewhere to the satisfaction of the Commissioner.
- B. Provide insulation for removable flanges of pipe strainers on cold services with built-up sections of glass fiber pipe covering, arranged to facilitate

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servicing of the strainer. Complete applications with vaporseals. Vapor barriers to be sealed and continuous through hangers, walls, sleeves, etc. Adhesives and coatings to be as noted herein.

- C. Insulate fittings, flanges, valves, etc. for services where calcium silicate insulation is specified with mineral wool cement of equal thickness to the pipe insulation and finished with glass cloth.
- D. Piping Exposed to Outdoor Conditions, Pipes in Spaces that are not heated and Pipes Subject to Freezing: Cover piping with an additional layer of 2 inches glass fiber insulation of the same finish as specified for the particular service in paragraph 2.1, but not less than 3 inches total thickness. All piping subject to freezing will be insulated with a minimum of 2" fiberglass.
- E. Insulate heat-traced piping as specified for piping exposed to outdoors. Cover with an aluminum jacket, as specified for piping exposed to the outdoors.
- F. Notify Contractor of any leaks in pipe or joints. Do not insulate until leaks have been repaired. Replace all insulation dampened by leaks.
- G. Apply prefabricated sectional insulation for straight pipes neatly fitted around the piping, and sealed with adhesive. Apply adhesive to only one side of each joint and not to pipe surface.
- H. Seal all joints with Foster 30-35 fire resistant vapor barrier mastic. Where required, oversized pipe sections or board type insulation may be used to fabricate and install insulation around pipe specialties. All void space must be firmly filled with flexible insulation to support oversized pipe insulation.
- I. Maintain the integrity of factory-applied vapor barrier jacketing on all pipe insulation, protecting it against puncture, tears or other damage. All staples used on cold pipe insulation shall be coated with suitable sealant to maintain vapor barrier integrity.
- J. Secure sectional insulation with 0.02" thick by 1/2" wide aluminum bands manufactured by Childers, or Thomas & Betts "TY-RAP" nylon ties, on 24" centers for pipe sizes 2" and larger. Install at least two (2) bands per section of insulation.
- K. Insulate cold water ball valves with 3/4" thick flexible elastomeric sheet insulation (ASTM C534) or approved equal as detailed on the Drawings. Finish insulation with two (2) coats of Rubatex 374 coating.
- L. Insulate cold water vertical riser support clamps.
- M. Insulate and thoroughly vapor seal control valve bodies where the valve actuator penetrates the insulation.



- N. Replace any self-sealing insulation and/or lap that is found to be not sealing properly. Do not use staples to secure the insulation, lap, or coverings.
- O. Thermal Insulation for Engine Exhaust Piping
  - 1. Insulate entire engine exhaust pipe, from the engine expansion connection to the muffler to outside the building, with three (3) layers of 1½" thick hydrous calcium silicate non-asbestos insulation (ASTM C533), installed over spacers to allow a 1" air space between pipe and insulation.
  - 2. Stagger joints for the first, second and third layers.
  - 3. Apply aluminum jacket (ASTM B209) over outer layer of insulation as specified for piping exposed to weather.
  - 4. Insulate exhaust muffler in the same manner as the exhaust piping.
  - 5. Wrap or pack all protrusions through the insulation with refractory fiber. Seal all joints and cracks over 1/8" wide.
  - 6. Provide expansion joints in the insulation and aluminum jacket as recommended by the manufacturer to allow for differential expansion between the exhaust pipe, insulation and jacket.

#### 3.4 FINISHING OF INSULATION

- A. Finish hot service pipe fittings and valve applications with open weave glass mesh adhered with I.C. 501 (or BF 30-35). Vaporseal for cold applications with I.C. 501 (or BF 30-35) adhesive with open weave glass mesh laid in while wet with final coat with I.C. 501 (or BF 30-35) adhesive. Overlap glass mesh and outer coat adjacent covering by at least 2 inches. Do not insulate flanges until systems are operational.
- B. Where insulation on kitchen exhaust ducts, diesel engine exhaust, boiler stacks and breeching is exposed, finish with two (2) coats of cement over hexagonal copper clad steel wire. Finish to be at least 1/2 inch thick.

#### 3.5 PROTECTION OF INSULATION

- A. Protect pipe covering at hangers, guides, and roller supports with 16 gauge galvanized metal shields or saddles (at least 3 times the insulation diameter in length and 1/3 the insulation circumference in width) on the outside of the insulation and vapor barrier. Hold shields in place with straps. Do not pierce the insulation with hangers. Where glass fiber insulation is used on piping 3 inches and larger, provide half-section of calcium silicate covering of equal thickness at metal shields.
- B. Piping Exposed to Outdoors: Cover insulated piping exposed to outdoors or called for to be weatherproofed, in addition to finishes specified, with an

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aluminum jacket similar to Johns-Manville "Metal-Lok" or as approved, including all fittings.

- C. Exposed insulated piping in parking garages shall be provided with an aluminum insulation jacket similar to "Johns-Manville" "Metal-Lok."
- D. Exposed insulated piping in mechanical equipment rooms located 8 feet or less above the floor or where subject to traffic shall be provided with an aluminum insulation jacket similar to Johns-Manville "Metal-Lok".

**3.6 INSPECTION**

- A. Upon completion of installation of duct wrap and before system operation is to commence, visually inspect the system and verify that duct insulation has been correctly installed.
- B. Open all system dampers and turn on fans to purge all scraps and other loose pieces of material from the duct system. Allow for a means of removal of such material from the duct system.
- C. Check the duct system to ensure that there are no air leaks through duct joints.
- D. Fill surface imperfections such as chipped edges, small joints or cracks and voids or holes with insulation material and smooth all such areas with a skim coat of insulating cement.

**3.7 SAFETY PRECAUTIONS**

- A. Contractor's employees shall be properly protected during installation of all insulation. Protection shall include proper attire when handling and applying insulation materials, and shall include (but not be limited to) disposable dust respirators, gloves, hard hats, and eye protection.
- B. The contractor shall conduct all job site operations in compliance with applicable provisions of the Occupational Safety and Health Act, as well as with all state and/or local safety and health codes and regulations that may apply to the work.

END OF SECTION

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SHEETMETAL

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide all ductwork required to make the various air conditioning, ventilating and heating systems complete and ready for operation in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. General Ductwork.
- B. Round Duct.
- C. Duct Accessories.
- D. Flexible Duct.
- E. Outdoor Duct.
- F. Belt Guards.
- G. Access Doors.
- H. Flexible Connections.
- I. Plenums.
- J. Louvers.
- K. Drain Pans.
- L. Duct Sealant.

1.3 SUBMITTALS

- A. Shop Drawings
  - 1. Submit sheetmetal shop details for approval before any duct layouts are submitted for review. Shop drawings will not be acted on before shop details have been reviewed.
  - 2. Submit layouts of all ductwork drawn to a scale of 3/8" to the foot for approval.

3. Submit drawing of location and size of sleeves for openings in floors and walls.
4. Prior to ductwork fabrication, submit to the Commissioner for review, complete certifications and data (in the English language) on all sheetmetal materials manufactured outside the United States.
5. Sheetmetal ductwork drawings serve as the base sheets for the Contractor Coordination Drawings. Submit ductwork shop drawings for review as required by this specification.

**B. Samples**

1. Submit samples of flexible ducting and special materials, as required by the Commissioner.

**1.4 QUALITY ASSURANCE**

- A. Construct ductwork according to the pressure-velocity classifications established by SMACNA, and as called for on the duct drawings.
- B. Construct ductwork in accordance with Table 1-5 of the 1995 SMACNA Manual for 2" static pressure ductwork and Table 1-6 of the 1995 SMACNA Manual for 3" static pressure ductwork, with the exception that tie rods may not be utilized in ductwork 60" wide and smaller.
- C. Provide flexible duct assembly listed as Class 1 air duct by the Underwriters Laboratories under UL-181 "Standard for Factory-Made Air Duct Material and Air Duct Connections" at a flame spread of not over 25 and a smoke developed rating of not over 50 complying with NFPA Standard 90A.
- D. Flexible air ducts to have a heat loss per foot of duct as measured by Air Diffusion Council Flexible Air Duct Test Code FD 72-R1 and be UL listed as Class I under UL-181.
- E. Comply with OSHA standards and requirements.

**PART 2 - PRODUCTS**

**2.1 GENERAL DUCTWORK**

- A. Construct sheetmetal ductwork of galvanized iron of gauges specified in SMACNA Tables 1-4 to 1-9, unless otherwise called for on the Drawings.
- B. Unless otherwise indicated or specified, construct all sheetmetal ductwork in accordance with the HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE, Second Edition, 1995, published by the Sheetmetal and Air Conditioning Contractors National Association, Inc.,

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and herein referenced as the SMACNA Manual. Various page numbers, table numbers, plate numbers, detail numbers, and figure numbers herein cited refer to this edition of the SMACNA Manual. Install all ductwork in accordance with the arrangements and sizes shown on the Drawings and as specified herein.

- C. Construct low pressure ductwork of "lock forming quality" galvanized steel of the gauge thickness listed in Tables 1-5 for the pressure class indicated of the 1995 SMACNA Manual with gauge tolerances as listed in Appendix A-2 of the 1995 SMACNA Manual. Comply with ASTM A-525 for all steel with a hot dipped galvanized coating weight that complies with the G90 section of ASTM A525 and ASTM 90.
- D. Construct all ducts exhausting humid air from dishwashers, glasswashers, showers, driers, and as called for on the drawings of type 316 welded stainless steel. On horizontal ducts provide pan construction with longitudinal seams at the side or on top. Provide drain pipes to indirect waste at all low points of the ductwork.
- E. Construct all ductwork exposed, or concealed in non-ventilated ceilings, in pool areas of 316 stainless steel.
- F. For rectangular ductwork, use radius elbows without vanes with centerline radius equal to  $1\frac{1}{2}$  times duct width. Where space is limited, use either curved elbow with single vane and with centerline radius not less than width of duct, or use square vaned elbow. For square elbows, use single thickness vanes for ducts up to 18 inches wide and double thickness airfoil vanes in ducts over 18 inches wide. Hold vanes in runners. See SMACNA Detail Fig. 2-3 and 2-4 of Standards. Construct turning vanes constructed of the same material as the ductwork in which they are installed.
- G. Alternative Joining
  - 1. At the Contractor's option, ductwork in sheetmetal gauges 16 through 26 may be joined at the transverse joints with pre-fabricated galvanized Ductmate-35 sections, or with fabricated TDF or TDC T-24 type flanged transverse joints with bolted corners, gaskets, and sealants, constructed in accordance with SMACNA Manual (1995), Table 1-12. Submit the joint packing material and joint construction details using this method and a 12" x 12" x 12" long duct sample to the Commissioner for review. Plastic joint clips are not acceptable. Do not join flanged and prefabricated joints by different manufacturers.
  - 2. Ductmate or similar system must meet criteria as set forth in SMACNA Chapter 7.
  - 3. Install Ductmate system according to manufacturer's instructions. Figures 12 and 13 of the latest edition of installation instructions

regarding the fastening of Ductmate angles must be observed.  
Bolting of corners is required.

**2.2 ROUND DUCTWORK**

- A. Provide round duct gauges in accordance with Table 3-2 A and B of the 1995 SMACNA Manual. Provide girth reinforcing, girth joints, longitudinal seams, etc., in accordance with Figures 3-1, 3-2, 3-3, 3-4 and 3-5 of the 1985 SMACNA Manual. Snap-lock longitudinal seams are not acceptable. Draw band joint connection will not be acceptable. Use minimum 16 gauge galvanized steel with welded joint construction and companion flange joints for round duct over 52" in diameter.
- B. Use 5-piece or die-formed elbows up to 12 inch diameter. Use 7-piece on larger ducts with centerline radius equal to 1½ times duct diameter.

**2.3 DUCT ACCESSORIES**

- A. Provide spin-in fittings for connecting flexible duct to sheetmetal duct, incorporating die-formed locking groove with adjustable damper using spring loaded retractable bearing and positive locking regulator.
- B. Provide turning vanes in all 90° elbows where shown on the Drawings. Provide double fin type with 2" inside radius for small vanes (Figure 2-3) and 4½" inside radius for large vanes (Figure 2-3). Provide small vanes spaced no more than 2-1/8" apart for ducts up to 18" wide. Provide large vanes spaced no more than 3¼" apart for ducts 19" wide. Shop-fabricated turning vanes will not be acceptable unless they are machine shaped, punched and assembled. Use radius elbows where shown on the Drawings and for elbows 24" in width and smaller. Use radius elbows in accordance with Type RE-1 and RE-3, in Figure 2-2 of the SMACNA Manual.

**2.4 FLEXIBLE DUCTWORK**

- A. Provide flexible duct as a factory glass fiber insulated assembly with vapor barrier jacket and a maximum thermal conductance (C-factor) of 0.23 Btu per Hr per SF per °F at 75°F. Construct flexible duct of machine wound spiral aluminum helix, reinforced aluminum foil fabric mechanically locked into a spiral aluminum helix, or two-ply polyester core encapsulating a galvanized steel wire helix suitable for a positive working pressure of at least 10" w.c.
- B. Acceptable Manufacturers
  - 1. Genflex
  - 2. Thermaflex
  - 3. Flexmaster

2.5 OUTDOOR DUCTWORK

- A. Coat galvanized ductwork, except kitchen range hood exhaust, exposed to the weather with a coat of CAD-A-MASTIC 800, Fibrated Asphalt Emulsion, as manufactured by EPOLUX; cover joints with glass fabric tape and apply a second coat of CAD-A-MASTIC 800.

2.6 BELT GUARDS

- A. Provide guards on all belt drives. Provide split type with tachometer opening at shafts fabricated from galvanized metal and braced to prevent rattling.
- B. Use solid or expanded metal on motors up to 5 horsepower.
- C. Use expanded metal on motors 7½ horsepower and up.
- D. Use angle frames on motors 25 horsepower and larger.
- E. Provide sufficient space so that sheaves can be changed to larger sizes.

2.7 ACCESS DOORS IN SHEETMETAL

- A. Where required in ductwork or casings, provide suitable access doors and frames to permit inspection, operation and maintenance of apparatus concealed behind the sheetmetal work. Provide access doors in insulated ducts of insulated double panel construction, not less than 20 gauge, galvanized steel. Provide access doors in uninsulated ducts of single panel construction not less than No. 18 gauge, galvanized steel. Provide all access doors with sponge rubber gaskets around their entire perimeter.
- B. Hang access doors in ductwork in separate frames and attached to duct with aircraft type cable. Provide "Ventlok No. 100" cast zinc latches one (1) per side.
- C. Install hinged walk-in type casing access doors where required and indicated on the Drawings. Construct casing access doors 57" high x 24" wide where possible and be complete with heavy duty hinges, hardware, and Ventlok #260 latch handles. See figures 6-11 and 6-12, and Table 6-2 of the 1995 SMACNA Manual.
- D. Where required in ducts carrying humid air, or grease laden air, locate access doors in the side of ducts.

2.8 FLEXIBLE CONNECTIONS

- A. Construct flexible connections of canvas for low pressure systems, of vinyl-covered fiberglass (or neoprene) for medium and high pressure systems, and of heavy noncombustible material such as Thermafab by DuroDyne for kitchen exhaust fans or lab exhaust fans. Flexible connections must not

contain asbestos and are to be suitable for the operating pressure and temperature of the system in which they are installed.

**2.9 PLENUMS**

- A. Provide air plenums for return and exhaust fans of "single casing" construction of No. 16 gauge galvanized iron braced and stiffened on outside by means of 2 inches by 2 inches by ¼ inch steel angles, or with standing seam panels not to exceed 26 inches in width.
- B. Provide discharge and intake air plenums for connecting the fresh air intake and discharge openings to the various systems, as shown on the Drawings, of No. 16 gauge aluminum construction, braced and stiffened on outside by means of 2 inches by 2 inches by ¼ inch aluminum angles, or with standing seam panels not to exceed 26 inches in width.

**2.10 LOUVERS**

- A. Furnish and install all louvers indicated on the Drawings unless specifically indicated to be provided by others. Size louvers as indicated on the Drawings and suitable for installation in the mounting arrangement shown on the Architectural Drawings and described in the Architectural Specification.
- B. Construct louvers of 0.125" thick extruded aluminum stationary hook blades. Louver depth is 4". Design supports to meet the wind requirements established by local codes. Maximum allowable span between mullions is 10 feet. Design louvers with a net 50% free area. There shall be no water penetration at 700 FPM free area velocity. Provide for noiseless expansion and contraction of all materials and assemblies due to temperature changes in a range between 17°F and 180°F without detriment to appearance or performance.
- C. Acceptable Manufacturers
  - 1. Ruskin
  - 2. Arrow
  - 3. Air Balance

**2.11 AUXILIARY DRAIN PANS**

- A. Construct drain pans of 16 gauge galvanized steel with all joints brazed. Construct pans watertight with hemmed edges.
- B. Under any equipment for which a pan is shown on the Drawings, and under all horizontal air handling units, duct mounted hot water or chilled water coils located above hung ceilings or electrical equipment, piping over electrical equipment, etc., furnish and install auxiliary drain pans. Extend



the auxiliary drain pan at least 6" beyond the equipment it is serving and be at least 2" high.

- C. Provide drain pipe connections of at least 3/4", or as shown on the Drawings. Unless otherwise shown on the Drawings, route a 3/4" IPS galvanized steel or Type "L" copper tube to the nearest equipment room floor or hub drain independent of any air handling unit drains.

#### 2.12 SCREENS

- A. Furnish and install all wire mesh screens indicated in the Construction Documents.
- B. Fabricate frame of extruded aluminum with mitered reinforced corners.
- C. Provide non-rewireable frame with permanently secured screen mesh.
- D. Provide mesh of 1/2 inch square, .063 inch intercrimped aluminum wire.

#### 2.13 DUCT SEALANT

- A. Seal all joints and seams on medium and high pressure ductwork with an oil soluble elastomer sealant.
- B. Sealant to be fast curing to a firm rubbery seal and have gap filling properties with smooth easy caulking characteristics.
- C. Sealant to be gray in color.
- D. Acceptable Manufacturers:
  - 1. 3M Fastbond 900
  - 2. Foster 32-14
  - 3. MEI 44-50
  - 4. Hardcast Sure Grip 404

### PART 3- EXECUTION

- 3.1 Execute the Work in strict accordance with the best practices of the trade and with these Specifications. Ductwork leakage in excess of SMACNA Standards for the seal class listed will not be acceptable. Seal ductwork with an approved U.L. listed water base sealant as required to comply with this leakage requirement.
- 3.2 Adhere to Drawings as closely as possible. The right is reserved to vary the runs and sizes of ductwork and to make offsets, where necessary to accommodate conditions arising at the building.

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- 3.3 Make joints and seams smooth on the inside and a neat finish on the outside. Make duct joints airtight with laps made in the direction of air flow and no flanges projecting into the air stream. Provide ducts adequately braced to prevent vibration. Provide intermediate reinforcing and/or tie rod construction where necessary. Seal joints and seams according to SMACNA Standards.
- 3.4 Construct all longitudinal duct seams and joints as "Pittsburg Lock" or "Button Punch Snap-Lock" at the corners and Acme "Lock Grooved Seam" or "Automatic Seam Weld" in sides between corners. See Figure 1-5 of the SMACNA Manual. Provide sealant as required so that the leakage rates specified are not exceeded. Use Hard Cast CS-1001 sealer or equivalent for use in longitudinal duct seams, and Hard Cast IG-601 or Kingco 10-526 for external application on ductwork joints.
- 3.5 On welded stainless steel ductwork, use extra low carbon grade steel (316L). All welds to be pickled to remove weld oxide. Passivate stainless surface after welding to remove embedded foreign material.
- 3.6 Duct sizes indicated for internally lined ducts are the net duct dimensions. Increase ducts in both dimensions by twice the thickness of the liner making the actual sheetmetal dimension larger by thickness of the liner. Provide duct liner material and thickness as specified.
- 3.7 Thoroughly clean the interior of all ductwork after installation, and prior to use. Operate all fans and remove all debris and foreign matter from the duct.
- 3.8 Wherever it may be necessary to make provision for vertical hangers of the ceiling construction passing through ducts, provide streamlined shaped sleeves around such ceiling construction hangers. Make all such streamlined sleeves airtight at top and bottom of ducts.
- 3.9 Suspend all ductwork properly supported from the building structure. The duct hanging system is composed of three elements; the upper attachment to the building, the hanger itself, and the lower attachment to the duct. Construct the attachments, hangers and supports for all ductwork in accordance with Figures 4-1 through 4-9 and Tables 4-1 through 4-3 of the 1995 SMACNA Manual. Submit the details for the upper attachment to the building to the Base Building Structural Engineer for review prior to submission to the Commissioner.
- 3.10 Provide galvanized angle iron and bands for ductwork bracing and support.
- 3.11 Do not suspend ductwork or any device, or allow work installed by any trade to be suspended from ductwork (for example: lighting conduit, lighting fixtures, piping, ceiling construction, etc.)
- 3.12 Provide supplementary steel as required to support ductwork with a maximum deflection of 0.08" with the supported load acting at the mid-span of the steel.
- 3.13 Prior to mounting or hanging of mechanical equipment and ductwork, obtain approval from the Commissioner for proposed method of mounting and for exact location of all mounting points. Submit weights and location of all mechanical

equipment and ductwork to the Commissioner for approval well in advance of general construction work to allow sufficient time for any structural analysis.

- 3.14 Replace, without any additional cost to the contract, any ductwork or components found to be noisy after installation, with said noise resulting from faulty materials or workmanship.
- 3.15 Cap openings in ducts during progress of construction tightly.
- 3.16 Where vermiculite, plaster, wire lath or lead wrapping is required to be applied completely about horizontal runs of ductwork (as indicated on the Drawings), provide all hangers and inserts for such ductwork of extra strength and rigidity to support same. Provide hangers for such ductwork as specified hereinafter except that hanger spacing be one-half that specified.
- 3.17 Provide any ductwork passing through waterproof walls or roof construction with counterflashing.
- 3.18 Provide approved firestopping material around all ducts penetrating floors, walls, roofs, etc., in accordance with local codes, NFPA, and Commissioner's requirements.
- 3.19 RECTANGULAR SHEETMETAL DUCTWORK

A. The ductwork on this project falls into classifications as indicated below. Each classification has positive and negative requirements as shown.

<b>Ductwork</b>	<b>Pressure Classification "W.G."</b>	<b>Velocity Classification</b>	<b>Seal Class</b>
Downstream of fan-powered terminal, pinch down VAV or PRV.	+1"	2500	A
Ductwork on the discharge of air handling units, except outside air handling units.	+2"	2500	A
Outside air and toilet exhaust ductwork on the building side of the volume damper on each floor.	+2" & -2"	2500	A
Outside air makeup and exhaust duct for smoke exhaust systems.	+2" & -2"	2500	A
Outside air handling unit discharge ductwork, risers, and ductwork to the	+3"	4000	A

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<b>Ductwork</b>	<b>Pressure Classification "W.G."</b>	<b>Velocity Classification</b>	<b>Seal Class</b>
volume damper on each floor.			
Toilet exhaust ductwork, risers, and runouts to the volume damper on each floor.	-3"	4000	A
Stair pressurization ductwork.	+3"	4000	A

B. Comply with the pressure class, seal class and velocity class listed for the construction in each classification. Cross-break or use mechanical transverse beading on rectangular ductwork 12" and wider and install as indicated on the Drawings and as specified. Make beading at least 1/16" deep at the center of the bead and a maximum of 3/8 inch wide at the base of the bead.

3.20 Where tie rods are utilized, provide a fender washer and jam type lock on each side of the sheetmetal. Reinforce ductwork in accordance with SMACNA Table 1-10. Construct ductwork over 96" wide with T-24 type flanged transverse joints with bolted corners. In lieu of using tie rods, this ductwork may be constructed as follows for the size ranges listed if carefully coordinated with all physical space limitations.

<b>Dimension of Longest Side of Duct</b>	<b>Supply or Exhaust</b>	<b>Sheetmetal Gauge</b>	<b>Minimum Reinforcing Size*</b>	<b>Maximum Reinforcing Spacing</b>
96" - 110"	Supply	18	2"	30" CC
111" - 160"	Supply	16	4"	24" CC
161" - 180"	Supply	14	6"	20" CC
181" and Larger	Supply	14	8"	18" CC

\* 16 gauge "Z" bar or 12 gauge angle.

<b>Dimension of Longest Side of Duct</b>	<b>Supply or Exhaust</b>	<b>Sheetmetal Gauge</b>	<b>Minimum Reinforcing Size*</b>	<b>Maximum Reinforcing Spacing</b>
96" - 110"	Exhaust	16	2"	24" CC
111" - 160"	Exhaust	14	4"	20" CC

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<b>Dimension of Longest Side of Duct</b>	<b>Supply or Exhaust</b>	<b>Sheetmetal Gauge</b>	<b>Minimum Reinforcing Size*</b>	<b>Maximum Reinforcing Spacing</b>
161" - 180"	Exhaust	12	6"	16" CC
181" and Larger	Exhaust	12	8"	14" CC
* 16 gauge "Z" bar or 12 gauge angle.				

- 3.21 Fasten reinforcing to ductwork on 12" centers by bolting or welding reinforcing to the ductwork.
- 3.22 Install duct connected grilles, registers and ceiling diffusers shown on the Drawings. Exact dimensions of openings must await approval of registers and diffusers. Submit exact locations for approval. Do not cut joints for the installation of outlets.
- 3.23 Where possible, fabricate all ductwork in such a manner that seams and/or joints will not be cut for the installation of grilles, registers, or ceiling outlets. If cutting of seams or joints is unavoidable, properly reinforce the cut portion to original strength.
- 3.24 For low pressure ductwork provide air extractors in branch ducts at connection to main ducts.
- 3.25 FLEXIBLE DUCTWORK
  - A. Maximum standard length of low pressure flexible duct sections to be 4 feet 0 inches. Length of high pressure duct sections not to exceed 18 inches in length and 16 inches in diameter.
  - B. Flexible ductwork to be rated for the pressure of the system in which it is to be installed.
  - C. Flexible ducts must not extend through partitions, walls, or floors.
  - D. Provide bends with minimum centerline radius equal to two (2) times duct diameter. No more than the equivalent of one (1) 90° bend will be permitted on installed flexible duct.
  - E. Factory fabricate oval ends on spiral aluminum helix flexible ductwork which may be required to connect to various air distribution devices. At the Contractor's option oval ends may be field-fabricated on special mandrels subject to the review of the Commissioner.
  - F. Flexible duct clamps of stainless steel with swivel action screw or 100% nylon self-locking clamp for all connections.

- G. For connection to single diffuser or air troffer boot with flexible duct, use spin-in tap with damper. Provide rigid sheetmetal air plenum boxes on top of diffusers. Connect flexible duct to this box.
- H. Support flexible duct per SMACNA standards. Do not lay duct on ceiling grid or tiles.

**3.26 LOUVERS**

- A. Provide aluminum mesh bird screen in removable U-type aluminum frame attached in place with stainless steel or cadmium plated sheetmetal screws. Make bird screen removable from the inside.
- B. Include layout, elevation, dimensions and tolerances on all shop drawings. Provide head and jamb details including blade configuration and spacings. Provide details indicating method of anchorage to openings.
- C. Submit manufacturer's "color chips" to Commissioner and obtain the Commissioner's approval before starting the painting work.
- D. Clean louvers of all dirt and foreign matter in accordance with manufacturer's recommendations. Protect louvers from work of other trades.

**3.27 SLOT DIFFUSER BLANKOFFS**

- A. Provide blankoffs between all active slots and as indicated on the Drawings. Fabricate the blankoffs of 24 gauge galvanized steel. Paint the blankoffs flat black and cut to fit exactly the space between active slots. Make the blankoff width the same as the width of the supply/return slot diffuser.
- B. Provide a vertical end plate blankoff at each end of an active supply diffuser length to prevent short circuiting to ceiling.

**3.28 DUCT MOUNTED SMOKE DETECTORS**

- A. Duct mounted smoke detectors are provided by Division 26 and installed by Division 23. Locate duct mounted smoke detectors in the ductwork in accordance with the manufacturer's recommendations, the requirements of NFPA, and the authorities having jurisdiction.

**3.29 FLEXIBLE CONNECTIONS**

- A. Flexible connections to be approximately 6 inches long, after installation is complete securely held in place with heavy metal bands to prevent any leakage. Align ductwork and fans to be plumb prior to connection. Allow at least 1 inch of slack.
- B. Provide flexible connection in ductwork connected to the inlets and/or outlets of all air handling units, fans, etc., except fan air handling units with

internal isolators and flexible fan connections. Overlap ends of fabric 2" and glue with R-H Products Company, Inc., Number XL8 contact glue. Sewing or stapling will not be permitted. Allow at least one inch slack in all flexible connection installations to insure that no vibration is transmitted.

**3.30 ACCESS DOORS IN SHEETMETAL**

- A. Provide access doors not smaller than 18 inches by 18 inches. Ducts smaller than 18 inches are to be provided with access doors 2 inches smaller than the width by 18 inches long. Provide access to all fire dampers as required by code and local authorities.
- B. Where removable hung ceiling panels are installed below access doors, provide markers showing the access door location clearly.

**3.31 PLENUMS**

- A. Provide standing seams with additional right angle bend and cap with No. 18 gauge galvanized "U" cap galvanized steel plenums for in-line centrifugal and axial flow fans.
- B. Provide the number of access doors as shown on the Drawings, minimum of one (1), for each sheetmetal plenum.
- C. Provide drain pan construction for air intake and discharge plenums; apply two (2) coats of mastic sealant to all joints; pitch bottoms for effective drainage.

**3.32 DUCT SEALANT**

- A. Clean and dry all surfaces thoroughly prior to application.
- B. Apply with caulking gun, trowel or spatula.
- C. Join surfaces to be sealed immediately after application of sealant.
- D. Follow manufacturers instructions carefully for application, storage and cleanup.
- E. Do not use sealant which is beyond manufacturers recommended shelf life.

END OF SECTION

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SECTION 23 25 00

PIPE CLEANING AND CHEMICAL WATER TREATMENT

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide flushing, cleaning and chemical treatment program in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Pipe Cleaning.
- B. Cleaning Chemicals.
- C. Water Treatment Chemicals.

1.3 SUBMITTALS

- A. Submit shop drawings listing chemicals and services provided for all systems. Provide layouts of feeding equipment, details of equipment and describing treatment program, including calculations and quantities of chemicals to be used. Provide system schematics showing the following:
  - 1. Steam Systems:
    - a. steam rate
    - b. pressure
    - c. condensate return rate
- B. Provide written report containing log and procedure of system cleaning, giving times, dates, problems encountered and condition of water.
- C. Submit written report containing results of tests and list of chemicals updated every 14 days during temporary use of treated systems.
- D. Provide inspections and submit written reports on a twice monthly basis. Provide for one (1) year after acceptance of system. Take samples of water at each inspection, analyze, and certify. Submit the analysis made on the water to the Commissioner and the City of New York. Include in the analysis report, recommendations as to any changes in water treatment required. Provide an initial dosage of 1.5 gallons of an aqueous solution of sodium nitrite base corrosion inhibitor (Naico 2536), or approved equal, for each 100 gallons of water in the system.

- E. Provide written maintenance instructions to be included in Maintenance and Operating Manual.

1.4 QUALITY ASSURANCE

- A. Retain a chemical company, from approved list, to provide water treatment, feed equipment, testing equipment and chemicals for the systems as defined herein and as may be required to maintain the integrity of the piping systems and mechanical equipment.
- B. The water treatment chemical and service supplier must be a recognized specialist, active in the field of industrial water treatment for at least three (3) years, whose major business is in the field of water treatment, and who has full time service personnel within the trading area of the job site. Laboratory facilities must be available.
- C. Furnish and install all equipment and material on this project in accordance with the requirements of the authority having jurisdiction, suitable for its intended use on this project, approved by the U.S. Environmental Protection Agency (EPA), and local Department of Environmental Protection, and so certified by the manufacturer.
- D. Analyze water from the local water company to be used on the project, before establishing treatment procedures.
- E. Provide a two-hour training course to the City of New York's operating personnel, instructing them clearly and fully on the installation, care, maintenance, testing and operation of the water treatment system. Arrange the training course at the start up of the system.

1. Low Pressure Steam:

<b>System</b>	<b>Treatment and Chemical Conditions</b>	<b>Control Level</b>
Low pressure steam 15 psi maximum	Non-toxic organic and scale inhibitor	3000-4000 ppm as total organic inhibitor
	Molybdate as Na <sub>2</sub> MoO <sub>4</sub>	400-600 ppm
	pH	8.0-10.0
	Nitrite as NO <sub>2</sub> or Molybdate as Na <sub>2</sub> MoO <sub>4</sub>	2500-3000 ppm 400-600 ppm
	pH - boiler water	7.0 minimum
	pH - steam condensate	7.5 to 8.5

**PART 2 - PRODUCTS**

2.1 **PIPE CLEANING**

- A. Furnish all required pipe cleaning chemicals, chemical feed equipment, materials, and labor necessary to clean the piping as herein specified. In addition, permanently install necessary chemical injection fittings complete with stop valves and coupon racks, etc.
- B. Provide a pre-startup non-foaming, liquid detergent dispersant cleaner for cleaning of all systems to remove oil and foreign matter from the piping and equipment prior to the final filling of the systems. Use a chemical that is not injurious to persons, piping, pipe joint compounds, packings, coils, valves, pumps and their mechanical seals, tubes or other parts of the system.
- C. Furnish instructions dictating the quantities of the cleaner to use, methods and duration of the operation.

2.2 **WATER TREATMENT CHEMICALS**

- A. Provide one-year's supply of necessary water treatment chemicals including the following:
  - 1. Steam System: Agents to scavenge oxygen, control hardness and alkalinity and inhibit corrosion. Use neutralizing amines as approved by USDA and USPHS.

2.3 **ACCEPTABLE MANUFACTURERS**

- A. Water treatment program to be provided and maintained by:
  - 1. Tower Water Management
  - 2. Nalco
  - 3. Metropolitan Refining Co.
  - 4. Hayes-Trane, Mogul
  - 5. Tenco

**PART 3 - EXECUTION**

3.1 **GENERAL**

- A. Install all equipment, chemicals, water devices, etc. in accordance with water treatment specialist's directions and drawings, for all systems previously noted. Contractor will provide 1-inch taps to bring system water to desired locations. Minimum 2 on each main supply and return on closed

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loop systems. Minimum 4 on each main supply and return on open loop systems.

- B. pH adjustment, inhibitor and dispersant tanks shall be shipped in use containers. Pump suction assemblies previously specified will pump directly from these shipping drums.
- C. Installation and startup shall be supervised by factory representatives of the equipment manufacturer and chemical manufacturer.
- D. Shipping containers shall be disposed of or refilled off the premises at no additional cost.

### 3.2 PRELIMINARY CLEANING

- A. Clean new piping internally by flushing prior to the application of pressure tests, and before the chemical cleanout procedures specified herein. Provide temporary strainers at the inlet to the chilled water, condenser water, and hot water pumps before the start of cleaning procedures.
- B. Block off and isolate circulating pumps, cooling coils, heating coils, heat exchangers, and steam traps during the preliminary flushing and draining process.
- C. Provide temporary by-passes to fully circulate through all branch piping.

### 3.3 PIPE CLEANING

#### A. All Piping Systems

1. Provide temporary connections with valves to fill and drain the piping and equipment after completion of the chemical cleanout procedure. Provide temporary blind flanges and/or caps to isolate the piping and equipment.
2. Provide temporary piping connections, valves, strainers, bypasses, and blank connections where required to clean out systems.
3. After each hydrostatic leak testing procedure is complete, drain the system until empty. The piping systems are internally chemically treated and protected during the hydrostatic testing procedure as described in the Section entitled "Testing, Balancing and Adjusting". Thoroughly clean the piping and flush as follows:
  - a. Cleaning will not take place more than 14 days prior to startup. Give the chemical manufacturer's representative at least 30 days notice prior to startup.
  - b. Prior to the start of the chemical cleaning procedure submit three - two (2) foot lengths of the piping installed on this project to the chemical manufacturer for analysis of the

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interior coating on the piping. Refer to the Section entitled "Testing, Balancing and Adjusting" for additional requirements.

- c. Before the chemical cleaning procedure is begun, install in each closed recirculating water system a temporary skid mounted portable side stream filtering system. The filtering assembly shall have 6" flanged connections and multiple cartridge filters capable of at least 600 gpm, an integral Barco type flow venturi, and be pressure rated for the system to which it is connected. Install the filter cartridges and change out until the system is clean. Initially provide twenty (20) micron cartridges, the intermediate set five (5) microns, and the final set one (1) micron.
- d. Add chemical pipe cleaning compound and corrosion inhibitor as recommended by the chemical manufacturer's representative to the system simultaneously with the filling of the system.
- e. Circulate the cleaning compounds in the system for the time period specified by the chemical manufacturer.
- f. Drain the system until empty from its lowest point.
- g. Fill the system again with fresh water and flush thoroughly until clean water is obtained. (Maintain continuous blowdown and make-up as required during flushing operation). Use a one (1) micron cartridge type strainer element at end of drain hose to confirm that discharge water is free of foreign material.
- h. The cleaning and flushing procedure must be approved in writing by the chemical manufacturer. The chemical manufacturer's representative shall supervise and certify in writing the cleaning and flushing of the piping systems. The Contractor shall provide and install injection pumps, water meters, and coupon racks to control and monitor the cleaning process.

**B. Steam Systems**

1. When steam system is ready for operation, open a point in the system that all condensate will flow through, and run the condensate to the drain for a minimum of 24 hours. During the period the condensate is running to drain, run necessary tests including TDS (total dissolve solids), trace metals acidified, suspending solids, etc., at least twice a day. At the point the condensate is running clear, has no trace metal count and no

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suspended solid count, the steam system will be considered clean and the condensate will be allowed to return to the system.

2. Isolate and bypass steam traps. Mix the condensate with cold water in a barrel or container so that the temperature of the mixture does not exceed 120°F and discharge to the sewer.

END OF SECTION

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DAMPERS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide dampers in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Fire Dampers.
- B. Combination Fire/Smoke Dampers.
- C. Smoke Dampers.
- D. Volume Dampers.
- E. Splitter Dampers.
- F. Backdraft Dampers.
- G. Automatic Damper Installation.

1.3 SUBMITTALS

- A. Submit complete manufacturers data on all dampers required by this section, including sizes, location, quantity and construction details.
- B. Submit samples of dampers as requested by the Commissioner.

1.4 QUALITY ASSURANCE

- A. Fabrication testing and installation to be in compliance with U.L., NFPA and local authorities. Fire dampers to be U.L. labeled for 1½ or 3 hour rating as indicated on the Drawings. Refer to architectural drawings for fire ratings of slabs and partitions being penetrated.
- B. Comply with Sheet Metal and Air Conditioning Contractors National Association (SMACNA) Details and details as shown on the Drawings.
- C. For positive smoke control, dampers shall conform to U.L. Standard 555S.

**PART 2 - PRODUCTS**

**2.1 FIRE DAMPERS**

- A. Provide fire dampers in ducts piercing fire rated walls, and floors, as required by NFPA, local codes and local authorities having jurisdiction. All fire dampers are to comply with latest UL-555 Standard.
- B. Fire dampers designated as FD on the Drawings are 1½ hour rated; FD-3 are 3 hour rated. Dampers to be of the curtain type with frames of 18 gauge steel and blades of 21 gauge steel. All dampers shall be approved for use in dynamic systems. Dampers to be stainless steel spring loaded for closure. Provide U.L. rated 160°F fusible link. Dampers must lock in closed position.
- C. Fire dampers designated as FD-H on the Drawings are operated through an integrally mounted heat sensor in lieu of a fusible link. These dampers will be wired for 24 volt operation.
- D. Acceptable Manufacturers
  - 1. Ruskin
  - 2. Imperial
  - 3. Prefco

**2.2 COMBINATION FIRE/SMOKE DAMPERS**

- A. Provide combination fire/smoke dampers as shown on the Drawings in ducts piercing fire rated walls and floors, and where shown on the Drawings.
- B. Provide normally closed dampers that are fusible link operated.
- C. Dampers to be of opposed multi-blade construction and classified in accordance with U.L. Standard 555 and 555S in all respects including size limitations. Use Class 1 dampers, with maximum leakage of 4 cfm/sq.ft., in ducts with velocities at or over 2000 FPM, and Class 2 dampers, with maximum leakage of 10 cfm/sq.ft., in ducts with velocities under 2000 FPM, unless noted otherwise on the Drawings. Minimum size Class 1 damper, 12 x 12. Minimum size Class 2 damper, 9 x 9.
- D. Damper construction to be minimum 16 gauge galvanized steel frame and blades. Side seal to be Type 304 flexible stainless steel with bronze or stainless steel shaft bearings in end plate. Damper linkage to be outside air stream.
- E. Provide dampers designated as "FSD-FL" with a fusible link which will close and lock damper on increased air temperature over 165°F.



- F. Provide dampers designated as "FSD" and "FSD-3" with an electrically resettable link which will close and lock damper on increased air temperature over 165°F. The link to be manually resettable at the damper linkage without need of link replacement. Provide damper position indicator external of damper.
- G. Provide dampers designated as "FSD-HS" and "FSD-HS3" as normally closed and provided with a means of automatically opening dampers remotely from the Fire Command Center when the air temperature is below the damper linkage degradation temperature of 250°F 350°F. This will be accomplished by a thermal link which will disengage the damper actuator at or above the degradation temperature of the damper. The release of the link will cause the damper to close and lock until the link has cooled to below the degradation temperature. Activation of the actuator will re-engage the damper linkage in this situation.
- H. Provide dampers designated as "FSD-RA" as normally open and provided with a means of maintaining damper closed during "normal" situations. Provide means to automatically open dampers remotely from the fire command center, or as described in the controls specification.
- I. Acceptable Manufacturers
  - 1. Ruskin
    - a. Model FSD35 (Class 2)
    - b. Model FSD60 (Class 1)
    - c. Model FSD31 (3 hour)
  - 2. Imperial
    - a. Model 770 (FSD Class 2 only)
    - b. Model 710 (FSD-HS or FSD Class 2 only)
  - 3. Nailor-Hart
  - 4. Air Balance
  - 5. Arlan

**2.3 SMOKE DAMPERS**

- A. Provide smoke dampers as shown on Drawings designated as "SD".
- B. Dampers are to be electrically operated. Provide factory-mount UL listed actuators, relays and damper position switches provided by Contractor.

- C. Provide dampers of opposed multi-blade construction Class 2, with maximum leakage of 10 cfm/sq.ft. at 1" w.g. when in the closed position for ducts with velocities of 2000 FPM or less, and Class 1 with maximum leakage of 4 cfm/sq.ft. at 1" w.g. for ducts with velocities over 2000 FPM. Minimum size Class 1 damper, 12 x 12. Minimum size Class 2 damper, 9 x 9.
- D. Damper construction to be minimum 16 gauge galvanized steel frame and blades. Side seal to be Type 304 flexible stainless steel with bronze or stainless steel shaft bearings in end plate. Damper linkage to be outside air stream.
- E. Provide dampers with means of remote opening from the Fire Command Station and with position indicator switches to enable remote status of open or closed positions.
- F. Acceptable Manufacturers
  - 1. Ruskin Model SD60 (Class 1) Model SD36 (Class 2)
  - 2. Imperial Model 620 (Class 2 only)
  - 3. Nailor-Hart
  - 4. Air Balance
  - 5. Arlan
  - 6. Prefco

**2.4 VOLUME DAMPERS**

- A. Provide volume dampers as shown on the Drawings and as required for proper balancing and distribution of air, in the various branches of the ductwork for use in balancing the system. Dampers to be installed separately and independently of the registers hereinafter specified to be set behind supply, return, and exhaust air grilles. Provide multi-blade dampers in ducts above 24 inches in width or 16 inches in height. Coordinate with the air balancing subtrade specialist and provide all additional dampers required for proper air balance.
- B. Provide volume dampers of the quadrant type, of heavy construction, pivoted to turn easily and provided with approved operating and locking devices mounted on outside of the duct in an accessible place.
- C. For all volume dampers located above inaccessible ceilings, provide remote cable operators. Anemostat type OB-ASL complete with fastening device and hex key operator.

2.5 SPLITTER DAMPERS

- A. Provide SMACNA Standard splitter dampers for ductwork smaller than 28 inches in width. Operators for dampers above plaster or drywall ceilings to be Young Regulator Co. No. 895 with No. 1200 gear operator.

2.6 BACKDRAFT DAMPERS

- A. Provide balanced, tight closure, 1/8-inch thick aluminum backdraft dampers of the self-operating type where indicated on the Drawings. Fabricate damper frames from extruded aluminum with mitered corners. Blades to be extruded aluminum with extruded vinyl edge seals. Blade/frame assembly to be weather resistant with blades overlapping the frame. Damper bearings to be bronze oilite nylon or cyclohex. Provide bird screen over opening.
- B. Acceptable Manufacturers
1. Ruskin
  2. Prefco

2.7 AUTOMATIC DAMPER

- A. Install all automatic dampers shown on the contract drawings and schedules.

**PART 3 - EXECUTION**

3.1 FIRE DAMPERS AND FIRE/SMOKE DAMPERS

- A. Provide conveniently located access doors, of ample size for resetting the dampers. Duct mounted grilles, registers or diffusers can be used for access as long as such access is readily available as determined by the Commissioner.
- B. Galvanize or paint with one coat of rust inhibiting paint the entire fire damper assembly before installation.
- C. In the open position with damper shutter stored, provide 95 percent free area.
- D. All actuators of automatic fire dampers (FD-H) and combination fire/smoke dampers (FSD), except for those designated as FSD-HS, are connected by the Contractor to the controlling device. The Contractor will provide all wiring, conduit pneumatic tubing, circuit protective devices, etc., as necessary to meet this requirement.
- E. Fire/smoke dampers designated as FSD-HS will be installed in ducts and penetrations of rated walls and floors which are part of a smoke control

and/or evacuation system. These dampers may be controlled during normal operation by the A.T.C. BMS system; however, during a smoke or fire emergency, these dampers will be operable from the Fire Command Center.

- F. Design dampers incorporating multiple sections in such a way that the actuators are readily accessible. Coordinate locations so as not to be necessary to remove damper sections, structural, or other fixtures, to facilitate removal of damper motors. Provide access doors where necessary to meet this requirement. In particular, ensure that where in-air stream actuators are provided, they are readily accessible.
- G. Do not install Class 1 fire/smoke or smoke dampers in ducts with any dimension smaller than 12". Expand duct to 12" prior to installation. For Class 2 dampers, the minimum dimension is 9".

**3.2 ALL DAMPERS**

- A. Mount dampers plumb and level. Provide additional duct bracing and supports to properly support dampers.
- B. Provide duct access doors for internal access to all fire dampers, combination fire/smoke dampers, smoke dampers, automatic dampers, and backdraft dampers.
- C. Damper construction to be similar to that of the ductwork to which it connects (i.e., galvanized to galvanized, stainless steel to stainless steel).

**3.3** Provide on all dampers, extractors, etc. mounted on externally insulated ductwork, 16 gauge elevated platform at least 1/8" higher than the thickness of the insulation. Provide damper shaft with Ventlok No. 607 bearing mounted on ductwork within elevated platform.

**3.4 WARRANTY**

- A. Provide a one (1) year warranty from the date of substantial completion.

END OF SECTION

SECTION 23 36 00

AIR TERMINAL UNITS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide air terminal units as specified with capacities as indicated on the Drawings.

1.2 WORK INCLUDED

- A. Variable air volume boxes.

1.3 SUBMITTALS

- A. Submit manufacturer's data including performance tests, sound tests and certified dimensioned drawings.

1.4 QUALITY ASSURANCE

- A. Electric coils to be given a 2000 volt dielectric test.
- B. Each size of each device to be used on the project shall be completely laboratory tested for air performance and acoustics. The acceptability of the laboratory and testing facilities is subject to review by the City of New York and the Engineer.
- C. All pneumatic tubing to be U.L. listed, fire retardant (FR) type.
- D. Sound ratings for all units will not exceed 40 NC at 1.0" w.g. inlet static pressure.

PART 2 - PRODUCTS

2.1 VARIABLE AIR VOLUME TERMINAL UNITS - PRESSURE INDEPENDENT ELECTRONIC CONTROL

- A. Provide single duct, variable volume terminal units of the sizes and capacities shown on the plans.
- B. Provide with pressure independent electronic control capable of reset for air flow between zero and maximum air flow. Air flow limiters will not be accepted.
- C. At an inlet velocity of 2000 fpm, the differential static pressure for any size of unit will not exceed 0.10" w.g. for the basic unit, or 0.25" w.g. with attenuator added.

- D. Shaft mount the 24 volt reversible actuator without linkage and construct as an integral part of the electronic controller. The controller/actuator will operate the terminal unit through the full cfm range.
- E. The actuator will apply at least 40 inch-pounds of torque to the damper shaft. The damper will move in a smooth, steady progression, without dead spots.
- F. Provide the terminal unit with a matching electronic thermostat. Equip thermostat with both minimum and maximum cfm adjustments on the face and with voltage readout terminals to read cfm selections. The thermostat will have concealed provision for locking the setpoint, with a tamper-proof face and optional exposed adjustment.
- G. Construct the unit casing of be 22 gauge galvanized steel, internally lined with 3/4", 1½ pound density fiberglass insulation which complies with U.L. 181 and NFPA 90A. Coat all exposed insulation edges with NFPA 90A approved sealant to prevent erosion. Seal casing to hold leakage to the maximum of 10 cfm at 3" w.g. pressure differential.
- H. Construct damper of be heavy gauge metal, with shaft rotating in self-lubricating bearings. Engrave end of shaft to indicate the damper blade position. Design unit shall for field conversion from normally open to normally closed, or vice versa, without relocating the actuator, changing parts or adding relays.
- I. Provide a built-in stop to prevent overstroking. Damper to seal against a closed-cell foam gasket, to limit close-off leakage to the maximum of 6 cfm at 3" w.g. pressure differential.
- J. Acceptable Manufacturers
  - 1. Titus
  - 2. Trane
  - 3. Envirotech
  - 4. Anemostat

**PART 3 - EXECUTION**

3.1 **WARRANTY**

- A. Provide a one (1) year warranty from the date of substantial completion.

END OF SECTION

SECTION 23 36 10

AIR OUTLETS AND INLETS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Furnish and install all air devices, diffusers, grilles, registers, and ceiling outlets as indicated on the Drawings and as required for the ceiling type and proper distribution of air within the space and for return of air from the space to the various air systems. Exhaust grilles and registers shall also be provided where indicated on the Drawings.

1.2 WORK INCLUDED

- A. Air Outlets.
- B. Air Inlets.

1.3 SUBMITTALS

- A. Submit manufacturer's data indicating air distribution, outlet velocities, and acoustic performance.
- B. Submit manufacturer's specifications of construction including materials, installation instruction and adjustment data. Include "K" factors for balancing.
- C. Submit product accessories.

1.4 QUALITY ASSURANCE

- A. Air outlets and inlets to be tested in accordance with ADC (Air Diffusion Council).

PART 2 - PRODUCTS

2.1 GENERAL

- A. Size the air distribution outlets as shown on the drawings to accommodate the air volume and throw indicated so as to maintain a maximum terminal velocity of 50 feet per minute in the occupied area. The overall noise level produced by all of the supply air outlets and return air inlets in various rooms are not to exceed specified limits. Design outlets to distribute in such a manner that the space temperature will not vary more than 2°F over the entire conditioned area. The conditioned area is defined as the area 2'-0" above the floor to 7'-0" above the floor, inclusive. If the Contractor cannot comply with the above requirements by following the arrangement

shown on the Drawings, he is to notify the Commissioner, in writing, setting forth requested modifications.

- B. At the discretion of the Commissioner, air outlets may be smoke tested to determine their compliance with these Specifications. See the Section entitled "Testing, Balancing and Adjusting" for testing requirements. At no cost to the City of New York make any revisions required for compliance with terminal velocity requirements, noise level requirements.
- C. Refer to Architectural Drawings and Specifications for ceiling type and construction. Provide proper frames and borders to fit the ceiling specified.

## 2.2 OUTLET TYPES

- A. Type SR-A - Exposed Duct Supply Register
  - 1. Steel register with front vertical and rear horizontal adjustable air foil type blades on 0.75" centers and steel opposed blade volume control damper. Baked enamel finish. Install register on a reverse knuckle joint in accordance with SMACNA Manual.
- B. Type SR-B - Sidewall Supply Register
  - 1. All aluminum register with front vertical and rear horizontal adjustable air foil type blades on 0.75" centers and aluminum opposed blade volume control damper. Baked enamel finish.

## 2.3 INLET TYPES

- A. Type ER-A - Louvered Register
  - 1. For sidewall or ceiling return or exhaust. All aluminum construction with one set of horizontal fixed blades, set at 45° fixed deflection, 3/4" spacing. Provide a steel opposed blade damper. Baked enamel finish.
- B. Type ER-B - Sidewall Perforated Register
  - 1. All aluminum construction with a steel opposed blade damper. Holes to be 3/16" diameter staggered. Baked enamel finish.

## 2.4 ACCEPTABLE MANUFACTURERS

- A. Titus
- B. Price
- C. Anemostat
- D. Krueger



- E. Tuttle & Bailey
- F. Aire-Systems will be acceptable for combination supply/return slot diffusers.

**PART 3 - EXECUTION**

3.1 NOT USED.

END OF SECTION

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**January 5, 2015**

**AIR OUTLETS AND INLETS**  
**23 36 10-4**

SECTION 23 52 10

PIPING AND ACCESSORIES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide piping and accessories in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Pipe.
- B. Fittings.
- C. Unions and Couplings.
- D. Escutcheons.
- E. Sleeves.
- F. Welding Procedures.

1.3 SUBMITTALS

- A. Submit AutoCAD R-2008 computer generated shop drawings indicating anchoring details, anchor points, guide details, etc.
- B. Submit AutoCAD R-2008 computer generated drawings of location and size of sleeves for openings in floors and walls
- C. Submit AutoCAD R2008, computer generated detailed piping layouts at 3/8" = 1'-0" scale for approval. Piping layouts shall be submitted for each individual construction phase, and for the entire completed project.
- D. Submit manufacturer's data for hangers and fittings.
- E. Submit dimensioned drawings to the Commissioner for approval showing pipe penetrations through core walls, slabs and other structural elements, anchor and guide locations, etc.
- F. Submit a schedule for pipe fittings.
- G. Submit a schedule for pipe sleeves.
- H. Submit a set of welding procedures for each pipe service.
- I. Submit a list of pipe welders proposed for all shop and field welding.

- J. Submit mill certificates for piping and fittings.
- K. Submit an overall piping schematic drawing (similar to a riser or isometric diagram) showing entire installed system.
- L. Submit plan drawings showing piping point loads to structure and supplementary steel layouts for all systems.
- M. Submit a line-by-line statement of compliance or non-compliance with this specification section.

1.4 QUALITY ASSURANCE

- A. All piping work to conform to the latest edition of the appropriate ANSI Code for Pressure Piping and Power Piping, including latest amendments.
- B. Employ only skilled welders, each holding a currently active certificate, dated within 12 months, from a recognized testing laboratory, indicating satisfactory welding test results per the American Welding Association or ASME Boiler and Unfired Pressure Vessel Code, Section IX, Welding Qualifications. Retest is required if welder has not performed welding for a period of 90 days. Maintain copies of certificates at the job site. Non-certified welders shall not be employed.
- C. The piping shown on the Drawings is indicated schematically to show the general distribution and system configuration. Coordinate with the work of other Sections and Divisions of the Specifications so as to provide a complete system, including approved rerouting, horizontal and vertical offsets, etc., to make the piping distribution fit within the confines of shafts, ceiling spaces, chases, equipment rooms, etc., all to the satisfaction of, or as directed by, the Architect.
- D. For high pressure steam piping, test steel pipe in accordance with the latest edition of the ASME standard for welded steel pipe under B31.1.
- E. Perform radiographic testing on high pressure steam piping (151 psi to 300 psi) according to the ASME Power Piping Standards.
- F. All piping shall be sourced from the United States (domestic supply).

**PART 2 - PRODUCTS**

2.1 PIPING

- A. Piping, fittings and accessories to be suitable for the pressure and temperatures of the service. Ascertain system working pressure and provide piping accordingly, based on the systems to be tested at 150 percent of maximum system working pressure.
- B. Galvanizing: Hot process inside and outside of pipe with zinc coating,

minimum 3 oz. per sq. ft.

- C. For butt-welded piping, bevel ends as specified under "Welding of Piping". For screwed joint connections, ream cut ends of pipe to full diameter. Socket welded piping shall only be permitted for 1-1/2 inches and smaller. Ends shall be without burrs or other inward projections at the cut ends.
- D. All steel pipe is ERW or seamless type ASTM A-53, Grade B, unless noted otherwise. Dimensions and weights of steel pipe to conform to ANSI Standard B16.10.
- E. High pressure steam piping installation shall conform to the latest edition of ANSI B31.1 Code for Pressure and Power Piping, including latest amendment. All other piping shall conform to the latest edition of ANSI B31.9 Code for pressure and power piping, including latest amendments.
- F. For welded pipe, fittings shall be welding fittings and all pipe flanges shall be welding neck type.
- G. Copper pipe to be hard drawn conforming to ASTM B-88.
- H. Refrigerant tubing shall be cleaned and dehydrated at the factory and shipped sealed with a holding charge of nitrogen.

## 2.2 PIPE FITTINGS

- A. Comply with latest edition of ANSI B16.3, B16.5, B16.9 and B16.11 standards.
- B. Provide steel elbows of long radius pattern.
- C. Fittings to be of the same schedule (weight) as the pipe to which it will be welded. Submit cut samples for approval if directed. Provide fittings which maintain full wall thickness throughout, ample radius and fillets, and proper bevels or shoulders at ends.
- D. Provide carbon steel welding flanges at all flanged valves and equipment, and as required for union connections. Flanges to be either slip-on type, bored to match diameter of pipe and front and back welded thereto, or welding neck pattern. Use flanges with a working pressure equal to 150 psi, or a minimum of 150 percent of the maximum system working pressure. Flanges for high pressure steam service to be 300 psi rating. High pressure steam service as relates to piping, fittings, valves and accessories is defined under these Contract Documents as steam at an operating pressure of 15 psig or higher.
- E. Provide cadmium plated or galvanized machine bolts with heavy pattern semi-finished hexagonal steel nuts to join flanges. Use studs threaded both ends where necessary to facilitate removal of valves or disassemble flanged fittings. All bolts used shall be "B-7" bolts plus studs plus threaded rods, using "2H" nuts.

- F. Provide 1/16 inch thick, non-asbestos gaskets between flanges made of compressed sheet on cold water piping only. Steam piping shall utilize "flexitalic" gaskets only.
- G. Use Teflon tape on male threads of screwed pipe (female).
- H. Screwed fittings to be inside threaded with threads cut clean and true.
- I. Copper fittings to be brazed fittings conforming to ASTM B16.5, B16.18 and B16.22.
- J. Branch piping connections for all steam service piping, feed water piping and condensate piping shall utilize tee fittings, reduced elbows, or shaped nipples only. No Weld-O-Lets, Thread-O-Lets or "stab-in" connections are permitted.
- K. Branch piping connections for other water service piping (chilled water, condenser water, hot water) shall utilize fittings, Weld-O-Lets, Thread-O-Lets, or shaped nipples only. No "Stab-in" connections are permitted.
- L. Provide reducing/increasing long radius elbows at pump inlet and outlet connections.

### 2.3 UNIONS AND COUPLINGS

- A. Provide unions where required for the removal of equipment. For piping 3" and smaller, use ground joint type of malleable iron with brass seats for iron pipe, and made of brass for brass pipe and copper tubing. For piping 4" and larger use 150 psi forged steel slip-on flanges for ferrous piping and bronze flanges for copper piping.
- B. Insulating Coupling Type: At each joint between steel or zinc (galvanized) and copper; up to 2" size, Capitol Series CS or Epco "Dielectric Union"; larger sizes, Capitol Series FG, flange type with insulator spacers and washers.

### 2.4 HIGH PRESSURE STEAM (151 PSI to 300 PSI) HIGH PRESSURE CONDENSATE PIPING, FEED WATER PIPING AND FITTING SCHEDULE

- A. Piping:
  - 1. 12" and larger will be extra heavy weight A 106 Gr B Seamless Pipe Black Steel.
  - 2. 3" through 10" will be extra heavy weight A 106 Gr B Seamless Pipe Black Steel.
  - 3. 2 1/2" and smaller will be schedule 80 A 106 Gr B Seamless Pipe Black Steel.

B. Fittings:

1. 3" and larger will be weld fittings same schedule weight as the pipe to which it will be welded. ANSI B 16.9 ASTM a-234.
2. 2 1/2" and smaller can be socket welded or threaded. Socket weld fittings will be A105, 3000# forged steel. Threaded fittings will be 3000# steel.

C. Flanges:

1. 1 1/2" and larger will be 300# Weld Neck Flanges. ANSI B 16.5 ASTM 105.
2. 1 1/4" and smaller can be socket weld or threaded 300# Flanges. ANSI B 16.5 ASTM 105.

D. Joints:

1. 2 1/2" and larger will be welded.
2. 2" and smaller can be welded, Socket Weld or Threaded.

E. Branch Connections:

1. Branch connections to steel pipe will be made with tee fittings only.

F. Bolts and Nuts:

1. ASTM A 307 Grade "B7" bolts and Grade '2H' Nuts.

G. Gaskets:

1. Flexitallic style CG or equal.

2.5 MEDIUM PRESSURE STEAM (31 PSI to 150 PSI), MEDIUM PRESSURE  
CONDENSATE PIPING AND FITTING SCHEDULE

A. Piping:

1. 12" and larger will be standard weight A 106 Gr B Seamless Pipe Black Steel.
2. 3" through 10" will be schedule 40 A 106 Gr B Seamless Pipe Black Steel.
3. 2 1/2" and smaller will be schedule 80 A 106 Gr B Seamless Pipe Black Steel.

B. Fittings:

1. 3" and larger will be weld fittings same schedule weight as the pipe to which it will be welded.
2. 2 ½" and smaller can be socket welded or threaded. Socket weld fittings will be A105, 3000# forged steel. Threaded fittings will be 3000# steel.

C. Flanges:

1. Above 90 PSI
  - a. 2 ½" and larger will be 300 Weld Neck Flanges. ANSI B 16.5 ASTM 105
2. Below 90 PSI
  - a. 2 ½" and larger will be 150 Weld Neck Flanges. ANSI B 16.5 ASTM 105
3. All Services
  - a. 2" and smaller can be socket weld, slip on, or threaded 3000# Flanges. ANSI B 16.5 ASTM 105

D. Joints:

1. 2 ½" and larger will be welded.
2. 2" and smaller can be welded or threaded.

E. Branch Connections:

1. Branch connections to steel pipe will be made with tees fittings only.

F. Bolts and Nuts:

1. ASTM A 307 Grade "B7" bolts and Grade "2H" nuts.

G. Gaskets:

1. Flexitallic Style Cg or equal.

2.6 LOW PRESSURE STEAM (30# AND BELOW) LOW PRESSURE CONDENSATE (30# AND BELOW) PIPING AND FITTING SCHEDULE

A. Piping:

1. 12" and larger will be standard weight A 53 Gr B Seamless Pipe Black Steel.



2. 2 ½" through 10" will be Schedule 40 A 53 Gr B Seamless Pipe Black Steel.
3. 2" and smaller steam piping will be Schedule 40 A 106 Gr B Seamless Pipe Black Steel.
4. All condensate piping will be Schedule 80 A106 GRB Seamless pipe black steel.

**B. Fittings:**

1. 2 ½" and larger will be weld fittings same schedule weight as the pipe to which it will be welded. ANSI B 16.9 ASTM A-234
2. 2" and smaller can be socket welded or threaded. Socket weld fittings will be A 105 3000# forged steel. Threaded fittings will be 2000# Steel.

**C. Flanges:**

1. 2 ½" and larger will be 150# Weld Neck or Slip on Flanges. ANSI B 16.5 ASTM 105

**D. Joints:**

1. 2 ½" and larger will be welded.
2. 2" and smaller can be welded or threaded.

**E. Branch Connections:**

1. Where applicable branch connections to steel pipe will be made with tees fittings only.

**F. Bolts and Nuts:**

1. ASTM A307 Grade B7 bolts and Grade 2H nuts.

**G. Gaskets:**

1. Flexitallic style "CG" or Equal.

**2.7 VENTS AND EQUIPMENT DRAINS PIPING AND FITTING SCHEDULE**

**A. Piping:**

1. 12" and larger will be Standard Weight A53B ERW Black Steel Pipe.
2. 10" and smaller will be Schedule 40 A53B ERW Black Steel Pipe.

3. 2" and smaller can be L Copper Tubing Hard Drawn, Soft Annealed or A53B ERW Schedule 40 T&C Black Steel Pipe.
- B. Fittings:
1. 2 ½" and larger will be Weld Fittings the same schedule as the pipe to which it will be welded. ANSI B 16.9 ASTM A234.
  2. 2" and smaller will be Threaded Black Cast Iron Fittings 125# or ANSI B16.29 Wrought Copper Fittings (Contractors Option to install larger sizes.)
- C. Flanges:
1. 2 ½" and larger will be 150# Weld Neck or Slip On Flanges ANSI B16.5, ASTM 105
  2. 2" and Down will be 125# C1 Screwed Flanges.
  3. Copper sweat will be 125# Sweat Bronze Companion Flange ASTM B584.
- D. Joints:
1. 2 ½" and larger will be welded.
  2. Copper systems Soldered with 95/5 SN/SB.
  3. Threaded 2" and down.
  4. Di-Electric Fittings or Isolation gasket sets will be used between Copper/Steel services.
- E. Branch Connections:
1. 2 ½" and larger will use fittings or fabricated laterals.
  2. Copper system will be made with Tee Fittings.
- F. Bolts and Nuts:
1. ASTM A307 Grade B7 Bolts and Grade 2H Nuts
  2. Exterior Cooling Tower will be hot dipped galvanized, all other exterior locations can be plated.
- G. Gaskets:
1. Garlock 3000 or Equal
  2. Isolation gasket sets where applicable.

2.8 ESCUTCHEONS

- A. Cast iron or cast brass, deep type, to cover sleeve hubs or fitting projections. Provide escutcheons for exposed piping through floors, ceilings, walls and partitions in finished areas, and piping through all fire rated separations. Attach escutcheon to building material, not to pipe.

2.9 SLEEVES

- A. Construct sleeves for pipes passing through partitions, hung or furred ceilings, etc., of not lighter than 18 gauge galvanized steel.
- B. Provide standard weight galvanized steel pipe sleeves at all penetrations of foundation walls, block walls, reinforced concrete walls, and all floor and roof slab penetrations.
- C. Provide 25 gauge waterproof galvanized sheetmetal counter-flashing at all pipe roof penetrations.

2.10 ACCEPTABLE MANUFACTURERS

- A. Pipe
  - 1. U.S. Steel "National"
  - 2. Ohio Pipe
  - 3. LTV-E
  - 4. Van Lewen
- B. Welding Fittings
  - 1. Weldbend
  - 2. Tubco
  - 3. Cajon
  - 4. Naylor
  - 5. Ladish
  - 6. Van Lewen
- C. Copper Pipe and Fittings
  - 1. Mueller Brass
  - 2. Nibco

3. Reading Tube

**PART 3 - EXECUTION**

3.1 **GENERAL**

A. Preparation

1. Ream and de-burr pipes and tubes.
2. Clean of scale and dirt, inside and outside, before assembly.
3. Remove welding slag or other foreign material from piping.

B. Installation

1. General:

- a. The drawings indicate generally the size and location of piping and while sizes must not be decreased, the Contractor may change locations of pipes in order to accommodate conditions at the job.
- b. Closely plan and coordinate concealed piping and ductwork above suspended ceilings to avoid interferences, and install to maintain suspended ceiling heights shown on architectural drawings.
- c. Install exposed work in a neat, workmanlike manner; parallel to the closest wall with maximum headroom. Avoid light fixtures.
- d. Properly grade piping to secure easy circulation and prevent noise and water hammer. Pitch horizontal pumped water piping 1 inch in 60 feet upward in direction of flow. Pitch steam and condensate piping 1 inch in 40 feet downward in direction of flow. Pitch gravity water piping one foot in 100 feet downward in direction of flow.
- e. Install (at traps, instruments, etc., and wherever else directed) approved unions, to permit easy connection and disconnection.
- f. Make riser branches and other offsets with 4-elbow swings including copper risers and branches.
- g. To meet job conditions offset water supply and return mains up and down. Provide drain cocks with hose connection and chained cap (minimum 3/4 inch) at low points and vent traps at high points.

- h. After systems are in operation, if coils do not circulate quickly and noiselessly (due to trapped or airbound connections), make proper alterations in these defective connections including altering finished construction and refinishing without additional cost.
- i. Pipe Nipples: Pipe 3 inch in length and less is considered a nipple. Nipples to be of extra heavy construction. Do not use close nipples.
- j. Do not use short lengths or nipples at locations where a full length of pipe will fit.
- k. Make piping connections to coils and equipment with offsets provided with screwed or flanged unions so arranged that the equipment can be serviced or removed without dismantling the piping. Do not screw unions directly to coil header piping connections.
- l. Cut screw threads clean and true. Do not use bushings. Make reductions with eccentric reducers or eccentric fittings to permit draining unless otherwise indicated. Ream out pipe 2 inch and less after cutting to remove burrs.
- m. Make flanged connections with flange faces true and perpendicular to the center line of the pipe to which the flanges are attached.
- n. Allow space for pipe insulation.
- o. Provide dielectric couplings at all junctions of copper and steel or galvanized piping.
- p. Provide for expansion and contraction of piping systems.
- q. Use main sized saddle weld-o-lets or thread-o-lets, type branch connections for directly connecting branch lines to mains in steel piping if main is at least one pipe size larger than the branch for up to 6 inch mains and if main is at least two pipe sizes larger than branch for 8 inch and larger mains. Do not project branch pipes inside the main pipe. Use of welding tees are permitted for all sizes.
- r. Cap all openings in pipes during progress of the work.
- s. Do not connect bottom of pipe risers until riser is complete. Rod or tap to clear loose material before making bottom connection.
- t. Correct leaks in piping immediately using new materials. Leak-sealing compounds or peening is not permitted.

**2. Supports:**

- a. Support or suspend piping properly on stands, clamps, hangers, etc., of approved design and make. Design supports to permit free expansion and contraction while minimizing vibration. Anchor pipes where shown or required by means of steel clamps, or other approved means, securely fastened to the pipe and the building construction. Follow MSS standards for supports of piping.
- b. Provide structural pipe supports including supplemental steel channels, angles, columns, etc., necessary to complete the installation. The provision of structural supports over and above that required for the building structure is the responsibility of this Section.
- c. Prior to installation of hanger rods and other pipe supports, obtain approval from the Commissioner for proposed method of hanging and for exact location of all mounting points. Submit weights and location of all piping to the Commissioner for approval well in advance of general construction work to allow sufficient time for structural redesign to accommodate the installation.
- d. Place piping in proper alignment and position prior to connection to anchors, expansion loops, joints and equipment. Furnish jacking devices, temporary steel structural members and assembled structures as necessary. Remove temporary equipment and structures at the completion of the work.
- e. Reinforce piping at anchor points.
- f. For life safety systems only seismic supports are required as indicated in the BOCA Basic Building Code. Contractor shall provide signed and sealed calculations and submittals by a licensed professional engineer for proper seismically designed supports.

**3. Sleeves:**

- a. Provide sleeves for all pipes passing through floors, rated partitions and walls of sufficient diameter to accommodate pipe covering where such is required. Set sleeves for concrete floors, walls, and other masonry work in place before the floors or walls are poured or built. Locate sleeves secure in place so that space all around the pipes, after the pipes are installed in place is about equal. Anchor sleeves by use of anchor flanges embedded in concrete or at each end of sleeve. Properly firestop around sleeves after wall is constructed.

- b. Provide sleeves for all pipes passing through non-rated partitions or ceilings. Size sleeves to accommodate pipe covering where applicable. Sleeve seam to be drive slip. Sleeve to be flanged 1" at each end to lock sleeve into penetration.
- c. For sleeves at penetrations of the metal deck, attach to the deck prior to the pouring of the deck concrete. Set sleeves in such a manner so that no concrete fills their interior during the concrete pouring operations.
- d. Caulk floor sleeves for exposed pipes watertight and project sleeve approximately 2" above the finished floor. Finish sleeves flush with the bottom of slab and also with the finished faces of wall.
- e. Provide sleeves with an inside diameter at least  $\frac{1}{2}$ " greater than outside of pipe served, including pipe insulation which must be continuous through sleeve, except as detailed on the Drawings.
- f. Where piping penetrates non-rated walls, partitions, etc., pack space between piping and sleeve with mineral wool. At penetrations through foundation walls, rated walls, and floor slabs provide firestop material as specified and shown on the Drawings.
- g. Do not support pipes by resting clamps on sleeves. Clamps must extend beyond sleeve and be supported outboard of sleeve in an approved manner. In no case shall sleeves be cut or slotted to accommodate pipe clamps.
- h. Where space for future pipes and conduits is required, provide sleeves and fill with lightweight concrete.
- i. Sleeves penetrating floor and roof slabs shall extend at least 2" above slab.
- j. Cover all pipe/sleeve/firestopping gaps using escutcheons.

4. Drain Installation:

- a. Coils and vessels which contain water to have connections suitably located, and valved outlets, to permit individual venting and draining.
- b. Provide valved drains with hose bibb at low points of piping systems and at the bottom of each riser.
- c. Provide cooling coil condensate drains, fan drains, and all

unit casing drains with 2-inch minimum trap seal, unless otherwise noted, to spill over floor drains.

- d. Provide 1-inch minimum drain lines in sheet metal intake and discharge plenums not indicated to have floor drains. Pipe drains to nearest approved indirect waste.
5. Except as noted, make soldered joints with 95% tin and 5% antimony solder, having a melting point of not less than 460°F. Thoroughly clean solder joints before the application of the solder. Cut pipe square with burrs removed and apply flux before soldering.
  6. Make brazed joints using brazing alloys with a melting point at or above 1,000°F.
  7. Refrigerant Systems:
    - a. Back purge refrigerant tubing with nitrogen during brazing operations.
    - b. Grade all refrigerant lines for proper oil return to compressor.
  8. Install automatic valves, insertion pipe wells and energy meters in piping systems. Valves, wells and meters will be furnished under the work of other Sections or Divisions of the Specifications.
  9. Steam Systems:
    - a. Install steam pressure reducing valves and metering stations according to ANSI B31.1 and B31.9 standards.
    - b. Pipe flashed high and medium pressure steam to flash tank.
    - c. Install automatic control valves for the domestic hot water heaters.
    - d. Provide drip trap assembly at low points and points where condensate may back up in front of control valves. Run condensate lines from traps to nearest condensate receiver. Where condensate lines form a trap, provide vent loop over the trapped section.
    - e. Vent steam relief piping to atmosphere at locations approved by the Commissioner. Refer to exhaust head detail. Steam vents from flash tanks and condensate receivers shall be vented independently of pressure relief vents.

3.2 WELDING OF PIPING



- A. Where shown on drawings, specified or directed, use welded joints, outlets and flanges. Welded joints may also be provided elsewhere, at Subcontractor's option, except at points where it may be explicitly specified or directed to leave flanged joints.
- B. Whenever welded piping connects to equipment valves or other units needing maintenance, servicing, or possible removal, flange the connecting joints. Match the pressure rating of the pipe flanges with the pressure rating of the flanges on the equipment to which the piping connects. Provide flanged pipe sections to permit removal of equipment components.
- C. Welding Process: Sizes 4 inch and smaller, use either gas welding (oxyacetylene process) or metallic arc process; sizes above 4 inch, use metallic arc process.

- D. Preparation of Pipe Ends: For thicknesses up to 3/16 inch, ends shall be finished square or with 37½ degree bevel with a 1/16 inch band; for thicknesses 3/16 inch to 3/4 inch inclusive, ends shall be machined or ground to have a 37½ degree bevel with a 1/16 inch band per latest edition of ASTM B31.1.

**END OF SECTION**

SECTION 23 62 10

AIR COOLED AIR CONDITIONING UNITS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide air cooled air conditioning units in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Split System Air Cooled A/C Unit.  
B. Air Cooled Condensing Units.

1.3 SUBMITTALS

A. Shop Drawings

1. Submit dimensioned drawings with operating weights, piping connections, wiring diagrams, and control interface diagrams.
2. Submit wiring diagrams for all controls, including panel layout and remote devices.

- B. Product Data: Manufacturer's latest listed data for materials, equipment and installation.

C. Test Reports

1. Certified sound power levels.
2. Certification of all factory tests as required herein.
3. Statement of compliance with all required authorities.

- D. Submit sound power levels and rating data for all units. Noise level from the units are not to exceed NC-38 beyond 10 feet from fan room.

- E. MEA or BS&A number.

1.4 QUALITY ASSURANCE

- A. Each unit, including factory-installed options, is to be U.L. listed, performance tested and rated in compliance with ARI 210 and ARI 360, Commercial and Industrial Unitary Air Conditioning Equipment.

- B. Design unit to conform to ANSI-B9.1 and UL 465.

**AIR COOLED AIR CONDITIONING UNITS**

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- C. Performance test all units at the factory prior to shipment.
- D. Manufacturer of the unit is responsible for the performance of units, including static pressure and sound attenuation effects of the discharge plenum arrangement.

## **PART 2 - PRODUCTS**

### **2.1 SPLIT SYSTEM AIR COOLED UNITS**

#### **A. General**

- 1. Units to be completely packaged, including filters, evaporator coils, internal vibration isolation and fan section. Units to require only connection of three phase power, refrigerant piping, remote sensors, control wiring and duct connections prior to operating units. Units to be mounted on 1" cork and neoprene pads, to be provided by the unit manufacturer.
- 2. Provide units pre-piped, pre-wired, factory assembled and factory tested, with all controls pretested prior to shipping.
- 3. Provide a terminal strip with each electrical component individually and separately wired to strip.

#### **B. Cabinet, Casing and Frame**

- 1. Unit framework to be formed of structural steel members of 12 to 14 gauge mild steel. After assembly paint the framework for maximum protection against rust. Exterior panels to be fabricated of 18 gauge galvanized steel finished with a baked acrylic enamel over an epoxy primer. Provide neoprene gasketing between panels and frame members; panels to be attached to the frame with quick release latches (no sheetmetal screws). Insulate sections including compressor compartment with 1" thick, 3-lb./cu. ft. density fiberglass having an R value of 4.16.
- 2. Arrange units for full front, side and rear service access to all mechanical, electrical and refrigeration controls, adjustment of expansion valves, check out of compressors, adjustment of head pressure controls, check out of electrical control panel, without disrupting or interfering with air flow.
- 3. Provide discharge acoustical plenums lined internally with a minimum of 2" thick, 4 lb/cu.ft. density fiberglass that is in accordance with prototype designs previously tested in a full scale mock-up environment by an acoustical consultant. If the plenum is not built at the factory, it is the manufacturer's responsibility to provide the Contractor with the exact construction details and

specifications for the plenum to be constructed by the sheetmetal subcontractor.

**C. Supply Fan and Motor**

1. Provide single width, forward curved supply fans secured to a machined, ground and polished solid steel shaft. Coat shaft with a rust inhibitor and support by two outboard bearings selected for a minimum 200,000 hours average life. Provide drives with variable pitch sheaves with multiple V-belts sized for 150% of nominal motor horsepower. Mount supply fan motor on a sliding base. Mount fan and motor assembly on a heavy duty steel frame supported by springs designed for 90-99% isolation efficiency.
2. Provide three-phase NEMA design 'B', 40°C continuously rated fan motor with energy-saving design, .85 power factor, NEMA 'T' frame, open drip-proof, operating at 1750 rpm and supplied with grease-lubricated ball bearings.

**D. Direct Expansion Coil**

1. Provide direct expansion coil with ½" OD seamless copper tubes expanded into aluminum fins, not less than 3 rows deep or more than 12 fins per inch. Provide evaporator coil with a distributor with side port for hot gas bypass and thermostatic expansion valve with adjustable superheat and external equalizer. Test coil at 300 PSIG air pressure under water, completely dehydrate and pressure test with refrigerant.
2. Provide coils with heavy gauge, insulated, galvanized steel drain pans complete with mastic coating for corrosion protection.

**E. Filters**

1. Provide filters having a 40% ASHRAE dust spot efficiency, U.L. Class I pleated media type 2-inch deep.

**2.2 AIR COOLED CONDENSING UNITS**

**A. General**

1. Provide units pre-piped and pre-wired, factory assembled and factory tested, with all controls pre-tested prior to shipping.
2. Assemble all condensing unit components on a common base in a weatherproof housing. Provide hermetic compressors designed for use with Refrigerant R-410A, condenser coil, condenser fans and motors, refrigerant reservoir, charging valve, all controls and holding charge of R-410A.

**AIR COOLED AIR CONDITIONING UNITS**

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3. Provide a terminal strip with each electrical component individually and separately wired to strip.
- B. Condenser Coil
1. Construct condenser coil of aluminum plate fins, mechanically bonded to seamless copper tubes. Circuit coil for sub-cooling. Test coils to 425 psi.
- C. Condenser Fans and Motors
1. Furnish fans arranged for vertical horizontal discharge. Provide condenser fan motors of the permanently lubricated type, resiliently mounted. Provide a safety guard for each fan. Include controls for cycling fans for intermediate season operation and low ambient control. Balance each fan statically and dynamically.
- D. Compressor(s)
1. Furnish compressors of serviceable hermetic design with external spring isolators and an automatically reversible oil pump.
  2. Provide hermetically sealed compressor with overloads and inherent winding thermostat protection for the compressor motor.
  3. Provide crankcase heater.
- E. Controls
1. Locate factory wired controls in a separate enclosure. Provide high- and low-pressure switches and compressor overload devices. Incorporate a positive acting timer to prevent short cycling of compressor if power is interrupted. Timer to prevent compressor from restarting for approximately 5 minutes after shutdown.
- F. Casing
1. Make unit casing fully weatherproof for outdoor installation. Construct casing of galvanized steel, zinc phosphatized and finished with baked enamel.
  2. Provide openings for power and refrigerant connections. Make panels removable for servicing. Provide heavy duty coil guards, unit mounting rails and drain holes.

2.3 ACCEPTABLE MANUFACTURERS

- A. Carrier
- B. Trane

C. Mitsubishi Electric

**PART 3 - EXECUTION**

3.1 Provide refrigerant piping and accessories to connect condensing units condensers to air conditioning units according to manufacturer's instructions.

3.2 **STARTUP AND TESTING**

A. Manufacturer's service technician to check alignment of bearings, drives and motors after installation to ensure that no misalignment exists, or make any necessary alignment adjustments prior to startup.

B. The manufacturer shall furnish a start up check list to the City of New York at least two months prior to start up. The list must be explicit as to the various items to be checked prior to start up.

C. Before units are started up, manufacturer to pump new grease into bearing housings to force out old grease and provide adequate lubrication.

D. Before acceptance of the equipment by the City of New York, conduct all tests as required to demonstrate that the equipment operates mechanically, electrically and acoustically as specified.

E. Conduct a satisfactory performance test in the presence of the City of New York. Any units found to vibrate beyond acceptable levels must be rebalanced in the field at the Contractor's expense.

3.3 **SPARE COMPRESSORS**

A. Provide ten percent spare compressors of each size supplied for the building but no less than one of each size.

3.4 **WARRANTY**

A. Provide a two (2) year warranty from the date of substantial completion.

END OF SECTION

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SECTION 23 62 20

ROOFTOP PACKAGED COOLING UNITS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide packaged rooftop air conditioning units heating units in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Air Cooled Packaged Units.

1.3 SUBMITTALS

- A. Submit manufacturer's latest data on capacity, dimensions and installation instruction.

PART 2 - PRODUCTS

2.1 AIR COOLED PACKAGED UNITS

- A. Ship units in a single package configuration fully piped, charged, and wired ready for mounting on a prefabricated curb supplied by the manufacturer. Test unit at factory, including the compressors, air handling and operating and safety controls. Include a factory mounted disconnect switch for single point electrical power connection under Division 26.

B. Casing and Base

1. Fabricate casing of 18 gauge hot-dipped galvanized minimized spangle sheet steel ASTM A525. Insulate the casing with one inch thick 2#/ft.<sup>3</sup> density glass fiber insulation attached with adhesive and mechanical fasteners.
2. Paint the external surface with a three step procedure. Clean, prime, finish coat with Gray Enamel.
3. Construct the structural base of 10 gauge hot-dipped galvanized steel shaped to provide a minimum 2-3/4" of integral counterflashing over the entire outside perimeter of a roof mounting curb. Cabinet framing and supports shall be at least 14 gauge galvanized steel and shall provide sufficient rigidity for top-handling through eye-bolts without the use of on-site "spreader-bars". Outer casing shall over-lap the base frame at all surfaces to provide weather-tight flashing and shall be attached with gasketed mechanical fasteners. These fasteners shall be field-removable using simple hand tools.

**ROOFTOP PACKAGED COOLING UNITS**

**23 62 20-1**

4. Support panels from within by structural members and shaped to drain water to the outer edge for run-off.
5. Equip all major sections and/or accessories with matching external flanges provided with natural rubber gasketing material. Job site attachment of sections shall be with ¼" - 20 bolts, nuts and neoprene seal-washers provided by the equipment manufacturer and installed through pre-drilled matching holes in the connecting flanges. Base frames shall have heavy-gauge "bolt-tabs" so that sections may be pulled tightly together without the use of pipe-clamps or related equipment by the installer.
6. Provide access doors at controls, fan, evaporator and filter service areas. These doors shall seat in a wide gasketed 'U' - channel and shall be readily removable without the use of any tool.

**C. Blower Sections**

Provide main blowers of forward curved centrifugal fans mounted on a solid shaft designed to hold the first critical speed of the system well above the maximum operating speed. Wheels shall be statically and dynamically balanced to assure quiet, trouble-free operation. Equip all units with belt drives sized at 150% of required horsepower and an adjustable motor sheave to allow field changing of blower speed to meet the exact system resistance. Rotating blower components shall be rubber-isolated from the unit structure.

**D. Evaporator Section**

Construct the evaporator coil of seamless ½" copper tubes expanded into aluminum plates with adequate area to provide for a low face velocity. Provide thermostatic expansion valves with adjustable superheat and external equalizer. All components shall be easily accessible for inspection without use of tools.

**E. Condenser Section**

Enclose all wiring external to the condenser control panel in weather-proof jacketed conduit or cable.

Provide semi-hermetic compressors, suction cooled and equipped with service valves and crankcase heaters. The condenser coils shall have 12 fins or less per inch and shall be sized to allow the unit to operate at low condensing temperature. Equip the unit with a hot gas by-pass system to allow the system to modulate at the demand of the evaporator load. The condenser shall have multiple fans direct driven to avoid the necessity for bearings, pulleys, shaft or belt replacement. The condenser fan motors shall be three-phase, suitable for outdoor operation with internal overload protection. One or more of these motors shall be controlled by head pressure allowing the unit to operate at 45°F or high ambient temperature.

The condenser fan section shall be internally partitioned to prevent short circuiting of air and windmilling during low ambient operation. The compressors shall be spring-mounted and equipped with an oil pressure switch, high and low pressure switches, crankcase heater, suction and discharge vibration isolators. The main power connection shall be to a weatherproof disconnect switch.

**F. Refrigerant Circuit**

The refrigeration circuit shall be leak tested, vacuum de-hydrated, and include a full operating charge of refrigerant-. Individual operating test data is to accompany the equipment. The system shall be close-coupled such that the compressors are located within twelve (12) feet of the evaporator. Control devices shall include a manual liquid line shut-off valve, moisture indicating sight-glass, filter-drier, solenoid valve, expansion valve, and venturi-type distributor. The hot gas bypass line is to be equipped with a solenoid valve and suction-pressure-regulated bypass control. Hot gas bypass is to flow through the evaporator thereby maintaining refrigerant velocity and oil return.

**G. Induced Draft Fan**

Provide a direct drive induced draft fan driven by a self-ventilating motor and controlled separately from main blowers. Design so as to draw cooling air over inboard motor bearing and shaft. Fan shall discharge into a stack to carry all flue gas away from the unit.

**H. Filter Section**

The filter section shall have four inch, 40% ASHRAE efficiency, throw away filters and shall be easily accessible for cleaning.

**I. Economizer Section**

Economizer controls shall operate the Outside Air/Return Air dampers at the demand of the Logic Panel. Outside air dampers shall remain at the minimum position selected at the [unit mounted remote mounted] [remote panel mounted] manual potentiometer during heating operation. Cooling operation shall drive the outside air dampers to the fully open "Economizer" position for free cooling whenever the outside air temperature and humidity are suitable for Economizer operation. An adjustable outside air enthalpy control shall drive the outside air dampers to the minimum position when "free cooling" is not longer available from outside ambient conditions.

**J. Provide main blowers of multiple centrifugal fans mounted on a solid shaft designed to hold the first critical speed of the system well above the maximum operating speed. Wheels shall be statically and dynamically balanced to assure quiet, trouble-free operation. Equip all units with belt drives sized at 150% of required horsepower and an adjustable motor sheave to allow field changing of blower speed to meet the exact system**

resistance. Rotating blower components shall be rubber-isolated from the unit structure.

**K. Controls**

1. Provide a low voltage room thermostat (equipped with "-Cool" and "Auto-Off-Fan" switches) to operate the fans, and condensing unit through a solid state Logic Panel. As space temperature rises above set-point (cooling), the Logic Panel balances the space and discharge sensor signals by first opening the outside air damper for free cooling. Additional cooling load is satisfied by energizing one or more stages of the condenser/evaporator.

A remote monitoring panel shall be supplied and equipped with "Off-Cool", "Fan-On/Auto" switches, indicating lights for "Fan", "Cool", and "Cool Fail". The above mentioned switches shall not be included as part of the thermostat.

2. A System Master remote control panel containing "System: On-Off", "Auto-Cool" selector switches, and indicating lights for "Cool", "Fan", and "Cool Fail" shall be provided for each unit. A Solid State Central Processor shall operate the cooling, and economizer dampers to maintain space temperatures. The Central Processor shall respond only to the load signals from the zone of greatest cooling demand and shall maintain the minimum temperature difference required to satisfy the zones of maximum demand. Mechanical cooling is locked out in the "Heat" position. When the selector is in the "Auto" position, cooling shall be available at the demand of the zone thermostats. With the selector switch in the "Cool" position, the primary heat shall be locked out, and the zones will be supplied with cooling or with bypassed return air as determined by individual zone stat demand. The Central Processor shall operate the economizer dampers to satisfy any cooling demand with "free cooling" from outside air before energizing any steps of mechanical cooling. A cooling coil "freeze protection" control shall de-energize the condenser in the event of coil frosting or low air flow. Cooling capacity control shall be provided by a hot gas bypass control modulating to maintain constant evaporator suction pressure, and by steps of cylinder unloading.

**2.2 ACCEPTABLE MANUFACTURERS**

- A. Aaon
- B. Trane
- C. Carrier
- D. York

**PART 3 – EXECUTION**

3.1 **WARRANTY**

- A. Provide parts warranty (excluding refrigerant) for one (1) year from start-up or 18 months from shipment, whichever occurs first.
- B. Provide five-year extended parts warranty for compressors.

END OF SECTION

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SECTION 23 73 05

FANS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide centrifugal and axial fans in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Axial Fans
  - 1. Propeller

1.3 SUBMITTALS

- A. Submit manufacturer's latest published data for dimensions, materials, accessories and installation details.
- B. Submit full technical rating data based on tests in accordance with current AMCA standards and in an AMCA approved laboratory. Include manufacturer's certified fan performance curves, and certified sound power ratings. Correct all ratings and curves for altitude and temperature where applicable.

1.4 QUALITY ASSURANCE

- A. Construct all fans, except vaneaxial adjustable blade, to comply with the requirements of the latest editions of the Air Moving and Conditioning Association (AMCA) Standards and Bulletins. Certify these fans by AMCA for performance ratings and provide the AMCA Performance and Construction Seal.
- B. Install fans, with their accessories, to comply with state and local Codes and with the recommendations of the National Fire Protection Association (NFPA).

PART 2 - PRODUCTS

2.1 GENERAL - ALL FANS

- A. Unless noted otherwise, provide discharge direction and drive arrangement to suit space conditions and conform as closely as possible to the layouts shown on the Drawings.

**Bellevue Men's Shelter Elevator Rehabilitation**  
**FMS# HH112BLEL**

- B. Provide fans that are quiet operating and non-overloading over the entire range of operation.
- C. Provide fan motors in accordance with section entitled "Electric Motor Controllers" Size motor to drive its respective fan when the fan is operating at a speed 5% in excess of that required to meet the scheduled fan performance. Do not select motors within the service factor for this range.
- D. Provide fan starters in accordance with section entitled "Electric Motor Controllers" for installation by Division 26.
- E. Statically and dynamically balance fan wheels/impellers at the factory and so certify.
- F. Provide precision self-aligning bearings designed to prevent leakage of oil or grease. Provide cups, oil chambers, Zerk or Alemite lubrication fittings in accessible locations for ease of lubrication. Provide heavy duty split pillow block bearings with tapered, double-row spherical roller assemblies. Provide bearings with service life in excess of 200,000 hours at maximum cataloged fan operating conditions.
- G. Provide copper lubrication leads, for lubrication of internal motors and bearings, extending to a capped termination point external to the fan casing.
- H. Extend wire leads on fans driven by direct motor drive from the motor in air tight rigid walled conduit, to a junction box mounted external to the fan casing.
- I. On fans driven by belt drive provide standard "V-groove" type belts and sheaves suitable for the service intended. Fan sheaves are non-adjustable type with removable machined bushings. Provide adjustable pitch type motor sheaves with double locking feature, to 10% above and below the rated fan speed. Dynamically balance sheaves with over three grooves. For fan motors over 10 horsepower, provide at least two belts. Design multiple belt drives capable of carrying the entire load with one belt broken. Provide preformed expanded metal or sheetmetal belt guards, with grommets tachometer ports at the fan and motor shafts, for all exposed sheaves and belts.
- J. For motors in the airstream, provide TEAO or ODP type motors.
- K. Provide solid hot rolled steel drive shafts, accurately turned and polished to a close tolerance where in contact with bearings. Secure fan wheels/impellers to the drive shaft by a key and keyway assembly.
- L. Manufacture fans of materials and finishes suitable for the service intended.



- M. Construct wheels/impellers exposed to normal atmospheres of mild steel, hot dip galvanized, and finished with two layers of factory applied non-scaling paint.
- N. Construct fans exposed to corrosive atmospheres of corrosion resistant materials suitable for intended use, and factory finished with epoxy or other approved corrosion resistant coatings.
- O. Provide fans exposed to elevated temperatures with components rated for high temperature service. Do not use belt drive assemblies exposed to the airstream. Use direct drive motors certified for high temperature service.
- P. Construct fans used to convey flammable vapors of non-sparking (non-ferrous) materials, and use explosion proof motors.
- Q. Electrically ground fan and drive to prevent accumulation of static charge.
- R. Completely house fan assemblies exposed to weather in weatherproof enclosures including motor and drive.
- S. Fan wheels/impellers and casings shall be relieved of residual stresses produced in the forming process.
- T. Provide fans used to exhaust grease laden vapors with motor drive and bearings completely external of air stream.
- U. Provide housings with integral inlet and discharge flanges, complete with bolt holes for duct connections.
- V. Provide gasketed access doors to permit routine maintenance and inspection of motor and internal components.

2.2 AXIAL FANS

- A. Propeller Type
  - 1. Include propeller type impellers, complete with motors, and panel or ring mountings.
  - 2. Vary fan blades in camber and twist from base to tip.
  - 3. Construct impellers of die formed steel or aluminum attached to a central hub mounted on the fixed drive shaft.
  - 4. Rotate fan hub on the fixed drive shaft using sealed ball bearings.
  - 5. To eliminate overhang load on belted units, design to apply belt load to the hub in the same plane as the bearings.
  - 6. Direct drive fans are acceptable where belt driven units do not meet the criteria.

7. Provide panels or rings with spun venturi inlets suitable for wall mounting and structural angle supports of welded steel construction.
8. Provide basket type fan guards for exposed inlets and discharges.
9. Acceptable Manufacturers
  - a. Loren Cook
  - b. Greenheck
  - c. Penn
  - d. Aerovent
  - e. Peerless

### **PART 3 - EXECUTION**

- 3.1 Install fans in accordance with manufacturer's recommendations and as shown on the Drawings. Follow SMACNA and AMCA recommended procedures for fan installations, belt guards, duct connections, etc.
- 3.2 Provide flexible connections as described in specification section entitled "Sheetmetal" to provide sufficient separation of ductwork from fan assembly to prevent metal-to-metal contact.
- 3.3 Install fans and motors with proper support and vibration isolation as specified in section entitled "Vibration Isolation".
- 3.4 Provide sufficient clearances around fans for access and servicing of components. Install fans such that access doors, motors, belts, lubrication lines, electrical connections, etc. are readily accessible and not obstructed by other installations or structures.
- 3.5 Bump start fans to check that fan wheel/impeller rotation corresponds to the desired direction of air flow. Correct fans found to be rotating in a direction opposite to that desired.
- 3.6 Tighten belt drives, taking into account the service factor and any other design of the drive. Exercise care not to overtension belts.
- 3.7 Check all bolts and fasteners to ensure proper tightness. Do not overtighten nuts and bolts.

- 3.8 Check bearings and motor for proper lubrication, taking care not to overlubricate. Use only lubricants recommended by the manufacturer.
- 3.9 Provide a drain at the bottom of the housing for fans discharging upward from the roof. Pipe drains from housings of interior fans discharging directly up through the roof indirectly to a floor drain. Pipe drains from housings of kitchen grease exhaust fans to a grease interceptor.
- 3.10 WARRANTY
  - A. Provide a one (1) year warranty from the date of substantial completion.

END OF SECTION

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SECTION 23 84 40  
SPACE HEATING UNITS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide heating units in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Unit Heaters.

1.3 SUBMITTALS

- A. Submit manufacturer's latest information on construction details, capacity data and installation details.

1.4 QUALITY ASSURANCE

- A. All electric heating units to be U.L. or ETL rated and bear certifying label.
- B. All hot water and steam units to be rated and tested for pressure as shown on the Drawings.

PART 2 - PRODUCTS

2.1 UNIT HEATERS - PROPELLER FAN TYPE

- A. Provide propeller type unit heaters with heating elements, motor driven propeller type fans, all installed in a metal casing, finished with lacquer or baked-on enamel.
- B. Motor speeds not to exceed 1,500 rpm. Remove and replace any unit heaters which are found to be objectionably noisy in the opinion of the Commissioner.
- C. Each unit heater to be properly supported from building construction and braced, as necessary, to prevent sway. Unit heaters shall not be supported by the piping to which they are connected.
- D. For wet heating systems, provide copper coil heating elements rated for maximum working pressure. Install an aquastat in the supply connection to each heater, wired to prevent the fan from operating when there is no heat available.
- E. For electric unit heaters, provide heating elements of sheathed nickel-chromium wire.

2.2 CONTROLS

A. Unit Heaters

1. Thermostats shall be furnished by equipment manufacturer. Thermostats shall be line voltage, and designed to operate on a 3° differential over a temperature range of 45°-75°.

2.3 ACCEPTABLE MANUFACTURERS

A. Unit Heaters

1. Trane
2. Markel
3. Airtherm
4. York

**PART 3 - EXECUTION**

3.1 ACCESSORIES

- A. Provide all accessories indicated on Contract Drawings.

END OF SECTION

SECTION 23 85 00

VARIABLE FREQUENCY CONTROLLERS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide variable frequency controllers (VFC) in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Variable Frequency Controller.
- B. Control Interface.

1.3 SUBMITTALS

- A. Provide manufacturer's descriptive literature, installation instructions, operating instructions, and maintenance and repair data.
- B. Provide all electric wiring control diagrams for the VFC operation.

1.4 QUALITY ASSURANCE

- A. Test all integrated circuits (TTL) and all components used for circuit board construction to an acceptance criteria of 0.5% AQL (Accepted Quality Level).
- B. Conduct in-circuit testing of all printed circuit boards to insure proper mounting and correct value of all components.
- C. Burn-in all printed circuit boards for at least 24 hours, at a minimum of 70°C, and temperature cycled.
- D. Functionally test final printed circuit board assemblies via computerized test equipment where all tests and acceptance criteria are preprogrammed and test results are stored as detailed quality assurance data. The Engineer and City of New York may witness the factory tests. Provide at least two (2) weeks written notice prior to start of the factory test.
- E. Combine-test all fully assembled controls for performance and functionality at the manufacturer's factory with fully loaded induction motors. Analyze the combined test data to insure adherence to quality assurance specifications.

- F. Design and build the variable frequency controllers to the following standards:
  - 1. E.T.L. and/or U.L.
  - 2. NEMA - ICS-3-303.
  - 3. F.C.C. Class A.
  - 4. IEEE STD 444 (ANSI C34.3).
- G. Work shall be "Year 2000 Compliant."

**PART 2 - PRODUCTS**

**2.1 GENERAL**

- A. The manufacturer must provide local, in-house service backup which must include factory trained personnel specifically trained for electrical component maintenance and troubleshooting.
- B. Purchase motors and variable frequency controllers from a single source. Verify in writing that the motors and variable frequency controllers operate together as a system; fully compatible and without excessive noise or vibration.

**2.2 DESIGN**

- A. Provide variable frequency controllers of the pulse width modulated (PWM) design that operate directly from three phase, 460 VAC  $\pm 10\%$ , 60 hertz utility power. The VFC will generate a sine-coded, adjustable voltage/frequency three phase output for complete speed control of any NEMA B squirrel cage induction motor. The VFC to maintain a 120% current overload capability for 60 seconds with automatic stall prevention and voltage boost to prevent nuisance tripping during load or line side transient conditions. The VFC not to induce voltage line matching distortion back to the building electrical power supply system and to maintain a power factor of not less than 0.95 throughout its speed range. Provide a tuned line filter, adjusted as required to prevent any electrical distortion back into the building electrical power supply system. Comply with FCC Class A noise emissions standard and so label.
- B. Provide the variable frequency controller with the following basic design:
  - 1. Converter: Consists of a modularized diode rectifier and capacitor assembly which will first convert, then filter and maintain a fixed DC voltage source from the fixed voltage and frequency input.
  - 2. Inverter: Inverter uses power transistor semiconductors with a minimum rating of 1100 VAC on 460 VAC controls to invert the

**VARIABLE FREQUENCY CONTROLLERS**



converter generator fixed DC voltage into a sine-coded pulse width modulated output.

3. Control Logic: Consists of a single printed circuit board and incorporates an 8-bit, or larger, microcomputer central processing unit to control all inverter, converter, base drive and external interface functions.
4. Terminal strip for input signals from Building Control System for remote start/stop and speed control signal capabilities. Refer to Automatic Temperature Controls for interface and coordination.
5. Enclosure: NEMA 1 enclosure, for typical indoor locations. Utilize NEMA Type 32 for outdoor locations and NEMA Type 4 for wet locations subject to water spray or very high humidity.

### 2.3 FEATURES

- A. Include with the variable frequency controller the following minimum design features as standard:
  1. Sine-coded, pulse width modulated output.
  2. Eight (8) bit, or larger, microcomputer control logic.
  3. Maximum and minimum speed adjustment capability.
  4. Controlled speed range of 20:1, or greater.
  5. Overload capability of 20% for 60 seconds.
  6. Process follower 4-20 mA or 1-10 VDC, input.
  7. Minimum of three (3) selectable output frequency ranges.
  8. Fifteen selectable volts/hertz patterns.
  9. Touch-pad operator controls or adjustable potentiometer with at least four (4) segment digital frequency/speedometer or digital readout displaying: output frequency, status, percent current, and percent response signal.
  10. Input disconnect/circuit breaker with thru-door handle.
  11. Torque or current limiting circuit.
  12. Coast or ramp to stop.
  13. Electronic reversing.
  14. Adjustable acceleration and deceleration.

15. Fault indicators.
  16. Fault contacts for interface with Automatic Temperature Controls.
  17. External start/stop signal capability from the building control system.
  18. External speed control from a 4-20 mA or 0-10 VDC signal from control system.
- B. Provide the variable frequency controller with the following protective features as a minimum:
1. Ground fault protection.
  2. Electronic thermal motor overload or current limit control.
  3. Current limited stall prevention during acceleration, deceleration, and run conditions.
  4. Automatic restart, after momentary power loss or momentary over-voltage. No restart into ground fault.
  5. Controls for start into a rotating motor.
  6. Anti-windmill protection.
  7. Fault indicators shall indicate the following fault conditions:
    - a. Over-current
    - b. Overload
    - c. Over-voltage
    - d. Over-temperature
    - e. Control function error.
  8. DC bus discharge indicator.
  9. Current limiting DC bus fuse.
  10. Isolated operator controls.
  11. Phase-to-phase short circuit protection.
  12. Heat sink over-temperature protection.

- C. Make the following adjustments available on all variable frequency controllers:
1. Acceleration - 0.2 to 1800 seconds or 0.1 to 300 seconds.
  2. Deceleration - 0.2 to 1800 seconds or 0.1 to 300 seconds.
  3. Volts/hertz adjustments.
  4. Maximum frequency range.
  5. Minimum frequency.
  6. Maximum frequency.
  7. Carrier frequency.
  8. Torque limit.
  9. The inverter supplier to provide line filters on the line to prevent interference from the line to the drive and prevent any electrical harmonic distortion back to the building electrical power supply system.
  10. Provide a signal isolator to isolate the control signal to and from the inverter drive.
- D. Provide the variable frequency controller with the following additional features:
1. One (1) door interlocked main power input disconnect circuit breaker to provide positive shutdown of all input power to the drive.
  2. The complete circuit breaker and overload relay package shall be mounted in the inverter cabinet or may also be available in its own separate enclosure adjacent to the inverter.
  3. 2200 Microfarad ride-through capacitor which shall provide assistance to maintain the D.C. bus voltage for a two-second momentary power loss or furnish automatic restart capability which allows restart into a rotating motor.
  4. One (1) complete set of spare parts for each size inverter consisting of the following:
    - a. Control fuses.
    - b. Control board.
    - c. Drive board.

- d. Transistors.
- e. Capacitors.

**E. Manual Bypass**

1. Provide all the circuitry necessary to safely transfer the motor from the VFC to the power line, or from the line to controller at zero speed. Include a separate cabinet for the bypass circuit to house all devices which must be energized at either 480 VAC or 115 VAC.
2. On the bypass cabinet include a door interlocked main power input disconnect circuit breaker, providing positive shutdown of all input power to both the bypass circuitry and the VFC. Motor protection to be provided in both the "Controller" mode and the "Bypass" mode by a motor overload relay.
3. The bypass cabinet door to include a "Controller-Off-Bypass" selector switch and "Controller Mode" indicator light and a "Bypass Mode" indicator light. Provide terminals for remote light indication of mode selection.
4. Include a door interlocked input disconnect circuit breaker for the bypass circuit installed in the VFC to facilitate troubleshooting and testing of the controller safely, both energized and de-energized, while operating in the "Bypass" mode.
5. Factory install the manual bypass with magnetic contactors.
6. Controller to be constructed so as to allow power to be disconnected from either mode yet maintain power to the other mode for uninterrupted motor operation. This disconnecting means must completely isolate either mode for maintenance purposes.

**2.4 ENVIRONMENT**

- A. Design the variable frequency controller to operate within the following environmental and service conditions:
1. Ambient service temperature - 10°C to 40°C.
  2. Ambient storage temperature - 20°C to 60°C.
  3. Humidity - noncondensing to 90%.
  4. Altitude to 3300 feet.
  5. Service factor - 1.0.
  6. Input voltage - three phase, 460 VAC  $\pm$ 10%.

7. Input frequency - 60 hertz  $\pm$ 5%.

2.5 ACCEPTABLE MANUFACTURERS

- A. Asea-Brown-Boveri Parametrics
- B. Robicon
- C. Westinghouse
- D. Toshiba

**PART 3 - EXECUTION**

3.1 INSTALLATION

- A. All drive components including motor, sheaves, belts, fans must have vibration levels checked at all speeds between 20 percent and 100 percent of the driven unit's design rpm. Vibration must be checked at fan shaft bearings in radial (vertical and horizontal) and axial directions. If excessive vibration is found at any frequency, special balancing and structural changes must be provided to minimize harmonic vibrations.

END OF SECTION

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SECTION 23 86 00

ELECTRIC MOTOR CONTROLLERS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide electric motor controllers in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Combination Starters and Disconnect Switches.

1.3 SUBMITTALS

- A. Shop Drawings

1. Submit a list of motor controllers required for the project. This list should include equipment tag, equipment motor size, starter type, starter features.
2. Submit a statement of compliance, or non-compliance for each clause of this specification section.
3. Submit a statement of understanding that each starter has a withstand rating that is coordinated with the electrical system installation.
4. Submit shop drawings and manufacturer's data for all items in accordance with the conditions of the contract.
5. Include control diagrams, unit wiring diagram for each motor controller, assembly outline drawings, summary sheets, shop interwiring diagrams, field connection diagrams, and nameplates with legends.

- B. Include a statement verifying coordination with the automatic temperature controls and the fire alarm system.

1.4 QUALITY ASSURANCE

- A. Motor Controllers: Comply with Underwriters' Laboratories standard UL-508 (being transitioned to WL 60947) and National Electrical Manufacturers Association Standard ICS 2-2000.
- B. Disconnect Switches: Comply with National Electrical Manufacturers Standard ICS 2-1996, Part 8 (R 2004, R 2009).

- C. Warranty shall be for 5 Years from date of shipment and shall cover replacement parts on all components.

**PART 2 - PRODUCTS**

**2.1 COMBINATION STARTERS AND DISCONNECT SWITCHES**

- A. Provide suitable fully coordinated starting and controlling equipment for motors as required. Arrange the starting equipment as indicated in other sections of these specifications.
- B. Consult with each trade affected to determine the exact requirements for each device.
- C. Coordinate with the Contractor to establish required auxiliaries, including relays, contacts, terminals and the like. All three phase starters to have a minimum of (2) normally open and (2) normally closed auxiliary contacts.
- D. All starter interface and termination points for the Contractor shall be made at a terminal strip provided with the motor controller.
- E. Provide individual starters fully enclosed in neatly finished ventilated boxes of code gauge steel, machine formed and welded. Provide boxes arranged for floor, wall or angle iron frame mounting including a door with a spring catch handle with facility to lock handle in open position.
- F. Provide engraved nameplates for each unit, nomenclature of each to be approved prior to fabrication.
- G. Provide starters for motors less than 1/2 horsepower, as 120 volt, 1-phase, 60 cycle, or 277 volt 1-Phase, 60 cycle, alternating current service with pilot light. Provide manual starters with overload protection and lockout type disconnect switch to control such motors, except where interlocks or automatic controls are required. In such cases, provide magnetic across-the-line starters.
- H. Fire smoke dampers, smoke dampers and automatic louver dampers will be started using addressable relay modules provided by the fire alarm or building control compactor.
- I. Provide starters for motors 1/2 horsepower to 100 horsepower as magnetic across-the-line, combination Motor Circuit Protector or Circuit Breaker type. Such starters to be 208 or 480 volt, 3-phase, 60 cycle, alternating current service.
- J. Provide starters for motors over 100 horsepower to be magnetic, combination Soft Start with Motor Circuit Protector Switch. Such starters to be 208 or 480 volt, 3-phase, 60 cycle, alternating current service.



- K. Provide magnetic starters subject to manual start and in direct view of the motors they control with momentary contact start and stop buttons built into cover. Provide magnetic starters subject to electrical interlock or automatic control with Hand-Off-Automatic switches built into cover. Provide selector switches in starters to be of the maintained-contact type, water tight and dust tight.
- L. Provide starters with water tight and dust tight, (5) pilot lights on the following indications: Hand, Off, Auto, Run, and Overload.
- M. Provide starters for service at voltages higher than 120 volt with transformers for 120 volt secondary service built into each starter casing to serve control circuits.
- N. Provide each starter subject to electrical interlock and/or automatic control with the necessary auxiliary contacts plus one spare set of normally open and normally closed auxiliary contacts. Provide one set of terminals for each control circuit.
- O. Provide magnetic starters with Solid State Electronic Overload Relay which shall protect all three phases with a wide range current setting and trip class to allow field adjustment for specific motor FLA. Interchangeable heater elements are not acceptable. Overload relay shall provide phase failure, phase loss, locked rotor and stall protection.
- P. Provide coils, cores, resistance, insulation, contacts, trippers, etc., for starters and relays. The motor circuit protector shall be UL listed 508 current limiting manual motor starters with magnetic trip elements only. The breaker shall carry a UL 508F rating which provides for coordinated short circuit rating for use with the NEMA rated motor contractor and provides a minimum interrupting rating of 30 KAIC for the combination starter.
- Q. Provide over/under voltage and phase monitoring capability. Monitor shall be field adjustable for both over and under voltage levels and a delay time before returning to normal operation after a trip.
- R. Mount individual motor controllers in NEMA Type 1A enclosures for typical indoor locations. Utilize NEMA Type 3R for outdoor locations and NEMA Type 4 for other wet locations or locations subject to water spray or very high humidity.
- S. Coordinate the withstand rating of all starter components with the Contractor and with the requirements of the electrical system. Starters that do not have appropriate withstand rating shall be removed from the project – at no cost – for operator safety.

**2.2 MOTOR CONTROL CENTERS**

- A. Provided by Division 26.

**2.3 ACCEPTABLE MANUFACTURERS**

- A. Cerus
- B. General Electric
- C. Square Dee
- D. Siemens
- E. Eaton/Cutler Hammer
- F. Allen Bradley

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

- A. Motor controllers shall be installed by the contractor.
- B. Various pieces of packaged equipment will be provided with starters installed by manufacturer at the factory. Coordinate the Division 26 work with these starters.
- C. Review Division 26 and Automatic Temperature Control or Building Management Control System (BMCS) Documents for required accessories, interlocks, etc. Failure to fully coordinate this item with the other Divisions in no way relieves this Contractor from providing a complete, functional, and coordinated system as described.

**END OF SECTION**

SECTION 26 00 02

ELECTRICAL SPECIAL CONDITIONS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The General and Supplementary Conditions accompanying these Specifications are hereby made a part of the requirements for the work under this Division of the Specification.

1.2 WORK INCLUDED

- A. Provide labor and materials required to install, test and place into operation the electrical systems as called for in the Contract Documents, and according to applicable codes and regulations.
- B. Furnish and install all labor, materials, apparatus, and appliances essential to the complete functioning of the systems described and/or indicated herein, or which may be reasonably implied as essential whether mentioned in the Contract Drawings and Specifications or not.

1.3 SUBMITTALS

- A. Submit all shop drawings, manufacturer's data, samples and test reports as called for hereinafter.
- B. Submit a single guarantee stating that all parts of the work are in accordance with Contract requirements. Guarantee work against faulty and improper material and workmanship for a period of one (1) year from date of final acceptance by the City of New York, except that where guarantees or warranties for longer terms are specified herein, such longer term to apply. Within 24 hours after notification, correct any deficiencies which occur during the guarantee period at no additional cost to the City of New York, to the satisfaction of the City of New York and Commissioner. Obtain similar guarantees from subcontractors, manufacturers, suppliers and subtrade specialists.

1.4 QUALITY ASSURANCE

- A. Comply with current governing codes, ordinances and regulations, as well as with requirements of the NEC, OSHA, U.L. and all other applicable codes and the rules, regulations and requirements of the utility companies serving the project.
- B. Comply with the requirements of agencies or authorities having jurisdiction over any part of the work and secure all necessary permits.
- C. Where codes or standards are listed herein, the applicable portions apply.

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- D. Plans, specifications, codes and standards are minimum requirements. Where requirements differ, apply the more stringent.
- E. Should any change in plans or specifications be required to comply with governing regulations, notify the Architect/Engineer at the time of submitting this bid.
- F. Execute work in strict accordance with the best practices of the trades in a thorough, substantial, workmanlike manner by competent workmen. Provide a competent, experienced full-time Superintendent who is authorized to make decisions on behalf of the Contractor.
- G. All equipment shall meet or exceed minimum requirements of NEMA, IEEE, UL, ADA, NFPA and OSHA.

**1.5 ABBREVIATIONS AND DEFINITIONS**

**A. Abbreviations**

ADA	Americans with Disabilities Act
ANSI	American National Standards Institute
ASA	Acoustical Society of America
ASTM	American Society For Testing and Materials
BIL	Basic Impulse Level
CBM	Certified Ballast Manufacturers
EIA	Electronic Industries Association
EPA	Environmental Protection Agency
ETL	Electrical Testing Laboratories, Inc.
FM	Factory Mutual
FS	Federal Specifications
IBC	International Building Code
IEEE	Institute of Electrical and Electronic Engineers
IESNA	Illuminating Engineering Society of North America
IPCEA	International Power Cable Engineers Association
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NETA	National Electrical Testing Association
NFPA	National Fire Protection Association
OEM	Original Equipment Manufacturers
OSHA	Occupational Safety and Health Administration
U.L.	Underwriters Laboratories

**B. Definitions**

- 1. "PROVIDE" means to "Furnish" and "Install".
- 2. "INSTALL" means to unload, join, unite, fasten, link, attach, set up or otherwise connect together before testing and turning over to City of New York, complete and ready for regular operation, the particular work referred to.

3. "FURNISH" means to purchase, deliver and supply all materials, labor, equipment, testing apparatus, controls, tests, accessories and all other items customarily required for the proper and complete application for the particular work referred to. Purchasing includes all applicable surcharges.
4. "AS DIRECTED" means as directed by the Commissioner, or his representative.
5. "CONCEALED" means embedded in masonry or other construction, installed behind wall furring or within double partitions, or installed within hung ceilings or shafts.
6. "SUBMIT" means submit to Commissioner for review. Refer to Architectural General and Special Conditions for proper procedures.

## **PART 2 - PRODUCTS**

### **2.1 EQUIPMENT AND MATERIALS**

- A. If products and materials are specified or indicated on the Contract Drawings for a specific item or system, use those products or materials. If products and materials are not listed in either of the above, use first class products and materials, subject to the review of the Commissioner.
- B. Provide products and materials that are new, clean, free of defects and free of damage and corrosion.
- C. All products and materials used for this project shall not contain any material which is considered hazardous by the Department of Environmental Protection or any other agency having jurisdiction.
- D. Replace materials of less than specified quality as designated by the Commissioner and relocate work incorrectly installed as determined by the Commissioner.
- E. Provide name/data plates on all components of equipment with manufacturer's name, model number, serial number, capacity data and electrical characteristics are attached in a conspicuous place.
- F. Install materials and equipment with qualified trades people.
- G. Maintain uniformity of manufacturer for equipment used in similar applications and sizes.
- H. Applicable equipment and materials shall be listed by Underwriters' Laboratories and manufactured in accordance with ANSI standards, and as approved by authorities having jurisdiction.

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- I. Fully lubricate equipment to manufacturer's requirements when installed and prior to operation.
- J. Locate all floor mounted equipment on a 4" high concrete housekeeping pad. Concrete work shall be provided by another trade. Coordinate size and location with the General Contractor providing the concrete pads.
- K. Secure equipment with bolts, washers and locknuts of ample size to support equipment. Embedded anchor bolts shall have bottom plate and conduit sleeves. Grout machinery set in concrete under the entire bearing surface. After grout has set, remove wedges, shims and jack bolts and fill space with grout.
- L. Follow the manufacturers' instructions for installing, connecting, and adjusting all equipment. Provide one (1) copy of such instructions to the Commissioner before installing any equipment. Provide a copy of such instructions and attach to the equipment. Include a copy in the O+M manuals.
- M. Where factory testing of equipment is required to ascertain performance and attendance by the Commissioner is required to witness such tests, all associated travel costs and subsistence shall be borne by this Contractor.
- N. Equipment capacities, etc., are scheduled or specified for the job site operating conditions. Equipment sensitive to altitude shall be derated with the method of derating identified on the shop drawings.

**2.2 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

- A. Immediately after notice to proceed by the City of New York or Commissioner, or after execution of City of New York/Contractor Agreement, submit to the Commissioner for review, a complete typed list of all electrical equipment manufacturers and material suppliers for the equipment intended to be furnished and installed on this project as well as names of all subcontractors.
- B. Immediately after notice to proceed by the City of New York or Commissioner, prepare an index of all submittals for the project. Include a submittal identification number, a cross-reference to the Specification sections or Contract Drawing number, and an item description. Prefix the submittal identification number by the Specification sections to which they apply. Indicate on each submittal, the submittal identification number in addition to the other data specified. All subcontractors will utilize the assigned submittal identification number.
- C. After the Contract is awarded, obtain complete shop drawings, product data and samples from the manufacturers, suppliers, vendors, and all subcontractors, for all materials and equipment specified in the various sections of the specification. Submit data and details of such materials and equipment for review by the Commissioner. Prior to the submission of the

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shop drawings, product data and samples to the Commissioner; review and certify that these items are in compliance with the Contract Documents. Check all materials and equipment upon their arrival on the job site and verify their compliance with the Contract Documents. Modify any work which proceeds prior to receiving reviewed shop drawings as required to comply with the Contract Documents and the shop drawings, at no cost to the project.

- D. Prior to fabrication or installation of any work, completely coordinate work of all trades and prepare a complete set of Coordination Drawings.

**2.3 REVIEWS**

- A. Commissioner's review is for general compliance with the design concept and Contract Documents. Markings or comments or the lack thereof does not relieve the Contractor from compliance with the project plans and specifications. The Contractor remains solely responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes, for techniques of construction, for performing his work in a safe manner, and for coordinating his work with that of other trades.
- B. No part of the work shall be started in the shop or in the field until the Commissioner have reviewed and returned the shop drawings with No Exceptions Noted and samples for that portion of the work.
- C. A minimum period of ten (10) working days, exclusive of transmittal time, will be required in the Commissioner's office each time a shop drawing, product data and/or samples are submitted for review. This time period must be considered by the Contractor when scheduling his work.
- D. Submit two (2) prints of electrical drawings.
- E. Submit six (6) copies of all catalog cuts.
- F. Submissions will be stamped as follows:

<u>No Exceptions Noted [ ]:</u>  	When directed, fabrication, manufacture or construction may proceed providing submittal complies with the Contract Documents.
<u>Exceptions Noted [ ]:</u>  	Work may proceed as above so long as the engineer's notations as complied with: [ ] No Resubmission Required [ ] Resubmit For Record Only

<u>Revise and Resubmit [ ]:</u>	The submittal does not comply with the Contract Documents; do not proceed with fabrication, manufacture or construction. The work and shop drawings are not permitted at the job site. Resubmit appropriate shop drawings.
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**PART 3- EXECUTION**

**3.1 DRAWINGS & PRODUCT DATA**

- A. Submit materials and equipment by manufacturer, trade name and model number. Include copies of applicable brochure or catalog material. Do not assume applicable catalogs are available in the Commissioner's office. Maintenance and operating manuals are not suitable substitutes for shop drawings.
- B. Identify each sheet of printed submittal pages (using arrows, underlining or circling) to show applicable sizes, types, model numbers, ratings, capacities and options actually being proposed. Cross out non-applicable information. Note specified features.
- C. Include dimensional data for roughing in and installation, technical data sufficient to verify that equipment meets requirements of the Contract Drawings and specifications. Include wiring, conduit, outlet-type and service connection data, motor sizes complete with voltage ratings and schedules.
- D. Maintain a complete set of reviewed and stamped shop drawings and product data on site.
- E. Prepare and submit detailed shop drawings for major electrical and telecommunications conduit duct banks and other distribution services in 3/8" = 1'-0" scale, including locations and sizes of openings in floor decks, walls and roofs.
- F. For each room or area of the building containing switchgears, switchboards, panelboards, motor control centers, transformers, emergency generators, substations, dimming cabinets, low voltage systems, bus ducts, fire alarm terminal panels, etc. the following is required to be submitted for review and acceptance at the time of the equipment submittal.
  - 1. Floor Plans:
    - a. Plan views (including sections & elevations when requested) of the equipment indicated in the exact location in which it is

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intended to be installed. These plans shall be of a scale not less than 1/4" = 1' - 0". They shall be prepared in the following manner:

- (1) Indicate the physical boundaries of the space including door swings and ceiling heights and ceiling types (as applicable).
  - (2) Illustrate all electrical equipment proposed to be contained therein. Include top & bottom elevations of all electrical equipment. The drawings must be prepared utilizing the dimensions contained in the individual equipment submittals. Illustrate all access space requirements.
  - (3) Illustrate all other equipment therein such as conduits, detectors, luminaries, ducts, registers, pullboxes, wireways, structural elements, etc.
  - (4) Note the operating weight of each piece of equipment.
  - (5) Note the heat release from each piece of electrical equipment in terms of BTU per hour. This information shall be that which is supplied by the respective manufacturers.
  - (6) Illustrate all dimensions of concrete pads, curbs, etc.
  - (7) Note all code and maintenance required clearances from all equipment by dimensions, including overhead.
  - (8) Indicate maximum normal allowable operating temperature for each piece of equipment (as per each respective manufacturer's recommendation).
  - (9) Any exterior wall or foundation penetrations.
2. Equipment Installation/Removal Routes:
- a. Provide in conjunction with the above, a set of documents reproduced from the then current Contract Documents indicating the methods of equipment installation/removal for all major pieces of equipment.
  - b. Indicate on floor plans by means of arrows, the complete path for equipment installation/removal.
  - c. Where equipment will be required to be hung temporarily from a slab or beam, note same on the submission including

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the weight of the equipment to be hung and the weight of the hoisting equipment.

- d. Note all heights of conduits, ductwork, link beams, doorways, transoms, piping, etc. in the proposed path assuring that adequate headroom is provided.
  
- G. The Contractor is not relieved of the responsibility for dimensions or errors that may be contained on submissions reviewed by the Commissioner, or for deviations from requirements in the Contract Documents. Understand clearly that the Commissioner's noting some errors but overlooking others does not grant the Contractor permission to proceed in error. Regardless of any information contained in the shop drawings, product data and samples, the Contract Documents govern the work and are neither waived nor superseded in any way by the review of shop drawings, product data and samples.
  
- H. Inadequate or incomplete shop drawings, product data and/or samples will not be reviewed by the Commissioner and will be returned to the Contractor for resubmittal.
  
- I. Indicate in the lower right hand corner of each shop drawing, and each product data brochure on the front cover, the following: The submittal identification number; title of the sheet or brochure; name and location of the Project; names of the Architect, Engineer, Contractor, manufacturer, supplier, and vendor; the date of submittal; and the date of each correction and version and revision. Number all pages and drawings in the product data brochures consecutively from beginning to end. Unless the above information is included, the submittal will be returned for resubmission. Include with the resubmittals of product data or brochures a cover letter summarizing the corrections made in response to the review comments and the submittal page numbers which were revised.

### **3.2 CONTRACTOR'S COORDINATION DRAWINGS**

- A. Coordinate efforts of all trades and furnish, in writing, any information necessary to permit the work of all trades to be installed satisfactorily and with the least possible interference or delay.
  
- B. Prepare a complete set of construction Coordination Drawings indicating the equipment actually purchased and the exact routing for all lines such as busway, conduit etc., including conduit embedded in concrete. Use the sheetmetal shop drawings as the base drawings to which all other contractors will add their work. Complete each Coordination Drawing and have them signed-off by the other subcontractors and the General Contractor prior to the installation of the work in the area covered by the specific drawing.
  
- C. Indicate structural loads and support points for all racked conduit and busway, and submit to the Commissioner for review and approval. Indicate

the elevation, location, support points, static, dynamic and expansion forces and loads imposed on the structure at support, anchor points, and size of all conduits. Indicate all beam penetrations and slab penetrations sized and coordinated. Indicate all work routed underground or embedded in concrete by dimension to column and building lines.

- D. This requirement for Coordination Drawings is not authorization for the Contractor to make any unauthorized changes to the Contract Drawings. Maintain all Design Drawing space allocations such as ceiling height, space directly above the ceiling for tenant buildout and flexibility, chase walls, equipment room size, etc., unless prior written authorization is received from the Commissioner to change them.
- E. Work installed which interferes with work of any other trade shall be corrected at no cost to the project.
- F. This Contractor shall not install any work prior to "sign-off" of final coordination drawings by all trades. If electrical work proceeds prior to this sign-off, this Contractor shall be responsible for all costs resulting to correct interferences and conflicts.

### 3.3 COORDINATION OF WORK

- A. The Contract Drawings show the general arrangement of equipment and appurtenances. Follow these drawings as closely as the actual construction and the work of other trades will permit. Provide offsets, fittings, and accessories which may be required but not shown on the Contract Drawings. Investigate the site, structural and finish ground conditions affecting the work, and arrange the work accordingly. Provide such work and accessories as may be required to meet such conditions, at no additional cost to the project.
- B. The locations of lighting fixtures, outlets, panels and other equipment indicated on the Contract Drawings are approximately correct, but they are understood to be subject to such revision as may be found necessary or desirable at the time the work is installed in consequence of increase or reduction of the number of outlets, or in order to meet field conditions or to coordinate with modular requirements of ceilings, or to simplify the work, or for other legitimate causes.
- C. Exercise particular caution with reference to the location of panels, outlets, switches, etc., and have precise and definite locations reviewed by the Commissioner before proceeding with the installation.
- D. The Contract Drawings show only the general run of raceways and approximate location of outlets. Any significant changes in the location of outlets, cabinets, etc., necessary in order to meet field conditions shall be brought to the immediate attention of the Commissioner and receive his review before such alterations are made. All such modifications shall be made without additional cost to the City of New York.

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- E. Obtain from the Commissioner in the field the location of such outlets or equipment not definitely located on the Contract Drawings.
- F. Circuit "tags" in the form of numbers are used where shown to indicate the circuit designation numbers in electrical panels. Show the actual circuit numbers on the as-built drawings and on a typed panel directory card. Where circuiting is not indicated, electrical trade must provide required circuiting in accordance with the loading indicated on the Contract Drawings and/or as directed by the Commissioner.
- G. The Contract Drawings generally do not indicate the number of wires in a conduit for the branch circuit wiring of fixtures and outlets. Provide the correct wire size and quantity as required by the indicated circuiting; circuit numbers indicated on the control wiring diagrams; specified voltage drop or maximum distance limitations; or the applicable requirements of the NEC. All power branch circuits shall be equipped with a ground conductor.
- H. Certain materials will be provided by other trades. Examine the Contract Documents to ascertain these requirements.
- I. Carefully check space requirements with other trades to insure that material can be installed in the spaces allotted thereto including finished suspended ceilings.
- J. Wherever work interconnects with work of other trades, coordinate with other trades to insure that they have the information necessary so that they may properly install the necessary connections and equipment. Identify items (remote ballast, pull boxes, etc.) requiring access in order that the Ceiling Trade will know where to install access doors and panels.
- K. Consult with other trades regarding equipment so that, wherever possible, motor controls and distribution equipment are of the same manufacturer.
- L. Furnish and set sleeves for passage of bus ducts and conduits through structural masonry and concrete walls and floors and elsewhere as will be required for the proper protection of each bus duct and conduit passing through building surfaces. Provide fireproofing where required. Sleeves shall extend 2" beyond both sides of the building surface.
- M. Properly provide firestopping around all conduits, bus ducts, sleeves, etc. which pass through rated walls, partitions and floors.
- N. Provide detailed information on openings and holes required in precast members for electrical work. Cast holes 4 inches and larger in diameter. Field-cut holes smaller than 4 inches.
- O. Provide required supports and hangers for conduit and equipment, designed so as not to exceed allowable loadings of structures.

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- P. Examine and compare the electrical Contract Drawings and specifications with the Contract Drawings and specifications of other trades, and report any discrepancies between them to the Commissioner and obtain written instructions for changes necessary in the work. Install and coordinate the work in cooperation with other related trades. Before installation, make proper provisions to avoid interferences.
- Q. Wherever the work is of sufficient complexity, prepare additional detail drawings to scale similar to that of the design drawings. With these layouts, coordinate the work with the work of other trades. Such detailed work shall be clearly identified on the drawings as to the area to which it applies. Submit these drawings to the Commissioner for review. At completion include a set of such drawings with each set of as-built drawings.
- R. Contractor shall furnish the services of an experienced Superintendent, who shall be in constant charge of all work, and who shall coordinate his work with the work of other trades. No work shall be installed before coordinating with other trades.
- S. Coordinate with the Electric Utility Company and the Telephone Company as to their requirements for service connections and provide all necessary materials, equipment, labor and testing.
- T. Coordinate, with the contractors for work under other Divisions of this specification, for all work necessary to accomplish this contractor's work.
- U. Before commencing work, examine adjoining work on which this work is in any way dependent for perfect workmanship and report conditions which prevent performance of first call work. Become thoroughly familiar with actual existing conditions to which connections must be made or which must be changed or altered.
- V. Adjust location of conduits, panels, equipment, etc., to accommodate the work to prevent interferences, both anticipated and encountered. Determine the exact route and location of each conduit prior to installation.
  - 1. Right-of-Way: Lines which pitch have the right-of-way over those which do not pitch. For example: condensate, steam and plumbing drains normally have right-of-way. Lines whose elevations cannot be changed have right-of-way over lines whose elevations can be changed.
  - 2. Make offsets, transitions and changes in direction in conduit as required to maintain proper head room and pitch on sloping lines.
- W. In case of doubt as to the work intended, or in the event of need for explanation thereof, request supplementary instruction from the Commissioner.

- X. Immediately upon the award of this Contract, but prior to commencing any work, confer together with designated major subcontractors, with the Commissioner concerning the work under this Contract.

**3.4 CUTTING AND PATCHING**

- A. Lay out the work in advance, fully coordinated with other trades. Where cutting, channeling, chasing or drilling of floors, walls, partitions, ceilings or other surfaces is necessary for the proper installation, support or anchorage of conduits or other equipment, do the work carefully so as not to damage adjacent work. Repair any damage to the building, conduit, equipment or defaced finish plaster, woodwork, metalwork, etc. using skilled mechanics of the trades involved at no additional cost to the City of New York.
- B. Do no cutting, channeling, chasing or drilling of unfinished masonry, tile, etc., unless permission from the Commissioner is first obtained. If permission is granted, perform this work in a manner reviewed by the Commissioner.
- C. Where conduits or equipment are mounted on a painted finished surface, or a surface to be painted, paint to match the surface. Utilize cold galvanize bare metal whenever support channels are cut.
- D. Provide slots, chases, openings and recesses through floors, walls, ceilings, and roofs as required to properly install work. Be responsible to properly locate such openings and provide for any cutting and patching caused by the neglect to do so.

**3.5 RESPONSIBILITY FOR EVALUATION**

- A. The Commissioner makes no representations, regarding the character or extent of the subsoils, water levels, existing structural, mechanical and electrical installations, above or below ground, or other subsurface conditions which may be encountered during the work. This Contractor must make his own evaluation of existing conditions which may affect methods or cost of performing the work, based on his own examination of the facility or other information. Failure to examine the Contract Drawings or other information does not relieve the Contractor of his responsibility for satisfactory accomplishment of the work.

**3.6 PAINTING**

- A. All manufactured electrical equipment such as panelboards, control equipment, lighting fixtures, etc., shall have factory-applied finish as specified in the appropriate article in the Electrical Parts of the Specifications.
- B. All other uncoated steel items such as boxes, supports, hangers, rods, etc., shall be galvanized or have a shop coat of paint applied under this Part of

the Specification. Normally, shop coats shall be an approved primer containing at least 50 percent rust inhibitive pigment, applied before assembling the different parts.

- C. Include painting and retouching of:
1. Prefinished enclosures of switchgear, unit substations, panelboards, transformers, switches, wireways, bus ducts, etc., where the finish has been slightly damaged in transit before assembling the different parts.
  2. Fixture hangers, except those received from manufacturers that are prefinished.
  3. Miscellaneous iron brackets and supports.
  4. Steel conduits buried in earth.

**3.7 FIRE ACCESS TO FIRE APPARATUS**

- A. Do not interfere with access to hydrants and fire alarm boxes. In no case allow material or equipment to be within twenty (20) feet of a hydrant or fire alarm box; or within paths of egress.

**3.8 EQUIPMENT PAD AND ANCHOR BOLTS**

- A. Concrete pads for various pieces of floor mounted electrical equipment shall be furnished by the General Contractor under another Division. Pads shall be provided in all electrical equipment rooms. Generally conform equipment pads to the shape of the piece of equipment it serves with a minimum 3" margin around the equipment and supports. Pads will be a minimum of 4" high and made of a minimum 28 day, 2500 psi concrete reinforced with 6" x 6" 6/6 gauge welded wire mesh. Trowel tops and sides of the pad to smooth finishes, equal to those of the floors, with all external corners bullnosed to a 3/4" radius. Use shop drawings stamped "NO EXCEPTIONS NOTED" for dimensional guidance in sizing pads.
- B. Furnish and install galvanized anchor bolts for all equipment placed on concrete equipment pads, inertia blocks, or on concrete slabs. Provide bolts of the size and number recommended by the manufacturer of the equipment and locate by means of suitable templates. When equipment is placed on vibration isolators, secure the equipment to the isolator and secure the isolator to the floor, pad, or support as recommended by the vibration isolation manufacturer.
- C. Where control panels, motor controllers, etc., are mounted on gypsum board partitions, the mounting screws shall pass through the gypsum board and be securely attached to the partition studs. At the Contractor's option, the mounting screws may pass through the gypsum board and be securely attached to 6" square, 18 gauge galvanized metal backplates

which are attached to the gypsum board with an approved non-flammable adhesive. Toggle bolts installed in gypsum board partitions will not be acceptable.

3.9 DELIVERY, DRAYAGE AND HAULING

- A. Include all drayage, hauling, hoisting, shoring and placement in the building of equipment specified herein. Be responsible for the timely delivery and introduction of equipment to the project as required by the construction schedule for this project. If any item of equipment is received prior to the time it is required, be responsible for its proper storage and protection until such time as it may be required. Pay for all costs of demurrage or storage.
- B. If any item of equipment is not delivered to or installed at the project site in a timely manner as required by the project construction schedule, be solely responsible for disassembly, re-assembly, manufacturer's supervision, warranty, shoring, general construction modification, delays, overtime costs, etc. No additional cost or delays shall be incurred by the City of New York.

3.10 MOUNTING HEIGHTS

- A. Unless otherwise noted or required because of special conditions, locate outlets as follows:
  - 1. Mounting heights shall conform to ADA latest requirements.
  - 2. Heights listed are from the finished floor to the center of the device. Verify exact locations with the Commissioner before installation.
    - a. Convenience Receptacles: 15 inches, unless otherwise noted.
    - b. Lighting Switches/Wall Occupancy Sensors: 42 inches (maximum 48).
    - c. Disconnect Switches and Motor Controllers: 5 feet (to the handle).
    - d. Wall Tele/Data Outlets: 15 inches. Wall phones: 48 inches.
    - e. Exit Lights: 2 inches above the top of the door to the bottom of the fixture.
    - f. Wall-Mounted Light Fixtures: 7 feet 6 inches or over mirrors (as applicable) or 1 foot below ceilings lower than 8 feet. Stairwell fixtures shall be mounted 8 feet 6 inches above finished floor or 1 foot below ceiling, whichever is lower.



- g. Fire Alarm Audio/Visual Alarms: 80 inches (centerline) above the floor level within the space or 6 inches below the ceiling whichever is lower.
- h. Fire Alarm Manual Pullstations: 4 feet.
- i. Fire Fighter Jacks or Warden Stations: 4 feet.
- j. Fire Alarm Data Gathering Panels: The top of the cabinet shall not be more than 72" above the finished floor.

3.11 DEMOLITION AND CONTINUANCE OF EXISTING SERVICES

- A. All existing electrical services not specifically indicated to be removed or altered shall remain as they presently exist.
- B. Should any existing services, etc., interfere with new construction, the Contractor shall (after obtaining written authorization from the Commissioner) alter or reroute such existing equipment to facilitate new construction.
- C. Under no circumstances shall existing services, etc., be terminated or altered unless deemed necessary by the Commissioner or specified herein; also, prior to altering any existing situation, the Contractor shall notify the City of New York in writing giving two (2) weeks advance notice of planned alteration.
- D. It shall be solely the Contractor's responsibility to guarantee continuity of present facilities (with respect to damage or alteration due to new construction) and any unauthorized alteration to existing equipment shall be corrected by the Contractor to the Commissioner's satisfaction at the Contractor's expense.
- E. All shutdowns shall be pre-approved by the City of New York and Utility Company in writing a minimum of 2-weeks prior to scheduled commencement of work.
- F. Any existing electrical services that will be used for construction power shall be the responsibility of this Contractor, who shall coordinate with the Utility Company and the City of New York for such service. The Contractor shall be responsible for all equipment, metering, modifications and any inspection fees.

3.12 EQUIPMENT AND MATERIAL PROTECTION

- A. Protect the work, equipment and materials of all other trades from damage by work or workmen of this trade, and correct all damage thus caused without additional cost to the City of New York.
- B. Be responsible for all work, materials and equipment until finally inspected, tested and accepted; protect work against theft, injury or damage; and

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carefully store material and equipment received on site which are not immediately installed. Close open ends of work with temporary covers or plugs during construction to prevent entry of obstructing material. Cover and protect in an acceptable manner to the City of New York, all equipment and materials from damage due to water, spray-on fireproofing, construction debris, etc.

- C. Provide adequate means for fully protecting finished parts of the materials and equipment against damage from whatever cause during the progress of the work until final acceptance. Protect materials and equipment in storage and during construction in such a manner that no finished surfaces will be damaged or marred, and moving parts kept clean and dry. If items are damaged, do not install, but take immediate steps to obtain replacement or repair.

### 3.13 ELECTRICAL EQUIPMENT AND ELECTRICAL ROOM PRECAUTIONS

- A. In general, do not install any piping systems in any switchgear, transformer, elevator equipment, telephone, or electrical equipment room.
- B. Do not install piping above switchboards, panelboards, transformers, control panels, motor control centers, individual motor controllers, etc.
- C. Provide drip pans under all piping installed in any electrical equipment room if in accordance with the NEC. Pan shall be water tight, extending 4" in each direction from the pipe wall and turned up at least one-half the diameter of the pipe, but not less than 2". The pan shall extend at least 1 foot beyond the electrical equipment. Provide a drain pipe to spill to the nearest service sink.

### 3.14 FASTENINGS

- A. Fasten electric work to the building structure in accordance with the best industry practice and the following.
  - 1. As a minimum procedure, where weight applied to the attachment points is 100 pounds or less, fasten to building elements of:
    - a. Wood: with wood screws.
    - b. Concrete and solid masonry: with bolts and expansion shields.
    - c. Hollow construction: with toggle bolts.
    - d. Solid metal: with machine screws in tapped holes or with welded studs.
    - e. Steel decking or subfloor: with fastenings as specified below for applied weights in excess of 100 pounds.

2. As a minimum procedure, where weight applied to building attachment points exceeds 100 pounds, but is 300 pounds or less, conform to the following:
  - a. At concrete slabs utilize 24" x 24" x 1/2" steel fishplates on top with through bolts. Fishplate assemblies shall be chased in and grouted flush with the top of slab screed line, where no fill is to be applied.
  - b. At steel decking or subfloor for all fastenings, utilize through bolts or threaded rods. The tops of bolts or rods shall be set at least one inch below the top fill screed line and grouted in. Suitable washers shall be used under bolt heads or nuts. In cases where the decking or subfloor manufacturer produces specialty hangers to work with his decking or subfloor such hangers shall be utilized.
3. Where weight applied to building attachments points exceeds 300 pounds, coordinate with and obtain approval of the Commissioner and conform to the following:
  - a. Utilize suitable auxiliary channel or angle iron bridging between building structural steel elements to establish fastening points. Bridging members shall be suitably welded or clamped to building steel. Utilize threaded rods or bolts to attach to bridging members.
4. For items which are shown as being ceiling mounted at locations where fastening to the building construction element above is not possible, provide suitable auxiliary channel or angle iron bridging tying to the building structural elements.

**3.15 PROHIBITED LABELS AND IDENTIFICATIONS**

- A. **Prohibited Markings:** In all public areas, tenant areas and similar locations within the project, the inclusion or installation of any item, element or assembly which bears on any exposed surface any name, trademark, or other insignia which is intended to identify the manufacturer, the vendor, or other source(s) from which such object has been obtained, is prohibited. Also prohibited is the inclusion or installation of any article which bears visible evidence that an insignia, name, label, or other device has been removed.
- B. **Exception:** Required Underwriters' Laboratory labels shall not be removed nor shall identification specifically required under the various technical sections of the Specifications be removed.

3.16 DATE OF COMPLETION AND TESTING OF ELECTRICAL SYSTEMS

- A. Comply with the project construction schedule for the date of final performance and acceptance testing, and be sufficiently in advance of the Contract completion date to permit the execution of the testing prior to occupancy and the closeout of the Contract. Complete any adjustments and/or alterations which the final acceptance tests indicate as necessary for the proper functioning of all equipment prior to the completion date. See individual sections for extent of testing required.

3.17 OPERATING INSTRUCTIONS

- A. Provide the services of a factory trained specialist to supervise the operation of all equipment specified herein and to instruct the City of New York's operators for a five (5) day operating instruction period. The operating instruction period is defined as straight time working hours and not including nights, weekends or travel time to and from the project. See individual sections for additional instructions by manufacturer's trained specialists.
- B. Notify the City of New York in writing at least two (2) weeks before each operating instruction period begins. Commence no instruction period until the City of New York has issued his written acceptance of the starting time.
- C. All operating instruction sessions shall be videotaped and submitted to the City of New York.

3.18 OPERATING AND MAINTENANCE BOOKS

- A. Provide operating instructions and maintenance data books for all equipment and materials furnished under this Division.
- B. Submit six (6) final copies of operating and maintenance data books for review at least four (4) weeks before final review of the project. Assemble all data in a completely indexed volume or volumes in three-ring binders and identify the size, model, and features indicated for each item. Print the project name and logo on the outside of the binders.
- C. Deliver two (2) initial copies of the operation and maintenance data books to the Commissioner after notice to proceed has been given by the City of New York or Commissioner. Include in the initial copies all the information in the paragraph below, except Item 4).
- D. Include the following information where applicable:
1. Identifying name and mark number.
  2. Locations (where several similar items are used, provide a list).
  3. Complete nameplate data.

4. Certified Record Drawings and "Final Reviewed" Shop Drawings.
  5. Parts list.
  6. Performance curves and data.
  7. Wiring diagrams.
  8. Manufacturers' recommended operating and maintenance instructions with all non-applicable information deleted.
  9. List of spare parts recommended for normal service requirements.
  10. Assembly and disassembly instructions with exploded view drawings where available.
  11. Trouble shooting diagnostic instructions where applicable.
  12. Final field and factory test results.
  13. Include on all manuals the following:
    - a. Contractor's Name.
    - b. Contractor's Address.
    - c. Contractor's Phone Number.
    - d. Service Provider name, address and phone number for each piece of equipment.
- E. Maintenance instruction manuals to include complete lubricating, cleaning, and servicing data compiled in clearly and easily understandable form. Show all model numbers of each piece of equipment, complete lists of replacement parts, motor ratings, and actual loads.

**3.19 RECORD DRAWINGS**

- A. Maintain on a daily basis at the project site a complete black and white set of "As-Built Drawings", reflecting an accurate dimensional record of all deviations between work shown on the Contract Drawings and that actually installed.
- B. Record dimensions clearly and accurately to delineate the work as installed; suitably identify locations of all equipment by at least two dimensions to permanent structures. In addition, mark the Record Drawings to show the precise location of concealed work and equipment, including concealed or embedded conduit and all changes and deviations in the electrical work from that shown on the Contract Documents. This requirement is not construed as authorization for the Contractor to make

changes in the layout or work without written instructions from the Commissioner.

- C. Mark all As-Built Drawings on the front lower right hand corner with a stamp impression that states the following:

"AS-BUILT DRAWINGS" (3/8" high letters)  
To be used for recording Field Deviations and  
Dimensional Data Only". (5/16" high letters).

- D. The Record Drawings shall also consist of a set of prints of the final "Signed Off" Contractor's "Coordination Drawings" prepared by the Subcontractors.

- E. Indicate the Contractor's firm name on the record and as-built drawings.

### 3.20 CERTIFICATION

- A. Any certifications required by the Specifications, in addition to those required for shop drawings, product data, equipment and other items, shall be so certified by the City of New York, a Partner, or a Corporate Officer of the firm required to provide the Certification, or by another person duly authorized to sign binding agreements for and in behalf of the City of New York, Partner or Corporation.

### 3.21 FINAL REVIEW

- A. At a time designated by the City of New York, the entire system shall be reviewed for compliance with the Contract Drawings and Specifications. Be available at all times during this review.
- B. Demonstrate to the City of New York and/or the Commissioner's personnel prior to the Final Review that all systems and all equipment have been properly tested and adjusted and are in compliance with the requirements of the Contract Documents. After these demonstration tests are satisfactorily completed, but prior to the Final Review field visit, the Contractor will shall submit to the Commissioner a written certification that: 1) attests to the Contract Document compliance for this Project prior to the Commissioner's Final Review field visit, and 2) certifies that the equipment and materials installed in this project under this Division contain no hazardous materials.
- C. Operate the entire system properly with all systems tested and all controls adjusted.
- D. Certificates and Documents required herein shall be in order and presented to the Commissioner at least two (2) weeks prior to the Final Review.
- E. After the review, any changes or corrections noted as necessary for the work to comply with these specifications and the Contract Drawings shall

be accomplished without delay in order to secure final acceptance of the work.

3.22 CLEANING UP

- A. Contractor shall take care to avoid accumulation of debris, boxes, crates, etc., resulting from the installation of his work. Contractor shall remove from the premises each day all debris, boxes, etc., and keep the premises clean, subject to the Commissioner's instructions, which shall be promptly carried out.
- B. Contractor shall clean all light fixtures and equipment at the completion of the project.
- C. All panelboards, wireways, cabinets, enclosures, etc. shall be thoroughly vacuumed clean prior to energizing equipment and at the completion of the project. Equipment shall be opened for observation by the Commissioner as required.

3.23 WATERPROOFING

- A. Avoid, if possible, the penetration of any waterproof membranes such as roofs, machine room floors, and the like. If such penetration is necessary, perform it prior to the waterproofing and furnish all sleeves or pitch-pockets required. Advise the Commissioner and obtain written permission before penetrating any waterproof membrane, even where such penetration is shown on the Contract Drawings.
- B. If the Contractor penetrates any walls or surfaces after they have been waterproofed, he shall restore the waterproof integrity of that surface at his own expense and as directed by the Commissioner.

3.24 SUPPORTS

- A. Support work in accordance with the best industry practice and the following.
  - 1. Include supporting frames or racks extending from floor slab to ceiling slab for work indicated as being supported from walls where the walls are incapable of supporting the weight. In particular, provide such frames or racks in electric closets.
  - 2. Include supporting frames or racks for equipment, intended for vertical surface mounting, which is required in a free standing position.
  - 3. Supporting frames or racks shall be of standard angle, standard channel or specialty support system steel members. They shall be rigidly bolted or welded together and adequately braced to form a substantial structure. Racks shall be of ample size to assure a workmanlike arrangement of all equipment mounted on them.

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4. Nothing (including outlet, pull and junction boxes and fittings) shall depend on electric conduits, raceways, or cable for support, except that threaded hub type fittings having a gross volume not in excess of 100 cubic inches may be supported from heavy wall conduit, where the conduit in turn is securely supported from the structure within five inches of the fitting on two opposite sides.
5. Nothing shall rest on, or depend for support on, suspended ceilings media (tiles, lath, plaster, as well as splines, runners, bars and the like in the plane of the ceiling). Branch circuit conduit up to 3/4" shall be permitted to be supported from ceiling hanger wires.
6. Provide required supports and hangers for conduit, equipment, etc., so that loading will not exceed allowable loadings of the structure.
7. Conduits shall not be supported to ductwork or piping.

**3.25 PROGRESS OF WORK**

- A. The Contractor shall schedule the progress of his work so as to conform to the progress of the work of other trades and shall complete the entire installation as soon as the conditions of the building will permit. Any cost resulting from the defective or ill-timed work performed under this section shall be done borne by the Contractor.

**END OF SECTION**



SECTION 26 00 03

ELECTRICAL SCOPE OF WORK

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide the work included in accordance with the Contract Documents.

1.2 WORK INCLUDED

Provide all labor, materials, equipment, tools, appliances, auxiliaries, services, hoisting, scaffolding, support, supervision, and Project Record Documents, and perform all operations for the furnishing and installing of the complete electrical system, including but not limited to the work described hereinafter. The work shall meet or exceed the latest codes, regulations and requirements of the New York City Building Department.

- A. The electrical work is shown schematically on the Contract Drawings to indicate the general system arrangement and configuration. The work of this Division shall include coordination with the work of other Divisions of the Specifications and the Contract Documents so as to provide a complete and operational system capable of being readily operated and maintained, including approved rearrangement of the systems and equipment and rerouting of distribution services to enable the complete system to fit within the confines of the allotted electrical spaces, all to the satisfaction of the Commissioner or as directed by the Commissioner.
- B. The work includes, but is not limited to the following:
1. Equipment supports and miscellaneous steel for electrical equipment.
  2. Vibration isolation and restraints for the electrical installation.
  3. Temporary power and lighting system.
  4. Service and distribution feeders.
  5. Complete 277/480 volt and 120/208 volt light and power distribution system.
  6. Fire alarm system, devices, wiring, conduit and programming.
  7. Lighting fixtures, lamps, convenience outlet systems, and miscellaneous wiring devices.
  8. Motor power wiring and installation of motor starters.

9. Miscellaneous electrical equipment and systems.
10. Elevator power, lighting, receptacle, telephone and empty conduit systems.
11. Balancing loads.
12. Grounding system.
13. Sealing of sleeves and other electrical openings.
14. As-built reproducible tracings and electronic files.
15. Field painting.
16. Field acceptance testing, adjusting and balancing.
17. O & M Manuals.

**PART 2 - PRODUCTS**

2.1 NOT USED.

**PART 3 - EXECUTION**

3.1 NOT USED.

END OF SECTION

SECTION 26 00 05

ELECTRICAL ACCESS DOORS IN GENERAL CONSTRUCTION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Furnish access doors located in general construction in accordance with the Contract Documents for setting under general construction work. Access doors shall be provided for the operation and maintenance of concealed equipment, pullboxes, ballasts, etc.

1.2 WORK INCLUDED

- A. Access Doors in Drywall.
- B. Access Doors in Ceilings.
- C. Access Doors in Masonry.
- D. Fire Rated Access Doors.
- E. Color Coded Buttons.

1.3 SUBMITTALS

- A. Provide manufacturer's data on access doors to be furnished in each type of general construction by location within the project.

PART 2 - PRODUCTS

- 2.1 Wherever access is required through walls or ceilings to junction boxes, pull boxes, control panels, devices, or other concealed equipment installed under this Division, furnish a hinged access door with flush screwdriver operated cam locks and frame as follows:

- A. Drywall construction--Milcor Style DW.
- B. Finished acoustical tile ceiling--Milcor Style AT.
- C. Finished plaster ceiling--Milcor Style AP.
- D. Finished plaster walls --Milcor Style K.
- E. 1 ½ Hour rated shaft --Milcor Fire Rated MIFAB-MPFR.
- F. Provide access doors in rated construction with "B" label fire construction. Furnish a U.L. label on each access door.

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- G. Access doors will be installed under another Division. Coordinate all sizes and locations.
  - H. No access door shall be installed until location and type have been approved by the Commissioner.
- 2.2 Furnish color coded buttons or tabs to indicate location of pull boxes, control panels, devices, or other equipment located above removable type ceilings where access doors are not required.
- 2.3 Make access door size a minimum of 18" x 18".

### **PART 3 - EXECUTION**

#### **3.1 GENERAL**

- A. Coordinate sizes and location of all access doors with General Contractor.
- B. Direct location and setting of access doors in hung ceilings, furred spaces, walls, etc., to provide access to all concealed work items requiring maintenance and/or adjustment and as directed by the Commissioner. Obtain acceptance of the Commissioner for the locations and sizes of such access doors.
- C. Locate and group equipment requiring access doors so that access door locations are aesthetically acceptable. Coordinate location of equipment requiring access with other trades to minimize number of access doors in one area. Prepare drawings of pull boxes, control panels, devices, etc. locations indicating proposed access door locations for review by the Commissioner prior to installation of pull boxes, control panels, devices, etc. Include equipment of other trades on the Contract Drawing.

END OF SECTION

SECTION 26 02 50

ELECTRICAL SYSTEMS IDENTIFICATION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide fixed identification of all distribution equipment and conductors in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Fixed identification for:
1. Switchboards, Switchgears and Unit Stations.
  2. Panelboards and Load Centers.
  3. Feeder Switches.
  4. Disconnect Switches/Enclosed Circuit Breakers.
  5. Feeder Switches (Fuse Identification).
  6. Wall Plates.
  7. Pullboxes, Enclosures and Cable Terminations.
  8. Luminaires.
  9. Transformers.

1.3 SUBMITTALS

- A. Identification procedures shall be noted and scheduled on the applicable shop drawings.

1.4 QUALITY ASSURANCE

- A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
1. Industry standards shall apply.
  2. NFPA 70.
  3. ANSI A13.1 and NFPA for color coding.

4. ANSI Z535-4.
5. OSHA Standards.

**PART 2 - PRODUCTS**

- 2.1 Unless otherwise noted, nameplates shall be black bakelite plates with white engraved upper case letters enclosed by white border on beveled edge.
- 2.2 Nameplates for equipment supplied by the emergency system shall be red bakelite with white lettering.
- 2.3 All nameplates must be engraved and must be secured with rivets, brass or cadmium plate screws. The use of Dymo type or the like is unacceptable.
- 2.4 Lettering heights unless otherwise noted must be as follows:

Item	Lettering Height
Switchboards, Switchgears & Unit Substations	2"
Panelboards, Load Centers & Lighting Panels	1/2"
Transformers	1/2"
Feeder Switches	1/4"
Disconnect Switches/Enclosed Circuit Breakers	1/2"
Feeder Switches (Fuse Identification)	1/4"
Wall Plates	1/8"
Pullbox, Enclosures and Cable Terminations	1/8"

- 2.5 Cable tags must be flameproof secured with flameproof non-metallic cord.
- 2.6 Nameplate inscriptions must bear the name and number of the equipment to which they are attached as indicated on the Contract Drawings. The Commissioner reserves the right to make modifications in the inscriptions as necessary.
- 2.7 The Commissioner reserves the right to request additional nameplates at the time of review of shop drawings and upon site observations. These shall be furnished at no additional cost to the City of New York.
- 2.8 Do not manufacture or install nameplates until approved by the City of New York.

**PART 3 - EXECUTION**

**3.1 SWITCHBOARDS, SWITCHGEARS, SUBSTATIONS, METER CENTERS AND MOTOR CONTROL CENTERS**

- A. Furnish and install a master nameplate for each switchboard, switchgear, substation, meter center and motor control center engraved with the equipment identification indicated on the Contract Drawings. Mount at top of the incoming section.
- B. Provide on each main switch an identifying nameplate. Where multiple mains are employed each switch shall be numbered. Inscription shall be "Main Switch" or "Main Switch No. 1" et al.

**3.2 PANELBOARDS, LOAD CENTERS AND TRANSFORMERS**

- A. Furnish and install a nameplate for each panelboard and load center engraved with the identification indicated on the Contract Drawings. Mount at top of panel.
- B. After installations are complete, provide and mount under sturdy transparent shield in the directory frame of each panel door, a neat, accurate and carefully typed directory properly identifying the lighting, receptacles, outlets, and equipment each overcurrent device controls.
- C. Include on directory the panel or load center identification, the cable and raceway size of panel feeder, and the feeder origination point.
- D. Provide a nameplate for each transformer engraved with the primary and secondary feeder sizes.

**3.3 DISCONNECT SWITCHES AND ENCLOSED CIRCUIT BREAKERS**

- A. Furnish and install a nameplate for each disconnect switch and enclosed circuit breaker engraved with the equipment designation.

**3.4 FEEDER SWITCHES**

- A. Furnish and install for each feeder switch including, but not limited to those in switchboards, those in switch and fuse panelboards, those take-offs at bus ducts, those in motor control centers, those in meter centers, etc. two (2) nameplates as follows.
  - 1. The first nameplate must be white background with red lettering. Engrave with the words "REPLACE ONLY WITH \_\_\_\_ FUSE". Engrave with proper fuse trade name and ampere rating (i.e. Bussmann LPS-R 100).

2. The second nameplate shall indicate the load served, the size and type of cable and raceway example:

Panels LP-4, LP-5, LP-6  
4#500 MCM-THHN-CU-3-1/2"C.

3.5 WALL PLATES

- A. Furnish and install an engraved wall plate for each switch controlling loads which are not local to the switch. Engraving shall be as directed by the City of New York.
- B. Furnish and install engraved wall plate for each receptacle indicating the panel and circuit number.

3.6 PULLBOXES, ENCLOSURES AND CABLE TERMINATIONS

- A. Furnish and install cable tags on each cable which enters a pullbox, enclosure, switchboard and at terminations. Mark tags with type written inscription noting the load served, type and size of cable and the overcurrent device protecting the cable.

3.7 LUMINAIRES

- A. Where connected to other than 120 volt circuit, provide each fluorescent or high intensity discharge fixture with the ballast voltage stenciled on the ballast cover in letters not less than 1/2 inch high.

END OF SECTION



SECTION 26 02 65

ELECTRICAL TESTING, ADJUSTING AND BALANCING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide complete field acceptance testing of equipment and systems throughout in accordance with the Contract Documents. This testing is in addition to any required commissioning requirements.

1.2 WORK INCLUDED

- A. Testing, adjusting, and balancing for:
1. Wire and Cable (600 Volts and Below).
  2. Motor Controllers, including variable frequency drives.
  3. Motors.
  4. Primary Switchgear, Unit Substations, Switchgears, and Switchboards.
  5. Life Safety Fire Alarm Systems.
  6. Ballasts.
  7. Air Handling Plenums and Luminaires.
  8. Emergency Battery System, Packs and Quartz Standby Units.
  9. Grounding.

1.3 SUBMITTALS

- A. Provide test results as required herein and in each section of this Division.

1.4 QUALITY ASSURANCE

- A. Except as modified by governing codes and by the Contract Documents comply with the latest applicable provisions and the latest recommendations of the following:
1. Industry standards shall apply except as otherwise specified.
  2. Testing Agency Qualifications: as specified in each section within this specification containing electrical testing requirements.

3. NETA.

**PART 2 - PRODUCTS**

2.1 **GENERAL**

- A. Provide all labor, premium labor and materials required by shop and field acceptance testing, adjusting, and balancing as specified in the Contract Documents and as required by the authorities having jurisdiction.

2.2 **SYSTEMS**

- A. The following systems shall be tested, inspected and certified.

1. Wire and Cable (600 Volts and Below):

- a. Inspect all splices and terminations and make mechanically and electrically tight during a fifteen (15) day period immediately prior to final acceptance of the work.
- b. Perform standard 600 volt insulation resistance test with "megger" tester and all conductors. Test shall show insulation resistance in excess of minimum values required by the NETA and continuity. Submit certification to the Commissioner.

2. Motor Controllers:

- a. Submit with certification in tabular form a complete listing of all motors on the project for which motor controllers, including variable frequency drives, have been furnished. Include on this listing, the nameplate full load amperes of each motor and the size overload heaters installed in each motor controller.

3. Motors:

- a. Test all motors under load and verify that motor rotation is correct.

4. Primary Switchgear, Unit Substations, Switchgears, and Switchboards:

- a. At the completion of the equipment installation, each primary switchgear, unit substation and each switchboard shall be field tested in the presence of the Commissioner. Field tests shall be conducted by the service organization of the manufacturer.

- b. Inspect physical, electrical, and mechanical condition. Clean all equipment interiors and exterior.
  - c. Verify appropriate anchorage, required code clearances, correct alignment, physical connections, and grounding.
  - d. Confirm all overcurrent protective devices are in place and are of the appropriate rating.
  - e. Field tests shall include the following:
    - (1) Operation of each disconnecting means under full load.
    - (2) Operation of all metering equipment.
    - (3) Operation of all alarm devices.
    - (4) Operation of forced air cooling system, if applicable.
    - (5) Operation of all key interlocks.
    - (6) Verify that windings turn-ratio measurements and polarities are correct.
    - (7) Operation of all surge protective devices.
  - f. The manufacturer shall observe all cable bracing both incoming and outgoing, and certify that same is provided in accordance with the manufacturer's recommendations.
  - g. The ground fault systems shall be set at the level specified by the equipment supplier. Each system shall be tested by checking coordination between ground fault and phase to ground fault of a 1P-20 ampere lighting branch circuit.
  - h. Buswork shall be infrared tested and shall be retorqued in accordance with manufacturer's recommendations. Submit certification of same.
  - i. Perform ground resistance tests.
  - j. Perform transformer insulation resistance tests.
5. Life Safety Fire Alarm Systems:
- a. All fire alarm system wiring must be inspected and tested to insure that there are no grounds, opens or shorts. The minimum allowable resistance between any two conductors or between conductors and ground is ten (10) megohms as measured with a 500 volt megger after all conduit,

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conductors, detector bases, etc., have been installed, but before the detector devices are plugged into the bases or end-of-line devices installed.

b. The Contractor must perform all electrical and mechanical tests required by the equipment manufacturers. All test and report costs must be in the Contract price. A checkout report shall be prepared by the technician and submitted in triplicate, one copy of which will be registered with the equipment manufacturer. The report shall include, but shall not be limited to:

- (1) A complete list of equipment installed and wired.
- (2) Indication that all equipment is properly installed and functions in conformance with these specifications.
- (3) Tests results of all individual zones.
- (4) Serial numbers, locations by zone and model number for each installed detector.
- (5) Voltage (sensitivity) settings for each ionization detector as measured in place.
- (6) Response time on all detectors.
- (7) Contractor shall submit a certified report indicating the following:
  - (a) Operating all manual stations and all detectors that can be reset.
  - (b) Verifying line supervision of each initiating and indicating circuit.
  - (c) Verifying the operation of each initiating circuit.
  - (d) Verifying the operation of all indicating devices.
  - (e) Verifying the operation of all alarm-initiated functions.
  - (f) Verifying full operation of the FACP.

6. **Ballasts:**
  - a. Submit manufacturer's certification that ballasts and transformers for discharge type lamps comply with the latest C.B.M. specifications which have been issued.
7. **Air Handling Plenums and Luminaires:**
  - a. For recessed luminaires to be mounted in ceilings utilized as air handling plenums, submit manufacturer's certification that they, together with their external connections, are suitable for the purpose.
8. **Emergency Battery System, Packs and Quartz Standby Units:**
  - a. Each emergency battery pack and system shall be shown to operate satisfactorily. This shall be accomplished by the use of the unit mounted test switch as one test. The second test shall be the interruption of power to the unit.
  - b. Quartz standby lamps in H.I.D. luminaires shall be tested to show proper operation by testing as listed above.
9. **Grounding:**
  - a. Upon completion of the electrical grounding system, the contractor shall test the grounding system for stray currents, grounds, shorts, etc. These tests shall be performed with approved calibrated instruments.
  - b. Perform point-to-point tests to determine the resistance between the main grounding system and all electrical equipment frames, system neutral, and all derived neutral points.
  - c. The Contractor shall submit in writing to the Commissioner a letter indicating the ohmic resistance of the service grounds and a statement that the grounding system is free of all defects, stray currents, shorts, etc.
10. **Three Phase Receptacles:**
  - a. Rotometer test all three phase receptacles and verify correct phase rotation.

**2.3 CALIBRATION**

- A. Calibrate and adjust all components in accordance with manufacturer's procedures and recommendations or as required, for the following categories of equipment:
1. Primary switchgear.
  2. 600V switchboards and switchgears.
  3. Unit substations.
  4. Transformer taps.
  5. Lighting fixtures (lamp positions, reflector positions, etc., as required).
  6. Motor Control Centers and motor starters.
- B. Provide overloads in all motor starters, in accordance with motor nameplate data and as recommended by the manufacturer.

**PART 3 - EXECUTION**

- 3.1 Notify the Commissioner seven (7) days prior to the testing dates. If the Commissioner so elect not to witness a specific test a statement of certification must be forwarded to the Commissioner for his approval.
- 3.2 Conduct tests at a time agreeable to the Commissioner. Provide premium labor as necessary.
- 3.3 Products which are found defective or do not pass such tests shall be removed and replaced at the Contractor's expense. All tests shall be repeated until equipment meets all testing criteria.
- 3.4 Arrange for and conduct all test and inspections required by the authorities having jurisdiction. All fees for testing and inspection shall be paid by the Contractor.
- 3.5 All test results shall be submitted to the Commissioner.
- 3.6 Refer to individual specification sections for additional equipment testing requirements.

**END OF SECTION**

SECTION 26 02 80

EQUIPMENT CONNECTIONS AND COORDINATION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide final connections to equipment and coordinate same in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Equipment to receive final connections shall include but not be limited to the following:
1. Elevators.
  2. Motors and Equipment.

1.3 SUBMITTALS

- A. None required.

1.4 QUALITY ASSURANCE

- A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
1. American National Standard Safety Code for Elevators Dumbwaiters and Moving Walks (ANSI A17.1).
  2. State Elevator Code.

PART 2 - PRODUCTS

- 2.1 Only those products listed in this Division shall be employed.

PART 3 - EXECUTION

3.1 EXAMINATION OF DOCUMENTS

- A. This Contractor shall familiarize himself with all conditions affecting the proposed installation of equipment requiring electrical connections and shall make provisions as to the cost thereof. Failure to comply with the intent of this paragraph shall in no way relieve the Contractor of performing

all necessary work required for final electrical connections and equipment and the coordination thereof.

- B. Connections shall be made in accordance with the manufacturers' recommendations and reviewed shop drawings.

3.2 ELEVATORS

- A. Provide connections for and coordination of elevators including but not limited to the following:
1. Provide dedicated power outlets (one circuit per car) and emergency circuitry for car lights and fans. Provide separate circuits fed by lockable circuit breakers per car. Provide lockable disconnecting means in the elevator machine room for each circuit. The disconnecting means shall be labeled to identify the appropriate elevator number and marked "Car Lights". All branch circuits overcurrent protective device shall be located in the machine room per NEC article 620.
  2. Provide empty raceways from each controller to the nearest telephone backboard for telephone communications, size per the elevator manufacturer's requirements.
  3. Provide 1' x 4' fluorescent lighting fixture, switch and GFI duplex outlet within each elevator pit. Each shall be on a separate circuit fed by dedicated lockable breakers. All devices in the elevator pit shall be weatherproof. Locate switch adjacent to the pit door or service ladder. Light fixture shall be equipped with a protective wire guard. For common pits, provide multiple light fixtures to match car quantities unless otherwise noted on the Contract Documents.
  4. Provide empty 2" raceways from each elevator pit to the Fire Command Station. Size and quantity of raceways shall be per elevator vendor's requirements.
  5. Provide empty 2" raceways from each elevator pit to each remote elevator status panel. Size and quantity of raceways shall be per elevator vendor's requirements.
  6. Provide heavy-duty, lockable type fused disconnect switches with feeders extended to and connected at each elevator controller. Provide a minimum of 1 #6 AWG ground conductor bonded for every elevator. Fuse sizes shall be as per elevator vendor's requirements. All fuses shall be time delay current limiting type Class RK1 or equivalent. Location of switches shall be at the room entry or as required by the local authority having jurisdiction. An additional disconnect switch shall be provided for any elevator where the motor is not in "line of sight" of the fused disconnect switch at the room entry.



7. Provide fire alarm speaker within each elevator cab and appropriate connections at the elevator machine room and Fire Alarm System.
8. Provide firefighter's telephone within each elevator cab and appropriate connections at the elevator machine room and Fire Alarm System.
9. Provide recall smoke detectors in each elevator lobby; top of each elevator cab shaft; each elevator machine room; and each elevator cab pit.
10. Provide GFI circuit breaker for each pit sump pump.
11. Provide GFI receptacle and a light switch located within 18" of each machine room door strike. The light fixture shall not be circuited to the load side terminals of the GFI receptacle. The light fixture shall be equipped with a protective wire guard. Provide lockable type circuit breaker.
12. Provide a dedicated 120V, 20A power supply, from a lockable circuit breaker, to serve an elevator management system (EMS). Provide a duplex GFI outlet in the machine room as directed by the elevator vendor.
13. Provide a dedicated emergency 120V, 20A power supply, from a lockable circuit breaker, to serve the Destination Dispatch system. Provide a duplex GFI outlet in the machine room as directed by the elevator vendor.
14. Provide a dedicated remote elevator monitoring (REM) 120V, 20A power supply from a lockable circuit breaker. Provide a duplex GFI outlet in the machine room as directed by the elevator vendor.

**3.3 MOTORS AND EQUIPMENT**

- A. Connections for and coordination of motors and equipment requiring electrical connections shall be included but is not be limited to the following:
1. Install motor controllers and disconnect switches for each motor and each piece of equipment.
  2. Verify that the motor rotation is correct and reconnect if necessary.
  3. Provide separate ground conductor in flexible metal conduit so as to provide an electrically continuous ground path. Ground all equipment.
  4. Provide motor branch circuit conductors and connections to each individual motor controller and from each controller to the motor through an approved disconnect switch. Make final connection in a minimum of 24 inch length of liquid-tight, flexible, metal conduit.

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5. Provide all necessary wiring and connections for interlocking, remote and automatic controls. Installation of equipment and wiring shall be in compliance with the manufacturer's recommendations.
6. Where equipment is fed from a branch circuit routed in or under the slab, terminate branch circuit at a junction box on 2 foot rigid conduit stub-up and make final connection to equipment in liquid-tight, flexible, metal conduit. Provide suitable knee brace on conduit stub-up.
7. Where equipment is fed from overhead, support conduit feeder descending from ceiling on flanged floor fitting with conduit type fitting connecting to a motor with 24-inch minimum of liquid-tight flexible metal conduit.
8. Where nameplate on equipment indicates fuse protection, the disconnecting means shall be equipped with time delay fuses.

END OF SECTION

SECTION 26 02 90

CEILING, FLOOR AND WALL ELECTRICAL PENETRATION FIRE SEALS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide pre-mixed putty sealant at wall, ceiling and/or floor electrical penetration fire seals in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Wall, ceiling and/or floor electrical penetration fire seals.

1.3 SUBMITTALS

- A. Product Data
1. Submit manufacturer's product data for all fire seals, including barrier rating.

1.4 QUALITY ASSURANCE

- A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
1. ASTM E-814, "Fire Test of Penetration Fire Stops."
  2. ANSI/UL 1479, "Fire Tests of Through Penetration Firestops."
  3. ASTM E-119, "Fire Tests of Building Constructions and Materials."
  4. ANSI/UL263, "Fire Tests of Building Construction and Materials."
  5. ASTM E-84, "Surface Burning Characteristics of Building Materials."
  6. ANSI/UL723, "Surface Burning Characteristics of Building Materials."

- B. All products shall contain no VOC nor emit odors.

1.5 PERFORMANCE REQUIREMENTS

- A. Provide products that upon curing, do not re-emulsify, dissolve, leach, breakdown or otherwise deteriorate over time from exposure to atmospheric moisture, sweating pipes, ponding water or other forms of moisture characteristic during and after construction.

- B. Openings within walls and floors designed to accommodate cabling systems subjected to frequent cable changes shall be provided with re-enterrable products specifically designed for retrofit.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver through-penetration firestop system products to the project site in original, unopened containers or packages with intact and legible manufacturer's labels identifying product and manufacturer, date of manufacture; lot number; shelf life, if applicable; qualified testing and inspection agency's classification marking; and mixing instructions for multicomponent materials.
- B. Store and handle materials for through-penetration firestop systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants or other causes.

1.7 PROJECT CONDITIONS

- A. Do not install through-penetration firestop systems when ambient or substrate temperatures are outside limitations recommended by the manufacturer.
- B. Do not install through-penetration firestop systems when substrates are wet due to rain, frost, condensation, or other causes.
- C. Do not use materials that contain flammable solvents.
- D. Do not install water-based or products that are conductive when wet in contact with energized electrical conductors. Exercise care when energizing penetrants.

1.8 COORDINATION

- A. Coordinate construction of openings and penetrating items to ensure that through-penetration firestop systems are installed according to specified requirements.
- B. Coordinate sizing of sleeves, openings, core-drilled holes or cut openings to accommodate through-penetration firestop systems.
- C. Schedule installation of firestopping after completion of penetrating item installation but prior to covering or concealing of openings.

**PART 2 - PRODUCTS**

**2.1 FIRE SEAL PUTTY SYSTEM**

- A. System shall provide immediate fire seal, require no curing time and emit no hazardous or toxic fumes.
- B. Require no special tools and shall be capable of being installed from one side.
- C. No derating whatsoever required of wiring systems passing through seal.
- D. Field modified for additions or deletions of raceways or cables.
- E. Reusable materials to accommodate penetration changes.

**2.2 MISCELLANEOUS FIRE SEAL PRODUCTS**

- A. Firestop devices: Factory-assembled steel collars lined with intumescent material sized to fit specific outside diameter of penetrating item.
- B. Cast-In-Place Firestop Device: Single component molded firestop device installed on forms prior to concrete placement with totally encapsulated, tamper-proof integral firestop system and smoke sealing gasket.
- C. Composite Sheet: Intumescent material sandwiched between a galvanized steel sheet and steel wire mesh protected with aluminum foil.
- D. Fire Rated Grommet: Molded two-piece grommet made from plenum grade polymer with a foam inner core for sealing individual cable penetrations.
- E. Firestop Plugs: Re-enterable, foam rubber plug impregnated with intumescent material for use in spare sleeves and sleeves with cable.
- F. Firestop Putty: Intumescent, non-hardening, water resistant putties containing no solvents, inorganic fibers or silicone compounds.
- G. Firestop Putty Pads: Intumescent, non-hardening putty pads to be installed on metallic and nonmetallic electrical switch and receptacle boxes when horizontal separation between boxes is less than 24".
- H. Wrap Strips: Single component intumescent elastomeric strips faced on both sides with a plastic film.
- I. Latex Sealants: Single component latex formulations that upon cure do not emulsify during exposure to moisture.
- J. Silicone Sealants: Moisture curing, single component, silicone elastomeric sealant for horizontal surfaces (pourable or nonsag) or vertical surfaces (nonsag).

- K. Firestop Pillows: Re-enterable, non-curing mineral fiber core encapsulated with an intumescent coating contained in a flame retardant bag.
- L. Mortar: Portland cement based dry-mix product formulated for mixing with water at Project site to form a non-shrinking, water-resistant, homogenous mortar.
- M. Silicone Foam: Multicomponent, silicone-based liquid elastomers, that when mixed, expand and cure in place to produce a flexible, non-shrinking foam.

**2.3 ACCEPTABLE MANUFACTURERS**

- A. Nelson Firestop
- B. Hilti
- C. 3M
- D. Dow Solutions
- E. STI Inc.

**PART 3 - EXECUTION**

**3.1 PREPARATION**

- A. Examination of Conditions: Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.
- B. Surfaces to which firestop materials will be applied shall be free of dirt, grease, oil, scale, laitance, rust, release agents, water repellants, and any other substances that may inhibit optimum adhesion.
- C. Provide masking and temporary covering to prevent soiling of adjacent surfaces by firestopping materials.
- D. Do not proceed until unsatisfactory conditions have been corrected.

**3.2 GENERAL**

- A. Install fire seal in accordance with the manufacturer's requirements.
- B. Place minimum of 0.5 inches of putty around each penetrating item. When not possible build up cone around penetrating items, using second layer of putty. Slope cone at 30 degrees from wall or floor.
- C. Wall openings shall not have unsupported space of putty greater than 4 inches and floor openings an unsupported opening of 1.5 inches.

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PENETRATION FIRE SEALS**

- D. Provide ceramic wool temperature rated 2300°F in conjunction with putty in accordance with manufacturer's instructions.
- E. Provide ceramic fiberboard temperature rated 2000°F in conjunction with putty in accordance with manufacturer's recommendation.
- F. Firmly anchor penetrating items prior to putty installation. Provide all necessary anchor bolts, fittings, etc. as necessary.

3.3 FIELD QUALITY CONTROL

- A. Inspections: City of New York shall engage a qualified independent inspection agency to inspect through-penetration firestop systems.
- B. Keep areas of work accessible until inspection by authorities having jurisdiction.
- C. Where deficiencies are found, repair or replace through-penetration firestop systems so they comply with requirements.

3.4 ADJUSTING AND CLEANING

- A. Remove equipment, materials and debris, leaving area in undamaged, clean condition.
- B. Clean all surfaces adjacent to sealed openings to be free of excess through-penetration firestop system materials and soiling as work progresses.

3.5 INSTALLATION

- A. Provide fire seals at all cable, conduit and bus duct penetrations through fire-rated walls, floors and ceilings, and where noted on the Contract Drawings. Coordinate with architectural and structural drawings for location of fire-rated walls.
- B. Install in accordance with the manufacturer's directions to provide barrier rating equal to or greater than the barrier rating of wall.

END OF SECTION

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**January 5, 2015**

**CEILING, FLOOR AND WALL ELECTRICAL  
PENETRATION FIRE SEALS  
26 02 90-6**



SECTION 26 05 19

600 VOLT WIRE AND CABLE

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide 600 volt wire and cable in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Wire and Cable.
- B. Connectors and Terminations.
- C. Electrical Tape.

1.3 SUBMITTALS

- A. Product Data: for each type of conductor, connectors and termination assemblies.
- B. Field Test Reports.

1.4 QUALITY ASSURANCE

- A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
  - 1. Underwriters' Laboratories labeling of all insulations and jackets.
  - 2. NEC
  - 3. NRTL
  - 4. Connections
    - a. 486A & 486B.

**PART 2 - PRODUCTS**

2.1 **WIRE AND CABLE**

A. General

1. Provide wire and cable with a minimum insulating rating of 600 volts, except for wire used in 50 volts or below applications. For control or signal systems, use 300 volt minimum or 600 volt where permitted to be incorporated with other wiring systems.

B. Conductors

1. Provide factory fabricated electrical grade, annealed copper conductors and fabricated in accordance with ASTM B3 standards.

C. Stranding and Number of Conductors

1. No. 12 and 10 AWG conductors shall be solid.
2. Conductors larger than No. 10 AWG shall be stranded in accordance with ASTM Class B stranding designations.
3. Control wires shall be stranded in accordance with ASTM Class B stranding designations.

D. Insulated Single Conductors

1. Type THW or THWN - Thermoplastic insulation suitable for use in wet locations up to 75°C.
2. Type THHN - Flame Retardant: Heat-resistant thermoplastic insulation, nylon jacket rated for 90°C temperature rating.

E. Multi-Conductor Control and Supervisory Control Cables

1. Size No. 16 AWG, minimum.
2. Suitable for direct burial, open air, duct or conduit installation.
3. Temperature Rating: 75°C Wet or Dry.
4. Uninsulated ground wire.
5. Cross-linked polyethylene conductor insulation; thickness satisfying requirements of ICEA.
6. Flame retardant overall polyvinyl jacket satisfying the requirements of ICEA.

7. Individual conductors bound together with overall binder tape prior to jacket application.
8. Individual conductors rating of 300 volts (instead of 600 volts) for cables designated Supervisory Control Cable.
9. Factory color coded.

**F. Acceptable Manufacturers**

1. Products by any manufacturer meeting the performance requirements specified herein may be utilized, but are not limited to, the following manufacturers:
  - a. American Insulated Wire Corp.
  - b. General Cable Corporation
  - c. Southwire Company
  - d. Belden
  - e. Pyrotenax/Tyco

**2.2 CONNECTORS**

**A. Wire No. 10 AWG and Smaller**

1. Hand-Applied:
  - a. Coiled tapered, spring wound devices with a conducting corrosion-resistant coating over the spring steel and a plastic cover and skirt providing full insulation for splice and wired ends. Screw connector on by hand.
2. Tool-Applied:
  - a. Steel cap, with conduction and corrosion resistant metallic plating, open at both ends, fitted around the twisted ends of the wire and compressed or crimped by means of a special die designed for the purpose. Specifically fitted plastic or rubber insulating cover wrap over each connector.
  - b. Hydraulic tool of same manufacturer as lug which shall emboss on the connector the proper die number for inspection.

B. Acceptable Manufacturers

1. Hubbell
2. OZ/Gedney
3. Thomas & Betts.

2.3 INSULATING TAPE

A. Provide vinyl plastic tape that meets the requirements of UL 510 and has the following characteristics:

1. 8.5 mil minimum thickness.
2. ASTM D-3005 Standard Specification for Low-Temperature Resistant Vinyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape – Type 1.
3. Rated 600 volts and 105°C, suitable for indoor and outdoor applications.
4. Retains flexibility, adhesion, and applicable at temperature ranges from 0 through 100°F without loss of physical or electrical properties.
5. Resistant to abrasion, moisture, alkalis, acid, corrosion, and sunlight.
6. Manufacturer: 3M "Scotch Super 88".

2.4 WIRE PULLING LUBRICANT

- A. Provide wire pulling lubricant that is compatible with the conductor insulation, has a maximum coefficient of friction of 0.055, and is stable up to a temperature of 180°F. For cold weather installations, provide wire pulling lubricant suitable for conduit temperature.
- B. Compatibility with conductor insulation shall be determined in accordance with IEEE Std 1210 Standard Tests for Determining Compatibility of Cable-Pulling Lubricants with Wire and Cable.

**PART 3 - EXECUTION**

3.1 WIRE AND CABLE

- A. Provide a complete system of conductors in a raceway system. Mount wiring through a specified raceway, regardless of voltage application.

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- B. Contract Drawings do not indicate size of branch circuit wiring; use No. 12 AWG as a minimum. For 20 ampere branch circuits whose length from the panel to the furthest outlet exceeds 100 feet for 120-volt circuits or 150 feet for 277-volt circuits, use No. 10 AWG or larger for the entire branch circuit installation.
- C. Provide dedicated neutral conductor and equipment ground conductor for each branch circuit serving television broadcast equipment, audio visual equipment and sound system equipment. If isolated grounds are shown as required, they shall also be dedicated.
- D. Provide dedicated neutral conductor for each dimmer branch circuit and for each ground fault interrupter branch circuits.
- E. Provide a shared neutral conductor, one (1) standard wire size greater than the branch circuit phase conductor, for all branch circuits to receptacle loads.
- F. Conductor Types
  - 1. Type THW or THWN - Use for lighting, receptacle and motor circuits and for panel and equipment feeders.
  - 2. Type THHN - Use for lighting branch circuit wiring installed and passing through the ballast channels of fluorescent fixtures.
- G. Do not install wire in incomplete conduit runs nor until after concrete work and plastering is completed and moisture is swabbed from the conduits. Eliminate splices wherever possible. Where necessary, splice in readily accessible pull, junction, or outlet box.
- H. Provide cable supports for all vertical risers where required by the NEC not to exceed the following for copper conductors. Modify if aluminum conductors are used to meet the NEC requirements:

Copper Minimum Conductor Size	Vertical Supports
No. 18 AWG to No. 8 AWG	100 ft.
No. 6 AWG to No. 0 AWG	100 ft.
No. 00 AWG to No. 0000 AWG	80 ft.
211,601 CM to 350,000 CM	60 ft.
350,001 CM to 500,000 CM	50 ft.
500,001 CM to 750,000 CM	40 ft.

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- I. Flashover or insulation value of joints to be equal to that of the conductor. Use Underwriters' Laboratories listed connectors rated at 600 volts for general use and 1,000 volts for use between ballasts and lamps of gaseous discharge lighting fixtures.
- J. Use terminating fittings, connectors, etc., of a type suitable for the specified cable furnished. Make bends in cable at termination prior to installing compression device. Make fittings tight.
- K. Color Coding
  - 1. Provide consistent color coding of all AC feeders, sub-feeders, motor circuits and the likes as follows:

	208Y/120 Volts Code	480Y/277 Volts Code
Phase A	Black	Brown
Phase B	Red	Orange
Phase C	Blue	Yellow
Neutral	White	Grey
Ground	Green	Green
Isolated Ground	Green/Yellow Striped	N/A

- 2. Factory color code wire No. 2 AWG and smaller. Where color coding cannot be readily provided because of limited quantities involved, provide either of the following:
  - a. Plastic adhesive tape applied spirally and half-lapped over exposed portions of conductors within manholes, boxes, and similar enclosures. Tape shall be 3/4" minimum.
  - b. Colored tubing cut and inserted over ends of wire prior to installing terminals.
  - c. Provide black conductor insulation where colored tape is used to for color coding.
- 3. Wire No. 1 AWG and larger may be color coded by color taping of the entire length of the exposed ends.
- 4. Color code wiring for control systems installed in conjunction with mechanical and/or miscellaneous equipment in accordance with the wiring diagrams furnished with the equipment.
- 5. DC power system conductors shall be color coded; Positive – Red; Negative – Black.

**3.2 INSTALLATION**

**A. General**

1. Provide tools, equipment and materials to pull all wire and cable into place and to make required splices and termination.

**B. Wire and Cable in Conduit, Duct or Wireway**

1. Utilize roller bearing swivel to prevent twisting of cables entering the conduit or duct.
2. Take precautions to avoid entrance of dirt and water into the conduit and ducts.
3. Clean conduits and ducts to remove any pulling compound prior to pulling of cables.
4. Do not damage conductor insulation, braid jacket or sheath during installation. Any damaged conductors shall be replaced immediately.
5. Do not bend conductors to less than the manufacturer's recommended radius.
6. Lubricate cable if required for pulling.
7. Make splices only in pull boxes, junction boxes and outlet boxes.
8. Utilize cable reels on jacks for pulling through pull boxes, ducts and conduits so bends will not be excessive and conductors will not touch sharp edges; use feeding tube where required.
9. For large diameter cables, utilize properly sized pulling grips (endless woven basket two to four feet long of ductile steel).
10. Do not exceed maximum recommended pulling tension of wire and cable.
11. Fire seal around cables penetrating fire rated barriers.
12. Provide proper supports of the cables installed in cable support boxes, in accordance with the NEC.

**C. Splices, Terminations and Connections**

1. General: Except where lugs are furnished with the equipment, provide terminals and connectors suitable for the quantity, conductor size and direction of entry (top or bottom).

2. Insulated Flanged Terminals: Provide for connection of conductors No. 12 AWG and smaller to device terminals; do not exceed three (3) terminals at any single connections.
3. Circumferential Compression Type Connectors or Cytolok spring compression terminator (Provide for Splices and Connections No. 6 AWG and larger):
  - a. Use for incoming and outgoing cable connections at enclosures and for ground connections.
  - b. Use manufacturer's approved tool and correct size hex head which embosses die number on the connector or lug.
  - c. Make crimped indentations parallel with insulation putty.
  - d. Fill voids and irregularities with insulation putty.
  - e. Cover neatly with four (4) layers of vinyl plastic tape except where insulated covers are permitted; half-lap tape in two (2) directions.
  - f. Use spring-held bakelite covers over splices or taps only with the approval by the Commissioner.

**D. Wire Marker Identification Labels**

1. Utilize labels for those circuits where individual conductor identity is indicated on the Contract Drawings.
2. Apply to wires and cables at terminals and in all pull, junction and splice boxes.
3. Do not cut and splice multi-conductor control cable for purpose of labeling.
4. Clean surfaces before applying labels.

**3.3 FIELD TESTING**

- A. Test system wiring for continuity, grounds and short circuits prior to connection of any equipment.
- B. Test final equipment connections for continuity of grounds and short circuits.



- C. Insulation Resistance of Feeders and Subfeeders
  - 1. Test with megger for insulation resistance. Insulation resistance to comply with ICEA values.
  - 2. Correct faults and sections with faulty insulation.
- D. Remove and replace defective conductors and retest.

END OF SECTION

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**January 5, 2015**

**600 VOLT WIRE AND CABLE**  
**26 05 19-10**

SECTION 26 05 26  
GROUNDING SYSTEM

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide a low impedance grounding system in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Ground Connectors and Clamps; Grounding, Bushings and Locknuts.
- B. Welding Type Ground Connectors.
- C. Compression Type Grid Connectors.
- D. Ground Rods, Plates, and Clamps.
- E. Electrical Insulating Tape.
- F. Compound for Compression Connectors.

1.3 SUBMITTALS

- A. Shop Drawings
  - 1. Provide a complete set of shop drawings showing service and all grounding methods as called for on the Contract Documents and required by the NEC.
- B. Test Reports
  - 1. Submit test reports certifying resistance values for buried or driven grounds and water pipe grounds.

1.4 QUALITY ASSURANCE

- A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
  - 1. Underwriters Laboratory Standard No. U.L. 467.
  - 2. ANSI/IEEE C2 – National Electrical Safety Code.
  - 3. IEEE Standard No. 142-1982, 1100-1992, and No. 80.

4. NFPA 780 and UL 96 when interconnected with a lightning protection system.
5. NETA.
6. NFPA 70 – National Electric Code (NEC).

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Ground Conductors: Bare or green color coded, insulated, annealed stranded tinned copper conductor as indicated on the Contract Drawings; insulated conductor to conform with the requirements of the conductor specification section herein.
- B. Mechanical Connectors: Tin-plated aluminum alloy, U.L. approved and stamped for use with aluminum or copper conductors. Connectors shall be heavy duty type and be highly conductive.
- C. Ground Rods
  1. Copper-clad steel core and electrolytic-grade copper outer sheath fabricated by molten welding process.
  2. Diameter: 3/4 inch.
  3. Length: 10 feet.
- D. Plate Electrode: Highly conductive copper plates, minimum 1/4" thick, 24 inch square.
- E. Ground Lugs and Connectors for Cable Tray: Tin-plated aluminum alloy, suitable for use with aluminum or copper conductors.
- F. Bonding Jumper Braid: Copper braided tape, constructed of 30-gauge bare copper wires and properly sized for indicated applications.
- G. Grounding Bus: Bare, annealed copper bars of rectangular cross section, with insulators.

### **2.2 IDENTIFICATION AND LABELING**

- A. Grounding conductors shall be marked with tie wrap style cable markers.

### **2.3 ACCEPTABLE MANUFACTURERS**

- A. Erico Products, Inc
- B. Appleton Electric Company

- C. Kearney
- D. O-Z/Gedney Electric Company
- E. Raco, Inc.
- F. Thomas & Betts, Electrical

**PART 3 - EXECUTION**

**3.1 GENERAL**

- A. Purpose of the Grounding System.
  - 1. Adequate path for ground fault currents.
  - 2. Safety to personnel from accidental electric shock hazards.
  - 3. Prevention of hazardous discharge of static electricity.
- B. Whether or not indicated on the Contract Drawings, provide continuous ground path for all electrical circuits from point of utilization back to source through ground wires, bonded metallic conduit runs, grounded cable trays, and related items.
- C. Electrical Equipment: Provide complete exterior and interior grounding system, including grounding provisions for high and low voltage switchgear and transformers, motor control centers, lightning arrestors, motors and other equipment as indicated on the Contract Drawings or required by applicable standards.
- D. Miscellaneous Equipment: Provide complete grounding for metal lighting standards, supports for elevated metal floors, steel framework of the building, elevators, and other equipment as indicated on the Contract Drawings or required by applicable standards.
- E. Furnish and install electrical grounding systems as indicated on the Construction Documents and as specified herein.
- F. Grounding systems shall be installed in accordance with the requirements of the local authorities, NEC Article 250, and subject to the review of the Commissioner.
- G. All ground conductors and bonding jumpers shall be stranded copper installed in conduit. All ground conductors shall be without joints and splices over its entire length.
- H. The system neutral shall be grounded at the service entrance only, and kept isolated from the grounding systems throughout the building.

- I. Each system of continuous metallic piping and ductwork shall be grounded in accordance with the requirements of the NEC Article 250.
- J. Mechanical equipment shall be bonded to the building equipment grounding system. This shall include but is not limited to fans, pumps, chillers, etc.
- K. Non-metallic conduits and portions of metallic piping and duct systems which are isolated by flexible connections, insulated couplings, etc., shall be bonded to the equipment ground with a flexible bonding jumper or separate grounding conductor.
- L. Metal raceways, cable trays, cable armor, cable sheath, enclosures, frames, fittings and other metal noncurrent-carrying parts that are to serve as grounding conductors shall be effectively bonded where necessary to assure electrical continuity and the capacity to conduct safely any fault current likely to be imposed on them. Any nonconductive paint, enamel, or similar coating shall be removed at threads, contact points, and contact surfaces or be connected by means of fittings so designed as to make such removal unnecessary.

### 3.2 SERVICE GROUNDING SYSTEM

- A. Provide a bare copper bus mounted within the electrical switchboard room. Bus shall be 4" H x ¼" W x 2' L, equipped with type 304 stainless steel mounting brackets and fasteners. Provide the required insulators.
- B. Extend two (2) service grounding connectors in separate raceways from the ground bus to the ground bus in each switchboard.
- C. Extend conductors in raceway from service ground bus as indicated on the Contract Drawings.

### 3.3 SWITCHBOARD, UNIT SUBSTATIONS AND PRIMARY SWITCHGEAR

- A. Bond each section of the switchboard, unit substations, and primary switchgear housing and service conduits entering same to the ground bus.

### 3.4 SEPARATELY DERIVED SYSTEMS

- A. Equipment grounding conductors shall be provided for separately derived systems and shall be grounded to building steel, cold water pipes, etc., or an alternate grounding means. Equipment grounding shall consist of but is not to be limited to the following:
  - 1. Lighting transformers.
  - 2. Power transformers.

3.5 RECEPTACLES

- A. Receptacles shall be grounded to the outlet box by means of a bonding jumper between the outlet box and the receptacle grounding terminal.

3.6 OUTDOOR EQUIPMENT

- A. Outdoor enclosures shall be connected with No. 2 bare copper (minimum) cable installed not less than 24 inches below grade, connecting to the required ground rods. Fence and equipment connections shall be bare copper No. 2. Fence shall be grounded at each gate post and corner post. Each gate section shall be bonded to the fence post through a 1/8-inch by one-inch flexible braided copper strap and approved clamps.

3.7 CONCENTRIC KNOCKOUTS

- A. Provide grounding type bushings for conduits terminated through multiple concentric knockouts not fully knocked out on inside of the panelboards. Ground bushing with No. 12 AWG copper to panelboard ground bus.

3.8 ELEVATED TRANSFORMER VAULTS

- A. Provide a No. 4/0 AWG bare copper ground ring around the vault on the inside wall and directly accessible to each transformer that is installed. The ground ring shall be tied-off at two (opposite) ends with No. 4/0 AWG bare copper conductor and connected to the building service ground bus.

3.9 TOGGLE SWITCHES

- A. Provide grounding clip on each toggle switch. Mount over device mounting strap such that contact is made between mounting strap, faceplate and outlet box.
- B. Provide devices with ground screw where required by local authorities and bond this with No. 10 AWG conductor to the associated outlet box.

3.10 GROUNDING METHODS

- A. Ground rods shall be copper-clad steel not less than 3/4 inch in diameter, ten (10) feet long, driven full length into the earth. The maximum resistance shall not exceed 5 ohms. If this resistance cannot be obtained with a single rod, additional rods shall be installed not less than six (6) feet on center. If sectional type rods are used, two additional sections may be coupled and driven with the first rod.
- B. The metal frame of the building, where effectively grounded.
- C. A metal underground water piping system used for grounding shall be in direct contact with the earth for ten feet or more and shall be electrically continuous. Provide bonding jumpers at the water meter and at the insulating joints.

- D. Steel reinforcing bars used for grounding shall be encased by at least two inches of concrete, located within and near the bottom of a concrete foundation or footing that is in direct contact with the earth. Reinforcing bars shall be minimum ½ inch diameter and consisting of twenty feet of one or more steel reinforcing bars.
- E. All bonding jumpers for the above grounding systems shall be sized in accordance with the NEC Article 250.

3.11 INSTALLATION

A. Grounding Grid

1. Install grounding grids with ground rods and cables as indicated on the Contract Drawings.
2. Avoid splices in ground cables.
3. Connectors:
  - a. Install mechanical connectors in above ground accessible locations only.
  - b. Install welding type ground connections or connection type grid grounding connectors underground, in manholes, or at inaccessible locations only.
  - c. Thoroughly clean contact surfaces before making connections.
  - d. Apply manufacturer's compound for compression connectors to conductors prior to crimping.
  - e. Made connections using compression type grid grounding connectors with approved manufacturer's hydraulic tool and correct size hex head die which, for inspection, embosses proper die number on connector.
4. Make connection from ground grid to equipment ground buses as required by the NEC and as shown on the Contract Drawings.
5. Provide for future disconnection for testing at all locations where building ground loop or grid connects to exterior or interior steel.
6. Wrap conductors with self-fusing electrical tape and cover with vinyl electrical tape where insulation of grounding system connections is required.



- B. Cold Water Pipe Grounding**
1. Make connection with clamp type fitting; do not damage the incoming water pipe.
  2. Bond ground conductor and its conduit to the street side of the water pipe.
  3. Install No. 4/0 AWG bonding jumper with ground clamps around the water meter.
- C. Ground Conductors**
1. Route along the shortest and straightest paths possible, except as otherwise indicated. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
  2. Underground Grounding Conductors: Use bare copper wire. Bury at least 24 inches below grade.
  3. Size as shown on the Contract Drawings or as required by NEC Table 250-95.
  4. Where ground conductors are required, install insulated copper ground conductors in steel conduit or as indicated.
  5. Where ground conductors are protected by metallic conduit, bond the conductor to the conduit at both ends.
  6. Connect ground conductors to appropriate ground buses (as in switchboards and distribution panelboards, etc.).
- D. Grounding Rods: Locate a minimum of 1-rod length from each other and at least the same distance from any other grounding electrode.**
1. Drive until tops are 12 inches below finished floor or final grade, except as otherwise indicated.
  2. Interconnect with grounding-electrode conductors. Use exothermic welds, except at test wells and as otherwise indicated. Make these connections without damaging copper coating or exposing steel.
  3. Install in a ground well for future access and testing.
- E. Grounding Plates: Locate a minimum of six feet from each other and at least the same distance from any other grounding electrode.**
1. Install a minimum 30 inches below finished floor or final grade.

2. Interconnect with grounding-electrode conductors. Use exothermic welds, except at test wells and as otherwise indicated. Make these connections without damaging copper coating or exposing steel.

**F. Conduit Attachment to Electrical Equipment**

1. Ground conduits to metal framework of the electrical equipment with double locknuts or grounding bushings and bonding jumpers unless otherwise noted.
2. Install bonding jumpers at all electrical equipment to provide continuous ground return path through the metallic conduit system.
3. Install NEC approved bonding jumpers across expansion fittings between conduit sections for ground path continuity.
4. Where motors or other utilization equipment are connected to the electrical system with flexible conduit, the conduit shall be equipped with a ground conductor.

**G. Cable Trays and Wiring Troughs**

1. Use metallic raceway system for principal ground return path.
2. Bond together wiring troughs containing power circuits and tie to ground bus at the switchboards, panelboards; install minimum No. 4/0 AWG copper conductors for bonding between cable systems and switchboards ground buses.
3. Install a minimum No. 2 AWG insulated copper conductors for bonding between cable support system and conduit dropouts, service equipment or cabinets.
4. Apply antioxidant compound to contact surfaces for all bonding connections to cable trays.
5. Install bonding jumpers across hinged joints.

**H. Receptacles and Switches**

1. Install bonding jumpers between the outlet box and receptacle grounding terminal except where contact device or yoke is provided for grounding purposes.

**I. Wireways**

1. Install grounding jumpers for bonding between wireways and other panelboards, conduits, switchboards, and at any other point where a solid connection would otherwise not be provided in supporting the system to insure a continuous ground path.

J. Panelboards

1. Install bonding jumpers inside all panelboards to bond the feeder conduit to panelboards, except ground panelboards containing branch circuits each having less than 150 amperes current carrying capacity, with two standard locknuts and bushings, one inside and one outside, run up wrench tight.

K. Dry-Type Transformers

1. Perform grounding in accordance with NEC Article 250.
2. Install bonding jumper across flexible conduit from the transformer housing to the rigid conduit.

L. Sheet Metal Boxes

1. Install bonding jumpers inside all sheet metal boxes containing one or more feeders with current carrying capacity of 150 amperes or greater, to bond one conduit with another.
2. Ground boxes containing branch circuits only or feeders each less than 150 amperes current carrying capacity, with two standard locknuts and bushings, one inside and one outside, run up wrench tight. two standard locknuts and bushings, one inside and one outside, run up wrench tight.
3. Install bonding in sheet metal boxes in systems over 600 volts, regardless of current carrying capacity.

M. Floor Boxes

1. Install grounding jumpers where adequate ground connections are not provided through locking screws between high potential power service fittings, cover plates, and conduit system.

3.12 FIELD QUALITY CONTROL

- A. Measure resistance values for system and equipment grounds, for each ground rod and ground grid.
- B. Acceptable Testing Equipment: Vibroground by Associated Research, Inc.; or Megger Earth Tester by James G. Biddle Co.
- C. Method: Three (3) electrode fall of potential as prescribed by instrument manufacturer.
- D. Drive additional ten-foot ground rods spaced ten (10) feet apart if necessary, until total resistance of system is measured at five ohms or less.

**3.13 PERSONNEL TRAINING**

- A. **Building Maintenance Personnel Training:** Train the City of New York's building maintenance personnel in procedures for testing and determining resistance-to-ground values of the grounding system. Also instruct maintenance personnel in preparation and application of chemical solution for earth surrounding grounding rods for reducing ohmic resistance to the required levels.

**END OF SECTION**

SECTION 26 05 33

RACEWAYS AND BOXES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide raceways, fittings, boxes, enclosures, and cabinets for electrical wiring in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Rigid Steel Conduit.
- B. Rigid Aluminum Conduit.
- C. Armor Clad (AC) Cable.
- D. Flexible Metal Conduit.
- E. Liquid-Tight Flexible Metal Conduit.
- F. Conduit Fittings.
- G. Wireways and Auxiliary Gutters.
- H. Outlet, Junction and Pull Boxes.
- I. Identification Labels.

1.3 SUBMITTALS

A. Shop Drawings

- 1. Full erection drawings where wireways and/or auxiliary gutters are employed. Drawings shall include plan views, elevations, size of wireways, type and quantity of conductors proposed to be installed therein, etc.
- 2. Indicate duct banks on multi-trade coordinated shop drawings.

B. Product Data

- 1. Submit dimensioned detailed drawings for boxes exceeding 24 inches in any one (1) dimension.
- 2. Submit manufacturer's catalog data for all raceways, fittings, enclosures, cabinets, floor boxes and accessories.

1.4 QUALITY ASSURANCE

A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:

1. Rigid Steel Conduit:
  - a. U.L. Standard 6.
  - b. ANSI C80-1.
  - c. Federal Specification WW-C-581E.
2. Rigid Aluminum Conduit:
  - a. ANSI C80-5.
3. Electrical Metallic Tubing:
  - a. U.L. Standard 797.
  - b. ANSI C80.3.
  - c. Federal Specification WW-C-563.
4. Armor Clad Cable:
  - a. U.L. Standard 4.
  - b. Federal Specification J-C-30B.
  - c. NEC Article 333.
5. Flexible Metal Conduit:
  - a. U.L. Standard 1.
6. Liquid-Tight Flexible Metal Conduit:
  - a. U.L. Standard 360.
7. Wireways and Auxiliary Gutters:
  - a. U.L. Standard UL-870.

**PART 2 - PRODUCTS**

2.1 **RACEWAYS**

A. Rigid Steel Conduit

1. Rigid steel conduit shall be heavy wall, galvanized type.

B. Rigid Aluminum Conduit

1. Rigid aluminum conduit shall be heavy wall type.

C. Electrical Metallic Tubing

1. Continuous, seamless tubing galvanized or sheradized on exterior, coated on interior with smooth hard finish of lacquer, varnish or enamel.

D. Armor Clad Cable

1. Conductors rated at 90°C as specified elsewhere herein, uninsulated ground wire, moisture and fungi resistant fillers, and an interlocking steel armor shield.

E. Flexible Metal Conduit

1. Single strip, continuous, flexible interlocked double-wrapped steel, galvanized inside and outside forming smooth internal wiring channel.

F. Liquid-Tight Flexible Metal Conduit

1. Same as flexible metal conduit except with tough, inert watertight plastic outer jacket.

G. Acceptable Manufacturers

1. Wheatland
2. Allied Tube
3. Carlon.

2.2 **CONDUIT FITTINGS**

A. Rigid Steel Conduit

1. Threaded type fittings.

- B. Rigid Aluminum Conduit
  - 1. Threaded type fittings.
- C. Electrical Metallic Tubing
  - 1. 2½-inch in size and larger may be set screw type. 2-inch in size and smaller, steel compression gland.
  - 2. In slab or concrete work, concrete-tight fittings.
- D. Armor Clad Cable
  - 1. Malleable iron or die-cast zinc with insulating bushing.
- E. Flexible Metal Conduit
  - 1. Compression-type metal fittings.
- F. Liquid-Tight Flexible Metal Conduit
  - 1. Cast malleable iron body and gland nut, cadmium plated with one-piece brass grounding bushings which thread to interior of conduit. Spiral molded vinyl sealing ring between gland nut and bushing and nylon insulated throat.
- G. Acceptable Manufacturers
  - 1. Same as those listed for raceways.

### 2.3 WIREWAYS AND AUXILIARY GUTTERS

- A. Wireways and gutters shall be of sizes and shapes indicated on the Contract Drawings and as required to meet the field conditions. Equipment shall be sheet metal, with enamel finish, NEMA 250 rated.
- B. Provide all necessary elbows, tees, connectors, adaptors, etc.
- C. Provide hinged cover secured with captive screws.
- D. Wire retainers shall be provided not less than twelve (12) inches on center.
- E. Acceptable Manufacturers
  - 1. Square D
  - 2. Wiremold/Legrand
  - 3. Hubbell



2.4 OUTLET, JUNCTION AND PULL BOXES

A. Cast Type Conduit Boxes, Outlet Bodies, and Fittings

1. For rigid steel conduit, ferrous alloy box with inside threaded hubs.
2. For rigid aluminum conduit, aluminum box with inside threaded hubs.
3. For electrical metallic tubing, ferrous alloy box with compression or inside threaded hubs with adapter.
4. Covers: Cast or sheet metal unless otherwise required.
5. Tapered threads for hubs.

B. Galvanized Pressed Steel Outlet Boxes

1. General: Pressed steel, galvanized or cadmium-plated, minimum of 4" octagonal or square with galvanized cover or extension ring as required.
2. Concrete Box: 4" octagon with removable backplate and 3/8" fixture stud, if required. Depth of box shall allow for a minimum of 1" of concrete to be poured above the backplate.
3. Switch and Receptacle Box, Indoors: Nominal 4" square, 1/2" or 2-1/8" deep as required, with raised cover unless otherwise indicated on the Contract Drawings.
4. Lighting Fixture Box:
  - a. 4" octagon with 3/8" fixture stud.
  - b. For suspended ceiling work, 4" octagon with removable backplate where required, and two (2) parallel bars for securing to cross-furring channels and extend flexible metal conduit to each fixture.

C. Sheet Steel Boxes Indoors

1. No. 12 USS gauge sheet steel for boxes with a maximum side less than 40 inches, and a maximum area not exceeding 1,000 square inches; riveted or welded 3/4 inch flanges at exterior corners.
2. No. 10 USS gauge sheet steel for boxes with a maximum side 40 to 60 inches, and a maximum area 1,000 to 1,500 square inches; riveted or welded 3/4 inch flanges at exterior corners.

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3. No. 10 USS gauge sheet steel riveted or welded to 1½" by 1½" by ¼" welded angle iron framework for boxes with a maximum side exceeding 60 inches and more than 1,500 square inches in area.
  4. Covers:
    - a. Same gauge steel as the box.
    - b. Subdivided single covers so no section of the cover exceeds 50 pounds.
    - c. Machine bolts, machine screws threaded into tapped holes or sheet metal screws as required; maximum spacing of 12 inches.
  5. Paint: Rust inhibiting primer; ANSI No. 61 light gray finish coat.
- D. Pull and Splice Boxes, Outdoors
1. Aluminum reinforced, with removable covers secured by stainless steel machine screws.
- E. Outlet, Junction and Pull Boxes Acceptable Manufacturers:
1. Cooper Industries
  2. Appleton Electric Company
  3. Erickson Electrical Equipment Co.
  4. Hoffman
  5. Hubbell
  6. OZ Gedney
  7. RACO
  8. Thomas & Betts
  9. Wiremold/Legrand
    - a. Dual service round floor box with ¾" and 1½" conduit hubs:
      - (1) Hubbell
      - (2) Thomas & Betts
      - (3) Wiremold/Legrand

2.5 IDENTIFICATION LABELS

- A. Plasticized Cloth
  - 1. Non-conductive.
  - 2. Waterproof.
  - 3. Capable of withstanding continuous temperatures of 235°F and intermittent temperatures to 300°F.
  - 4. Overcoating for protection against oil, solvents, chemicals, moisture, abrasion and dirt.
- B. Heavy, thermo-resistant industrial grade adhesive for adhesion of label to any surface without curling, peeling, or falling off.
- C. Legends: Sharp, bold-face, two (2) inch black letters on "Alert" orange background.
- D. Label Designations, Nominal System Voltages
  - 208 volts
- E. Acceptable Manufacturers
  - 1. W.H. Brady Company
  - 2. Thomas & Betts Corporation
  - 3. DYMO

**PART 3 - EXECUTION**

3.1 APPLICATION OF RACEWAYS

- A. The following applications must be adhered to. Raceways not conforming to this listing must be removed and replaced with specified material at no additional expense.

Raceway Types	Applications
Rigid Steel Conduit	Shall be used for all conduits shown on contract documents unless otherwise noted.
Rigid Aluminum Conduit	For 400 Hz feeders and branch circuits. Outdoor locations.
E.M.T.	Shall not be used.
Armor Clad Cable	Lighting and receptacle branch circuits

Raceway Types	Applications
	concealed in dry hollow spaces of a building. May not be used in corridors, places of assembly, or where prohibited by Code.
Flexible Metal Conduit	Use in dry areas for connections to lighting fixtures in hung ceilings, connections to equipment installed in removable panels of hung ceilings; at bus duct takeoffs; at all transformer or equipment raceway connections where sound and vibration isolation is required.
Liquid-Tight Flexible Metal Conduit	Use in areas subject to moisture where flexible metal conduit is unacceptable, at connections to all motors, and all raised floor areas.
Wireways and Auxiliary Gutters	Where indicated on the Contract Drawings and as otherwise specifically required.

**3.2 RACEWAY SYSTEMS IN GENERAL**

- A. Provide separate raceways for all wiring systems, including security, data, paging, low voltage et al. All 480Y/277 volt wiring must be kept independent of 208Y/120 volt wiring. Emergency system wiring must be kept independent of the normal system wiring. Provide grounding conductor within all circuits. Minimum size 3/4-inch for home runs and 1-inch minimum for power distribution. Wiring of each type and system must be installed in separate raceways.
- B. Install capped bushings on the raceways as soon as they are installed and remove only when cables are pulled. Securely tie embedded raceway in place prior to embedment. Raceways installed below or in floor slabs must extend a minimum of four (4) inches above the finished slab to the first connector. Lay out work in advance to avoid excessive concentrations of multiple raceway runs.
- C. Locate raceways so that the strength of structural members are unaffected and they do not conflict with services of other trades. Install 1-inch or larger raceways in or through structural members (beams, slabs, etc.) only when and in a manner accepted by the Commissioner. Draw up couplings and fittings full and tight. Protect exposed threads from corrosion with one (1) coat of zinc chromate after installation.
- D. Provide raceway installation (with appropriate seal-offs, explosion-proof fittings, etc.) in special occupancy area, as required. Provide conduit seal-offs where portions of the interior raceway system pass through walls, ceiling or floors which separate adjacent rooms having substantially different maintained temperatures, as in refrigeration or cold storage rooms.

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- E. Provide labeled pull wire in all spare or empty raceways. Allow five (5) feet of slack at each end and in each pull box. Tag both ends of the cable denoting opposite and termination location with black india ink on flameproof linen tag.
- F. Above Grade: Defined as area above the finished grade for the building exterior and above the top surface of any slabs (or other concrete work) on grade for the building interior.
1. Install concealed except at surface cabinets and for motor and equipment connections in electrical and mechanical rooms. Install a minimum of six (6) inches from flues, steam pipes, or other heated lines. Provide flashing and counter-flashing for waterproofing of raceways, outlets, fittings, etc., which penetrate the roof. Route exposed raceways parallel or perpendicular to the building lines with right-angle turns and symmetrical bends. Run concealed raceways in direct line and, where possible, with long sweep bends and offsets. Maximum length of six (6) feet for flexible metal conduit. Each section of flexible metal conduit shall contain bonding ground connector bonded at each end and sized as required. Provide connectors with insulating bushings. Provide sleeves in the forms for new concrete walls, floor slabs and partitions for passage of the raceways. Waterproof sleeved raceways where required.
  2. Provide raceway expansion joints for exposed and concealed raceways with necessary bonding ground conductor at building expansion joints and between buildings or structures and where required to compensate for raceway or building thermal expansion and contraction. Provide expansion fittings every 200 feet of conduit.
  3. Provide one (1) empty 3/4 inch raceway for each three (3) spare unused poles or spaces of each flush-mounted panelboard. Terminate empty 3/4 inch conduits in a junction box, which after completion, is accessible to facilitate future branch circuit extension. Provide pull lines in each raceway.
- G. Install no raceway in the concrete slab except with the permission of the Commissioner and written consent of the City of New York. Maximum conduit sizes embedded in structural concrete slabs:

Raceway Size	Min. Thickness of Concrete Slab
3/4 in.	4½ in.
1 in.	5 in.

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1. Do not install raceways 1¼ inch size and larger in structural concrete slabs.
2. In no case will the installation of raceways be permitted to interfere with proper placement of principal reinforcement.
3. Place raceways in the structural slabs between the upper and lower layers of reinforcing steel. Careful bending of the conduits is required.
4. Space the raceways embedded in concrete slabs not less than eight (8) inches on centers and as widely spaced as possible where they converge at panels or junction boxes.
5. Install raceways running parallel to slabs supports, such as beams, columns and structural walls, not less than 12 inches from such supporting elements.
6. Secure saddle supports for conduit, outlet boxes, junction boxes, inserts, etc. with suitable adhesives during concrete pour of the slab to prevent displacement.

**3.3 WIREWAYS AND AUXILIARY GUTTERS**

- A. Place wireways installed in hung ceilings such that the covers will hinge upward from the side.

**3.4 OUTLET, JUNCTION, AND PULL BOXES**

- A. Provide outlet, junction, and pull boxes as indicated on the Contract Drawings and as required for the complete installation of the various electrical systems, and to facilitate proper pulling of the cables. Size the junction boxes and pull boxes per the NEC. Size the boxes on any empty conduit systems as if containing conductors of No.4 AWG.
- B. The exact location of outlets and equipment is governed by the structural conditions and obstructions, or other equipment items. When necessary, relocate outlets so that when fixtures or equipment are installed, they will be symmetrically located according to the room layout and will not interfere with other work or equipment. Verify final location of outlets, panels equipment, etc., with the Commissioner prior to installation.
- C. Back-to-back outlets in the same wall, or "thru-wall" type boxes are not permitted. Provide 12-inch minimum spacing for outlets shown on opposite sides of a common wall to minimize sound transmission.
- D. Fit outlet boxes in finished ceilings or walls with appropriate covers, set flush with the finished surface. Where more than one (1) switch or device is located at one (1) point, use gang boxes and covers unless otherwise indicated. Sectional switch boxes or utility boxes are not permitted. Provide tile box or 4 inch square box with tile ring in masonry walls not

**RACEWAYS AND BOXES**

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plastered or furred. Where drywall material is utilized, provide plaster ring. Provide outlet boxes of type and size suitable for the specific application. Where outlet boxes contain two (2) or more 277 volt devices, or where devices occur of different applied voltages, or where normal and emergency devices occur in the same box, provide suitable barrier(s).

E. All outlet and device box depths shall have sufficient depth to prevent damage to the conductors when devices or utilization equipment are installed as intended in the box.

F. Types of Boxes and Fittings for Various Locations

Location	Type
Outlet	Galvanized pressed steel
Outlet exposed to moisture or outdoors	Cast type conduit fitting
Splice	Galvanized pressed steel
Splice exposed to moisture or outdoors	Cast type conduit fitting or sheet metal (4½" x 5" x 3" minimum)
Pull or Junction	Cast type conduit fitting or sheet metal (4½" x 5" x 3" minimum)
Pull or Junction - Outdoors	Aluminum (4½" x 5" x 3" minimum)
Terminal	Sheet steel (6" x 6" x 3" minimum)
Terminal - Outdoors	Aluminum (6" x 6" x 3" minimum)

G. Pull Box Spacing

1. Provide pull boxes so no individual conduit run contains more than the equivalent of four (4) quarter bends (360° total).

2. Conduit Sizes 1¼" and Larger:

- a. Provide boxes to prevent cable from being excessively twisted, stretched or flexed during installation.
- b. Provide boxes so that maximum pulling tensions do not exceed the cable manufacturer's recommendations.
- c. Provide support racks for boxes with multiple sets of conductors so that the conductors do not rest on any metal work inside the box.

3. Conduit Sizes 1 Inch and Smaller, provide boxes at every (Maximum Distances):

150 feet	straight runs
100 feet	runs with one (1) 90° bend or equivalent

75 feet

runs with two (2) 90° bends or equivalent

50 feet

runs with three (3) or (4) four 90° bends or equivalent.

**H. Sheet Steel Boxes**

1. Boxes shall be sized to permit pulling, racking and splicing of the cables (if not indicated on the Contract Drawings). They shall be sized to avoid exceeding the manufacturer's minimum bending radius recommendations for the conductors.
2. Provide access for the removal and replacement of the conductors, splices and equipment.
3. Minimum Dimensions of Boxes in Runs of 1½" or Larger Conduit:
  - a. Straight Pulls: Size length eight (8) times nominal diameter of the largest conduit.
  - b. Angle or U-Pulls: Size such that the distance between the conduit entry and the opposite wall of box is six (6) times the nominal diameter of the largest conduit.
4. Covers: Fasten to the flange or framework of the box with machine bolts, machine screws threaded into tapped holes or sheet metal screws as required.
5. Plug any open knockouts not utilized.

**I. Pull and Splice Boxes, Outdoors**

1. Where size of the box is not indicated, size to permit pulling, racking and splicing of cables being installed.
2. Braze ground connector suitable for copper cables to the inside of the box.

**J. Identification labels for all pull, splice and junction boxes in main feeder and subfeeder runs, shall indicate nominal system voltage:**

1. Apply labels after painting of any boxes, conduits, and surrounding areas are completed.
2. Clean surfaces before applying labels; clean aluminum surfaces with solvent wipe.
3. Apply labels on the cover and a minimum of one (1) fixed side; one (1) label visible from the floor where the boxes are installed exposed.



3.5 SLEEVES

- A. Where sleeves are required for the installation of electrical work passing through walls or floors, furnish and install under this Section of Specification unless indicated otherwise on the Contract Drawings. Use galvanized or back enameled rigid steel conduit or Schedule 40 black steel pipe. Do not use aluminum conduit. Where specific sizes are not indicated on the Contract Drawings, size sleeves shall provide ½ inch clearance around the outside surface of the item for which installed. Cut flush with the wall surfaces and extend two (2) inches above the finished floor level or as indicated on the Contract Drawings. In mechanical rooms, extend sleeve four (4) inches above the finished floor level.
- B. For interior walls and for floors, pack space between the conduit, ground cable or similar items and sleeves to the full depth of the wall or slab thickness with fire stopping material to maintain the required rating.

END OF SECTION

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**RACEWAYS AND BOXES**  
**26 05 33-14**

SECTION 26 05 48

VIBRATION ISOLATION AND SEISMIC RESTRAINTS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide vibration isolation and seismic restraints in accordance with the Contract Documents.
- B. Provide vibration isolation for dry type transformers at electrical connections to rotating or vibrating equipment.
- C. Provide seismic restraints for all electrical and fire alarm systems and equipment.

1.2 QUALITY ASSURANCE

- A. Vibration isolators and seismic restraints shall be of the same manufacturer.
- B. Seismic restraint external force acceleration criteria shall be 1.0 G for life safety equipment (emergency power system, fire alarm system, and equipment connected to the emergency power system). External force acceleration criteria shall be 0.5 G for non-life safety equipment.

1.3 STANDARDS

- A. SMACNA Guidelines for Restraint of Mechanical Equipment.
- B. Requirements for NYC seismic code: 1.0 g acceleration.
- C. NFPA 101 – Life Safety Code.

1.4 SUBMITTALS

- A. Manufacturer's product data sheets and installation instructions for each vibration isolator and seismic restraint.
- B. Plan and elevation diagrams showing equipment, points of attachment, vibration isolators, seismic restraints, mounting methods, and hardware types and sizes.
- C. Seismic restraint calculations. Seismic restraint calculations shall be certified by a licensed Professional Structural or Civil Engineer registered in the State of the project.
- D. Certified field inspection report.

1.5 FIELD INSPECTION

- A. Upon completion of the installation, the manufacturer's local representative shall field inspect the installation and submit a report verifying the completeness and performance of the installation. Contractor shall submit a report to the Commissioner, including the manufacturer's representative's final report, indicating all isolation reported as properly installed or requiring correction, and include a report by the Contractor on steps taken to properly complete the isolation work.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Amber-Booth Company, Inc; Mason Industries, Ace Mountings Co., Inc.; Vibration Eliminator Co., Inc., Kinetics Noise Control Inc.

2.2 VIBRATION ISOLATION AND SEISMIC RESTRAINTS

A. General

1. Devices installed outdoors shall be weatherproof; steel components shall be hot dipped galvanized, hardware shall be cadmium plated, and springs shall be neoprene coated.
2. Spring diameters shall be no less than 0.8 of the compressed height of the spring at rated load.
3. Springs shall have an additional minimum travel to solid equal to 50% of the rated deflection.

B. Mounting Method Type A

1. Floor mounted captive spring isolators for seismic and restrained service.
2. Snubbing shall take place in all modes with adjustment to limit upward, downward, and horizontal travel to a maximum of ¼ inch before contacting snubbers.
3. Leveling bolts for rigid bolting to equipment.
4. Ports for spring inspection.
5. Minimum of ¾" thick neoprene pad between concrete housekeeping pad and bottom of isolator.
6. Mason Industries type SLR.

- C. Mounting Method Type B
  - 1. Hanger rod spring isolators.
  - 2. 45° slack seismic restraint cables.
  - 3. Neoprene spring cup with a projecting bushing to prevent steel to steel contact.
  - 4. Steel retainer box encasing the spring and neoprene spring cup.
  - 5. Rod shall be able to swing 30° before contacting resilient bushing.
  - 6. Mason Industries type HD neoprene hanger and Type SCB seismic cable brace.
  
- D. Mounting Method Type C
  - 1. Floor mounted bridge bearing neoprene mounts with all directional seismic capability.
  - 2. Two separated and opposing molded bridge bearing neoprene elements contained in a ductile iron casting.
  - 3. Mounting holes in bottom plate for bolting to concrete housekeeping pad.
  - 4. Mason Industries type BR.

**PART 3 - EXECUTION**

3.1 **GENERAL**

- A. Installation shall be in accordance with seismic restraint calculations and manufacturer's installation instructions.
- B. Verify that mounting methods provide the required vibration isolation and seismic restraint and that there are no vibration short circuits.
- C. Conduit connected to rotating or vibrating equipment shall be flexible metal conduit or liquid tight flexible conduit. Any conduits that are supported by the building shall have resilient hangers or supports to isolate vibrations.

3.2 MOUNTING SCHEDULE

Equipment	Mounting Method	Static Deflection
Dry Type Transformers-Suspended	B	1.0 inch
Dry Type Transformers	C	1.5 inches

END OF SECTION

SECTION 26 22 13

DRY-TYPE TRANSFORMERS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide dry type transformers rated 1000V or less, in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Dry Type Transformers.
- B. Vibration Isolation.
- C. Mounting Supports.

1.3 SUBMITTALS

A. Manufacturer's Data

1. Submit manufacturer's data, including electrical ratings, heat release data, physical dimensions, noise ratings and weights for each type and size dry type transformer as indicated on the Contract Drawings.
2. Submission shall be coordinated with the short circuit and coordination study submitted with the switchboard shop drawings.
3. Factory Test Results.
4. Certified vibration isolation and seismic restraint details and product data indicating the number and location of each support and restraint; and the exact number, size and type of each anchor.
5. Field Quality Control test reports, per Part 3 of these specifications.
6. Detailed wiring diagrams identifying terminals for tap changing and connecting field-installed wiring.

1.4 QUALITY ASSURANCE

- A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
  1. U.L. Standard 506 and 1561.

2. ANSI C57.12.00, C57.96 and C57.110.
3. NEMA
4. NFPA 70, Article 100.
5. NEMA TP1 AND TP2.
6. IEEE C57.12.91.
7. IEEE C2.
8. All dry type transformers shall be of the quiet type, operating at sound levels substantially below ANSI standards as follows: Sound levels shall be warranted by the manufacturer.

<b>Size in kVA</b>	<b>Specification*</b>	<b>ANSI Standard</b>
0-5	33 dB	40 dB
6-9	37 dB	40 dB
10-25	40 dB	45 dB
26-50	45 dB	45 dB
51-150	45 dB	50 dB
151-225	45 dB	55 dB
226-300	48 dB	55 dB
301-500	55 dB	60 dB
501-750	60 dB	62 dB
751-1000	62 dB	64 dB
1001-1500	62 dB	65 dB

\*The specified sound level is 3 to 5 dB below ANSI standards and it should be applied for specified temperature rise and K-factor equivalent kVA.



1.5 DELIVERY, STORAGE AND HANDLING

- A. Apply temporary heat according to manufacturer's written instructions within the enclosure of each ventilated-type unit, throughout periods when equipment is not energized and when units are not in a space that is continuously under normal environmental controls.

**PART 2 - PRODUCTS**

2.1 DRY TYPE TRANSFORMERS

TRANSFORMER INFORMATION			
Overload Capabilities			
150°C. Rise None			
115°C. Rise 15%			
80°C. Rise 30%			
Cost Impact			
150°C. Rise Base			
115°C. Rise 12% over base			
80°C. Rise 30% over base			
Life Expectancy (full load, 24 hours per day, 40°C. ambient)			
150°C. Rise 23 years			
115°C. Rise 25 years			
80°C. Rise 50 years			
Insulation*	Core Loss	Coil Loss	Total Loss
150°C.	.50 of 1% to .30 of 1%	3.0% to 2.1%	3.5% to 2.4%
115°C.	.75 of 1% to .32 of 1%	1.9% to 1.8%	2.65% to 2.12%
80°C.	.80 of 1% to .34 of 1%	1.7% to 1.4%	2.5% to 1.74%
* Loss 24 hours per day as long as transformer is connected.			
The 115°C. rise is suggested for the greater majority of installations.			

- A. Transformers shall be 150°C. temperature rise above 40°C. ambient.
- B. All insulating materials shall exceed NEMA standards and be suitable for 220°C. U.L. component recognized insulation system.
- C. Coils
- Coil conductors shall be continuous with terminations welded without auxiliary flux material. Coils shall be wound with copper magnet wire, vacuum impregnated with non-hydroscopic,

thermosetting varnish. Coils shall be protected with an outer layer of glass tape or similar quality insulation. Provide each layer with end-fillers or tie-downs to ensure maximum mechanical strength. Tap terminations shall be to magnet wire. Primary and secondary magnet wire shall be braced directly to bus studs or lugs. Windings shall be continuous with no splices. One (1) coil per phase in the primary and secondary.

**D. Core**

1. Core shall be manufactured from a high grade, non-aging 29 gauge silicon steel with high magnetic permeabilities, low hysteresis and eddy current losses. Magnetic flux densities shall be kept well below saturation to allow for a minimum of ten (10) percent over-voltage excitation.
2. Laminations shall be cut with the direction of the grain and free from burrs. All laminations shall be core plated or annealed and firmly butted. The core laminations shall be clamped tightly and compressed to provide quiet operation and to prevent damage during shipment or rough handling.
3. Taps: Provide NEMA Standard taps: two (2) 2.5% above and four (4) 2.5% below normal full capacity.
4. The core and coil assembly shall be grounded to the enclosure by means of a flexible copper grounding strap of adequate size.

**E. Enclosures**

1. Core and coil shall be encapsulated within resin compound, sealing out moisture and air.
2. Provide lifting brackets on all sizes.
3. Ventilated openings shall be such as to avoid accidental access to live parts.
4. The entire enclosure shall be degreased, cleaned, phosphatized and painted with one (1) coat of zinc chromate primer and two (2) coats of ANSI 61 gray enamel.
5. NEMA 250 type.

**F. Mounting**

1. Provide transformers up to and including 75 kVA suitable for floor, wall or ceiling mounting. For K-rated transformers, up to and including 45 kVA shall be suitable for floor, wall or ceiling mounting. Transformers of higher capacity shall be floor mounted only.

G. Vibration Isolation

1. Core and coil assemblies 30 kVA and larger shall be mounted on rubber vibration isolators designed specifically to reduce 120 Hz sound and multiple harmonics.

2.2 EFFICIENCY LEVELS

- A. All transformers shall have the following efficiency levels per the State Energy Construction Code. Transformers shall be low loss type with minimum efficiencies per NEMA TP1, Class 1 when operating at 35% of full load capacity. Efficiency shall be tested in accordance with NEMATP.2.

2.3 ACCEPTABLE MANUFACTURERS

- A. General Electric
- B. Square 'D'
- C. Eaton/Cutler Hammer
- D. Siemens
- E. Hammond Power Solutions

PART 3 - EXECUTION

3.1 GENERAL

- A. Where indicated or as otherwise required and/or approved, each dry type transformer shall be resiliently suspended on double deflection neoprene in the shear hanger rod isolator assemblies, capable of providing minimum 3/8 inch static deflection.
- B. Where transformers are to be floor mounted, transformers shall be installed on a 4" high concrete housekeeping pad. Provide 3/4" thick neoprene pads between the transformer stand and housekeeping pad. Coordinate size and location of concrete bases with actual transformer provided. Cast anchor-bolt inserts into bases.
- C. Provide grounding conductor from transformer secondary to the nearest building ground for each separately derived system. Grounding electrode conductor shall be sized in accordance with NEC Section 250 for the derived phase conductors.
- D. Flexible conduit shall be used for all conduit connections to transformers; provide external bonding wire.

- E. Transformer taps shall be adjusted for rated output voltage under normal operating conditions.
- F. Correct any deficiencies identified by tests and retest until acceptable results are achieved.

**3.2 FACTORY TESTING**

- A. Ratio tests at the rated voltage connection and at all tap locations.
- B. Polarity and phase relation tests on the rated voltage connection.
- C. Applied and induced potential tests.
- D. No load and excitation current at rated voltage on the related voltage connection.

**3.3 FIELD TESTING**

- A. **Verify Transformer Secondary Voltage.**
  - 1. Ensure proper primary and secondary voltages.
  - 2. Compile a comprehensive listing of transformers, including ratings, locations and mounting type.
  - 3. Compare equipment nameplate data with the Contract Drawings and specifications.
  - 4. Inspect physical and mechanical condition.
  - 5. Verify that resilient mounts are free and that any shipping brackets have been removed.
  - 6. Verify ground has been installed.
  - 7. Measure primary and secondary voltages.
  - 8. Insulation Resistance Tests.
- B. Submit all test results.

3.4 Submit Operation and Maintenance Data.

3.5 Provide engraved nameplates for each transformer.

**3.6 ADJUSTING**

- A. Record transformer secondary voltage at each unit for at least 48 hours of typical occupancy period. Adjust transformer taps to provide optimum voltage conditions at secondary terminals. Optimum is defined as not

exceeding nameplate voltage plus ten (10) percent and not being lower than nameplate voltage minus three (3) percent at maximum load conditions. Submit recording and tap settings as test results.

- B. Connect buck-boost transformers to provide nameplate voltage of equipment being served, plus or minus five (5) percent, at secondary terminals.
- C. Output Settings Report: Prepare a written report recording output voltages and tap settings.

3.7 CLEANING

- A. Vacuum dirt and debris; do not use compressed air to assist in cleaning.

END OF SECTION

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**DRY-TYPE TRANSFORMERS**  
**26 22 13-8**

SECTION 26 24 16

PANELBOARDS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide panelboards in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Panelboards.  
B. Circuit Breakers.  
C. Fusible Switches.  
D. Surge Protective Devices (SPD)

1.3 SUBMITTALS

A. Shop Drawings

1. Show main devices and lug sizes; branch circuit device sizes and arrangement; bus ampacities; voltage, ampere, withstandability and short circuit rating of the panelboard and overcurrent protective devices; dimensions and construction; gutter and backbox dimensions; nameplate and legend; protective coating; and all pertinent details of panel, enclosure, cover, and method of securing cover and lock.
2. Include fully detailed and dimensioned plan elevations of each panel at a minimum of 1/4" scale.
3. Submit plans indicating maximum dimensions for panelboards including clearances between the panelboards and adjacent surfaces and other items to meet the NEC.

B. Product Data

1. Submit manufacturer's catalog data for all circuit breakers and switch assemblies.
2. Submit certification of U.L. compliance to integrated short circuit withstand requirements.
3. Short circuit and coordination study.

1.4 QUALITY ASSURANCE

A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and recommendations of the following:

1. Panelboards:

- a. U.L. Standards #50 and #67.
- b. Federal Standard W-P-115A Type II, Class 1.
- c. NEMA Standard PB-1.
- d. CSA Standard C22.2 No. 29-M.
- e. NFPA 70

2. Circuit Breakers:

- a. U.L. Standard #489.
- b. Federal Standard W-C-375B
- c. NEMA Standard AB-1.
- d. CSA Standard C22.2 N. 5-M91.

3. Fusible Switches:

- a. Federal Standard W-S-865C.
- b. U.L. Standard 98.
- c. NEMA KS-1.

4. Ground Fault Circuit Interrupters (GFCI):

- a. UL 943.

5. Arc Fault Circuit Interrupter (AFCI)

- a. UL 1699

B. Testing Agency Qualifications

- 1. Member company of NETA and NRTL



**PART 2 - PRODUCTS**

**2.1 PANELBOARDS**

- A. Provide panelboards consisting of an assembly of branch circuit switching and protective devices (circuit breakers, switch and fuse units, or combination thereof) mounted inside a dead front enclosure. All panelboards shall be door-in-door construction. Provide the number and size of these branch circuit devices as indicated by the circuiting, on the Contract Drawings, and in the Schedules. Locations of circuit breakers shall be as indicated in the schedules.
- B. Provide the following modifications and additional equipment as shown on the Contract Drawings:
1. Main circuit breakers.
  2. Ground fault circuit interrupting (GFCI) circuit breakers.
  3. Split buses.
  4. Integral remote control switches.
  5. Double lugs for multiple cables or for future provisions.
  6. Oversized gutters.
  7. Extra Capacity Neutral Bus – rated 200% of phase bus.
- C. Interiors
1. Provide a rigid removable assembly of copper bus bars and interchangeable bolted branch circuit devices.
  2. Material: Hard-drawn copper, 98 percent conductivity.
    - a. Aluminum bus bars shall have sufficient cross sectional area to provide a current density of 750A per square inch.
    - b. Copper bus bars shall have sufficient cross sectional area to provide a current density of 1000A per square inch.
  3. Bus bars drilled to permit branch circuit devices of all sizes and number of poles to be interchangeable and installed in any spare space of sufficient size, without disturbing adjacent units; without removing main bus or branch circuit connectors and without machining, drilling, or tapping in the field.
  4. Bus shall be arranged in sequence or distributed phasing so that multi-pole circuit breaker can replace any group of single circuit breakers of the same size.

5. Provide neutral bus in each panelboard.
6. Neutral bus shall be 200% rated when supplied from an oversized neutral feeder. Neutral bus shall be capable of terminating one conductor per panelboard pole position minimum.
7. Provide ground bus in each panelboard. On 208Y/120 volt panelboards provide isolated ground bus when served from a feeder that includes an isolated ground conductor. Each isolated ground bus shall be capable of terminating one conductor per panelboard pole position minimum.

**D. Enclosure**

1. Enclosure shall be code gauge steel box, galvanized.
2. Provide a bolt-on ground connector to inside of enclosure.
3. Enclosure shall be flush mounted in finished areas and where indicated. Enclosure shall be surface mount elsewhere.
4. Gutter Extension and Barrier: Same gauge and finish as panelboard enclosure; integral with enclosure body. Arrange to isolate individual panel sections.

**E. Front**

1. Doors shall be provided on all lighting and power panels. On switch and fuse panelboards doors over overcurrent devices shall not be provided unless rated for same.
2. Doors shall be heavy code gauge steel as required to maintain panel face flat.
3. Front shall be held closed with trim clamps.
4. Front door frame shall be hinged with captive screws. Circuit breaker section door shall be hinged.
5. Provide typewritten directory for total number of poles. Install behind plastic transparent protective cover on the panel frame.
6. Provide approved lock (Yale #47 key). All panels shall be keyed alike. Furnish four (4) sets of matching keys to the City of New York.
7. Provided welded angle rest at the bottom of the door to facilitate cover installation.
8. Doors over 48" in height shall have auxiliary fasteners at top and bottom of door in addition to lock and catch.

9. Enclosure shall be factory finished in ANSI 61 gray enamel or two coats of air-drying lacquer over a rust inhibiting primer.

**F. Multiple Section Panelboards**

1. Each section of multiple section panelboards shall be the same height.
2. Multiple sections shall each contain the same number of poles (e.g., 72 poles equals 2-36 pole panels).
3. When a multi-panel is served from a transformer, the main circuit breaker shall be provided in the first section to adequately protect the transformer secondary.

**G. Terminal Lugs**

1. Terminal lugs shall be bolted type, labeled for copper conductors.
2. Main lugs shall be located properly at top or bottom, depending where main feeder enters.
3. Lugs shall be rated for 75°C terminations.

**H. Electrical Ratings**

1. Panelboards shall be rated 208Y/120 volts or 480Y/277 volts, 3 phase, 4 wire, full neutral with ampacities as indicated on the Contract Drawings (unless otherwise noted).
2. Panelboards shall be fully rated for the available short circuit current indicated on the Contract Drawings. Each panelboard as a complete and finished product shall receive a single U.L. approved integrated equipment rating by the manufacturer. The integrated equipment short-circuit rating shall certify that all equipment is capable of withstanding the thermal and magnetic stress of a fault equal to the value specified on the Contract Drawings. Such rating shall be established by actual tests by the manufacturer on similar equipment. This certification shall be permanently affixed to each panelboard.
3. Where indicated, provide panelboards having a "service entrance" Type U.L. label with neutrals factory bonded to frame or enclosure.
4. Provide surge protective devices as indicated on the Contract Documents.

**I. Circuit Breaker Devices**

1. Circuit breakers shall be plastic molded case bolt on type with completely sealed enclosure and toggle type operating handle. Trip

ampere rating and "ON/OFF" indication shall be clearly visible. Plug-in type circuit breakers shall not be permitted.

2. Circuit breakers shall be thermal-magnetic trip-free, trip-indicating, quick-make/quick-break, with inverse time delay characteristics. Single-handle and common tripping multi-pole breakers shall be provided.
3. Provide with silver alloy contacts with auxiliary arc-quenching devices.
4. Panelboard shall be of the type which will accept the field installation of shunt trip devices of 60 amperes or less on the branch devices.
5. Interrupting capacities shall be as indicated on the Contract Drawings. As a minimum, 208Y/120 volt devices shall be not less than 10,000 AIC; 480Y/277 volt devices shall not be less than 14,000 AIC; and 42,000 AIC interrupting capacity for distribution style panels.
6. For lighting circuits provide devices labeled "SWD" for switching purposes.
7. Provide with bolted type terminals U.L. listed for copper 75°C conductors.
8. Provide main breakers in panels served from transformers unless separate transformer secondary protection is provided. Main circuit breakers shall be provided in the first section only when multi-section panelboards are provided.
9. Each breaker or space unit shall be provided with an individual number.
10. Provide handle padlocking device for designated breakers.
11. For HVAC equipment provide U.L. listed "HACR" type devices.
12. Provide tie-bars on all single pole circuit breakers serving multi-wire branch circuits in compliance with NEC Article 210.4(B). The disconnecting means shall simultaneously disconnect all ungrounded conductors at the point where the branch circuit originates.
13. Should fixed in-feeds require more than one (1) branch circuit, all circuit breakers shall be equipped with tie-bars to allow all circuits to be disconnected during maintenance events.

J. Ground Fault Circuit Interrupters (GFCI)

1. Ground fault circuit interrupter branch circuit breakers shall be provided as indicated on the Contract Drawings. Circuit breakers shall be circuit interrupting which will operate manually for normal switching functions and automatically under overload, short circuit, and 0.005 amp line-to-ground fault conditions. The operating mechanism shall be entirely trip-free so that contact cannot be held closed against an abnormal overcurrent, short circuit, or ground fault condition. The device shall be bolt-on type with insulated case construction and shall be interchangeable with standard single pole breakers utilized in the panelboard.

K. Switch and Fuse Devices

1. Provide a quick-make/quick-break, horsepower rated, dead-front type. Each switch shall be a self-contained unit, externally operable from the front. Provision for padlocking handle in "OFF" position shall be provided.
2. Fuse and switch compartment shall be interlocked to prevent access to the fuse compartment until switch is thrown to "OFF" position. Interlock shall be intentionally releasable by externally applied tool to permit investigating switch and fuses under load.
3. Switch units shall be interchangeable for replacement, without disturbing balance of distribution panelboard's operation.
4. Switches shall be equipped with rejection type clips for U.L. Class R fuses up to 600A, suitable for U.L. Class L fuses above 600A.
5. Switches shall reject fuses other than those specified.
6. Provide spare fuses as specified in the fuse specification section.

2.2 ACCEPTABLE MANUFACTURERS

- A. Electrotech
- B. All City Switchboard
- C. Lincoln Electric

**PART 3 - EXECUTION**

3.1 INSTALLATION

- A. All panels shall be mounted at a maximum height of six feet six inches to top unless otherwise noted.

- B. Surface type panels shall be mounted a minimum one inch off the wall on channels.
- C. Feed-through panels shall be connected to a main feeder by insulated parallel gutter taps. Full-size tap shall be provided for two (2) or more panels on a common feeder.
- D. Where flush mounted, the fire integrity of the wall in which it is installed shall be maintained.
- E. Branch circuit wires shall be neatly arranged and shall be tied together in each gutter with nylon pre-manufactured cable ties at four inch intervals.
- F. All knockouts removed and not utilized shall be plugged.
- G. Provide nameplate and fill out as-built typewritten panel directory.
- H. Provide grounding and bonding jumpers per the grounding specification section herein and as indicated on the Contract Drawings.
- I. All branch circuit conductors, within panelboards, shall be labeled with respective circuit number.
- J. Stub 3-1" empty conduits from each panelboard into the ceiling cavity above for future use.
- K. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

**3.2 TOUCH UP AND CLEANING**

- A. All backboxes shall be vacuumed clean of debris after installation and prior to final payment.
- B. Scratch marks, etc., shall be touched up with matching paint.

**3.3 OBSERVATIONS**

- A. Panel fronts shall be removed when directed by the Commissioner for observation (either by floor, or by group of floors, or all panels on the project as required by the Commissioner) and reinstalled immediately thereafter the observations.

3.4 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Retain a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

3.5 FIELD QUALITY TESTING

- A. Perform the following field quality tests and visual inspections, in accordance with NETA Acceptance Testing Specifications.
1. Exterior of the equipment.
  2. Interior of the cubicle.
  3. Interior bus/cable systems.
  4. Bus support insulators and spacing.
  5. Doors/panels/brackets.
  6. Door handles/locking bars/mechanisms.
  7. Instruments/relay covers.
  8. Control/metering transformers/instruments.
  9. Grounding/neutral bar installation correct per application.
  10. Wiring/terminal connections.
  11. Proper electrical clearances maintained.
  12. Complete circuit directories properly installed.
  13. Surge protection devices installed properly.
  14. Load current readings balanced per Code.
- B. Verify circuit breaker identification, sizing and operation in building distribution panelboards.
1. Compile a comprehensive listing of building distribution panelboards, as well as, their respective directories, feeder sizes and designation from where panels are served from.
  2. Compare equipment nameplate data with the Contract Drawings and specifications.
  3. Inspect circuit breaker for correct mounting.

4. Inspect case for cracks or other defects.
- C. Verify that wire size is appropriate for breaker size.
1. De-energize each panelboard breaker while observing respective building loads served by the breaker.
  2. Re-energize each panelboard breaker verifying equipment is re-energized.
  3. Each tested breaker, when placed in the "OFF" position, breaks electrical power to the respective (labeled) building load.
  4. Each tested breaker, when placed in the "ON" position, supplies electrical power to the respective (labeled) building load.
  5. No visible and/or audible arcing present.
  6. There shall be no short circuits.
  7. Lugs shall all be pulled tight.
  8. Panelboards shall be clean and neat. Panelboard covers shall be reinstalled.
- D. Verify Circuit Loads on Main Distribution Panels.
1. Ensure main distribution panels have the proper breaker feeding each load.
  2. Compile a comprehensive listing of building distribution panelboards, as well as, their respective directories.
  3. Verify breaker matches breaker load.
  4. Check breaker balance phase-to-phase.
  5. Check line to ground resistance.
  6. Check setting on the breaker for trip to motor loads.
  7. Verify settings and trip on larger breakers to match the calculated reports.
  8. Load shall not be higher than 80% of the breaker.
  9. Phases are properly balanced.
  10. No more than 0.005 ohm to ground.
- E. Submit all field quality test results.



3.6 SPARE MATERIALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Keys: Two (2) spares for each type of panelboard cabinet lock.
  2. Circuit Breakers Including GFCI and Ground Fault Equipment Protection (GFEP) Types: Two (2) spares for each panelboard.
  3. Fuses for Fused Switches: Equal to 10 percent of the quantity installed for each size and type, but no fewer than three (3) of each size and type.
  4. Fuses for Fused Power-Circuit Devices: equal to ten (10) percent of the quantity installed for each size and type, but no fewer than three (3) of each size and type.

3.7 WARRANTY

- A. Provide a one (1) year warranty from the date of substantial completion.

END OF SECTION

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SECTION 26 27 26

WIRING DEVICES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide wiring devices in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Switches.  
B. Receptacles.  
C. Wall Plates.

1.3 SUBMITTALS

- A. Submit manufacturer's catalog cuts and specifications for all types for each product indicated. Highlight exact model being proposed in the submittal.  
B. Submit samples for finish, color and texture as requested by the Commissioner.

1.4 QUALITY ASSURANCE

- A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
1. Switches.
    - a. NEMA Standards WD-1 and WD-6.
    - b. Federal Specification Standard WS-896E.
    - c. U.L. 20.
  2. Receptacles:
    - a. NEMA Standards WD-1 and WD-6
    - b. U.L. Standard 498
    - c. Federal Specification WC596-D.
    - d. U.L. 943 (GFCI receptacles).

- e. U.L. 514 (Poke Through Assemblies)
- B. Obtain each type of wiring device through a single manufacturer, where available.

**PART 2 - PRODUCTS**

**2.1 SWITCHES**

- A. Switches shall be commercial specification grade, flush mounting, quiet-operating AC type, decora rocker type, heat-resistant plastic housing and self grounding metal strap. Provide silver alloy contacts. Switches shall be rated 20A at 120-277V and capable of full capacity on all lamp loads. Switches shall be design for side or back wiring with up to No. 10 AWG wire. Switches shall be rectangular (decorator) style in all areas.
- B. Provide single-pole, double-pole, 3-way, 4-way, pilot or keyed type switches, as indicated on the Contract Drawings or required.
- C. Switch with Pilot Light: Switches indicated with an illuminated rocker switch in the "OFF" position for visual load monitoring shall be provided as indicated on the Contract Drawings.
- D. Provide 3-position, momentary contact, center "OFF" type switches, which control lighting by way of a low voltage lighting control relays as indicated on the Contract Drawings.
- E. Provide illuminated type switches controlling lighting connected to emergency power – illuminated when switches are in the "OFF" position.
- F. The color of all normal devices shall be selected by the Commissioner.
- G. Acceptable Manufacturers
  - 1. Switches
    - a. Leviton
    - b. Hubbell
    - c. Bryant
    - d. Pass & Seymour/Legrand
    - e. Lutron
  - 2. Dimmers
    - a. Lutron

- b. Leviton
- c. Pass & Seymour/Legrand

## 2.2 RECEPTACLES

- A. Receptacles shall be two-pole, three-wire, grounding, simplex or duplex NEMA 5-20R, rated for 20 amperes at 125 volt electrical alternating current as indicated on the Contract Drawings and ANSI standard type, commercial specification grade, with brass contacts that accepts a plug with two (2) parallel blades and one (1) grounding blade. Receptacles shall be equipped with terminals to accept up to No. 10 AWG conductors. Enclosures shall be heat-resistant plastic with nylon face and two (2) grounding screws. Provide break-off terminals for 2-circuit wiring. Provide rectangular decora style.
- B. Ground fault circuit interrupter (GFCI) receptacles shall interrupt ground leakage currents between 4-6 mA having a maximum circuit current of 20 amperes. Employ feed through or non-feed through devices as indicated, or required. Configuration shall be straight blade type NEMA 5-20R. Utilize 2 3/4" deep outlet boxes without any adaptors. Long life LED light shall be provided, within the receptacle. Device shall have a minimum nominal tripping time of 0.025 seconds.
- C. Provide commercial specification grade twist lock type receptacles as indicated on the Contract Documents.
- D. The color of all normal devices shall be selected by the Commissioner.
- E. Acceptable Manufacturers
  - 1. Receptacles:
    - a. Leviton
    - b. Hubbell
    - c. Bryant
    - d. Pass & Seymour/Legrand

## 2.3 WALL PLATES

- A. Provide wall plates for all receptacles, outlets, and switches of 430 stainless steel with satin finish, unless otherwise noted. When two (2) or more switches or devices are shown in one (1) location, provide a common wall plate.
- B. Provide cast aluminum metal plate with stainless steel spring loaded, gasketed, double flap lift cover to provide protection for the receptacle and plug when "IN USE" for all exterior receptacles, those in mechanical rooms,

those in garages, and where indicated on the Contract Drawings. These covers shall be labeled and listed as "extra duty" type.

- C. Provide lockable type covers where indicated on the Contract Documents.
- D. Acceptable Manufacturers
  - 1. By same manufacturer as device utilized.

### **PART 3 - EXECUTION**

#### **3.1 SWITCHES**

- A. Install all switches vertically with the "ON" position on top, unless noted or specified otherwise.
- B. Where switches are indicated near doors, corner walls, etc., install not less than two (2) inches and not more than twelve (12) inches from the trim.
- C. Carefully coordinate locations of switches to insure locations are at the strike side of doors.
- D. Furnish and install an engraved legend for each switch that controls motors, equipment systems, etc., not located within the sight of the controlling switch.
- E. Install unshared neutral conductors on the line and load sides of the dimmers according to the manufacturers' written instructions.

#### **3.2 RECEPTACLES**

- A. Unless otherwise noted, mount receptacles vertically with U-shaped ground position at the top.

#### **3.3 GROUND FAULT CIRCUIT INTERRUPTERS (G.F.C.I.)**

- A. Swab all conduits clear of moisture.
- B. Do not combine G.F.C.I. protected circuits with other circuits in the same raceway; only one (1) G.F.C.I. circuit per raceway.
- C. Do not substitute G.F.C.I. circuit breakers for G.F.C.I. receptacles.
- D. All G.F.C.I. receptacles shall be installed in a readily accessible location per the NEC.

3.4 DEVICE GROUNDING

- A. Provide a No. 12 AWG grounding conductor from the device grounding terminal to the panelboard ground bus.
- B. Provide a No. 12 AWG grounding conductor from the device grounding terminal to the outlet box.

3.5 INSTALLATION

- A. All devices shall be flush-mounted except as otherwise noted on the Contract Drawings.
- B. Locations
  - 1. Comply with layout drawings for general location.
  - 2. Relocate outlets obviously placed in a location or manner not suitable to the room finish.
  - 3. Avoid placing outlets behind open doors.
- C. Mounting heights and positions are specified in the Special Conditions specification section and as indicated on the Contract Drawings. Architectural drawings take precedence over heights and positions specified in the electrical specifications.
- D. Ganging of Switches: Provide steel barriers between ganged 277 volt switches of different phases between all ganged dimmers; and between normal and emergency sources..
- E. Fastening: Securely fasten the devices into the outlet boxes and attach appropriate wall plates.
- F. Testing
  - 1. After installing wiring devices and after circuiting has been energized, test for proper polarity, ground continuity, and other requirements indicated on the Contract Documents.
  - 2. Test GFCI operation with local fault simulation according to the manufacturer's instructions.
  - 3. Replace all malfunctioning devices with new and retest as specified above.
- G. All devices shall be provided with identification as indicated in the identification specification section.

3.6 WARRANTY

- A. **Manufacturer's warranty:** all equipment shall be warranted free of defects in materials and workmanship for a period of one (1) year from date of purchase.

END OF SECTION



SECTION 26 28 13

FUSES (600 V AND LESS)

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide 600 Volt and less fuses in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Fuses.  
B. Spare Fuse Cabinets.

1.3 SUBMITTALS

A. Shop Drawings

1. Submit dimensioned drawings of each spare fuse cabinet by type and size.

B. Product Data

1. Provide complete set of let-through curves for each type of fuse.
2. Submit listing of all types, sizes and quantity of fuses which will be installed including location of each.
3. Submit listing of all spare fuses by types, sizes and quantities, which will be furnished for placement in the respective fuse cabinets.
4. Short circuit current analysis is based upon Bussmann fuse characteristics for let-through currents. If fuses by another manufacturer are proposed, provide appropriate fuse curves and let-through values which correspond to Bussmann values shown on the Contract Drawings. Submit comparative chart of fuse substitutions for review prior to acceptance of substitutions. Comparative chart shall include the following:
- a. Cross reference of fuses to be used in place of Bussmann fuse type designation indicated on the Contract Drawings or specified herein.
- b. Cross reference of let-through currents of the fuses to be used compared to the Bussmann fuses indicated on the Contract Drawings or specified herein (e.g., design let-

through current of feeder point No. \_\_\_\_ on the Contract Drawings is \_\_\_\_\_ amperes. Let-through current for substitute fuse is \_\_\_\_\_ amperes.).

**1.4 QUALITY ASSURANCE**

- A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
1. U.L. Standard #198.
  2. U.L. Standard #977.
  3. NFPA 70, Article 100.

**PART 2 - PRODUCTS**

**2.1 MATERIALS**

- A. Mains, Feeders and Branch Circuits
1. Circuits 601 to 6000 amperes shall be protected by Class L, Bussman System 300 Low Peak Yellow Time-Delay fuses, type KRP-C (amp) SP.
  2. Circuits 0 to 600 amperes shall be protected by Class RKI, Bussmann System 300 Low Peak Yellow dual element fuses, type LPN-RK (amp) SP for 250 volt applications and LPS RK (amp) SP for 600 volt applications.
  3. A minimum 2:1 ratio must be allowable between the ampere rating of the main fuse and that of the feeder fuse, and between the feeder fuse and branch circuit fuse to obtain selective coordination and minimize switch size.
  4. Metal end caps of fuses rated 61 through 600 amperes shall be electrically connected to the fuse blades to facilitate voltage testing during OSHA required lock out/tag out procedures.
  5. All fuses shall be of the same manufacturer.
- B. Spares: Upon completion of the building, provide the City of New York with spare fuses as indicated below:
1. 10 percent (minimum of 3) of each type and rating of installed fuses shall be supplied as spares.
  2. Spare fuse cabinets shall be provided to store the above spares. The cabinet shall be constructed of minimum .080 heavy duty

**FUSES (600 V AND LESS)**

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aluminum, with baked ASA61 gray enamel paint. The cabinet door shall be equipped with a locking handle and cylinder lock. Mounting holes with key slots 16 inches on center shall be provided.

3. Spare fuse cabinets shall be provided as a minimum in the following locations:

- a. Each main normal and emergency rooms.
- b. Each major mechanical equipment room.

C. Labels

- 1. "Low-Peak Yellow" or equivalent notice labels to alert the end user of the engineered level of protection of the electrical equipment shall be field installed by the Contractor. They shall be obtained from the fuse manufacturer, marked with the proper fuse rating per the specifications and placed in a visible location in the enclosure.

## 2.2 ACCEPTABLE MANUFACTURERS

A. Fuses

- 1. Cooper Bussmann
- 2. Mersen
- 3. Littelfuse

B. Spare Fuse Cabinet

- 1. By fuse supplier.

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. Do not install fuses until equipment is ready to be energized.
- B. Provide all fuses except as otherwise noted. All fuses shall be new.
- C. Replace any fuses which are not functioning.

**Bellevue Men's Shelter Elevator Rehabilitation**  
**FMS# HH112BLEL**

- D. Labels: Install appropriate label supplied the by fuse manufacturer within each switch, motor starter, or panelboard door, or at location next to the fuse clips.
- E. Coordinate fuse ratings with HVAC, refrigeration, and plumbing equipment limitations for maximum fuse size prior to any installation.
- F. Arrange fuses so rating information is readable without removing fuses.

**END OF SECTION**

SECTION 26 28 16  
DISCONNECT SWITCHES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide disconnect switches in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Safety Switches (Fused and Non-Fused Types).  
B. Manual Control Switches.

1.3 SUBMITTALS

- A. Product Data
1. Submit manufacturers' data for all disconnect switches, including dimensional data, ratings, fuse ratings and types, and cable terminal sizes.
  2. Identify motor or equipment served by each switch; indicate nameplate inscription.

1.4 QUALITY ASSURANCE

- A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest applicable recommendations of the following:
1. U.L. Standards #98.
  2. NEMA Standard KS1.
  3. U.L. 20 and Federal Specification Test Standards for Toggle Switches.

PART 2 - PRODUCTS

2.1 SAFETY SWITCHES

- A. Provide heavy-duty, horsepower rated, single-throw knife switch with quick-make/quick-break mechanism, capable of full load operations. Switches shall meet NEMA and U.S. Government specifications for Class A switches.

- B. Provide with contact arc-quenching devices, such as magnetic blowouts or snuffing plates. Provide self-aligning switchblades with silver alloy contact areas, designed so that arcing upon making and breaking does not occur on final contact surfaces. Provide with high-pressure, spring-loaded contact. Switch parts shall be mounted on high-grade insulating base.
- C. Enclosure: Shall be NEMA 1 with hinged door and defeatable interlock when switch is in "ON" position, able to be padlocked in "ON" and "OFF" positions. Provide NEMA 3R (rain-tight) enclosure for exterior installations and NEMA 12 in warehouse and mechanical rooms.
- D. Size, fusing and number of poles shall be provided as shown on the Contract Documents or as required. Where fused, the switch shall be provided with U.L. listed rejection feature to reject all but Class R fuses. Provide horsepower rated switch to match motor load if size is not shown. Provide 3 pole plus solid neutral switches on four wire circuits and 3 pole switches on all other circuits, unless otherwise noted.
- E. Lugs shall be U.L. listed for copper conductors and be front removable.
- F. Provide six (6) pole switches for connection to motors with the following starter types:
  - 1. Non-reversing - two step - part winding - star connected.
  - 2. Non-reversing - full voltage - two speed separate winding.
  - 3. Non-reversing - full voltage - two speed single winding.
  - 4. Where otherwise required.
- G. Provide auxiliary contacts for switches where required or where indicated on the Contract Documents.

**2.2 TOGGLE TYPE MANUAL CONTROL SWITCHES**

- A. Provide switches which operate at their full rating with fluorescent, tungsten, and resistance loads and at 80% of their rated capacity with motor loads.
- B. Switches shall be heavy duty type and shall have:
  - 1. Arc-resisting bodies.
  - 2. Slow make-and-break mechanisms.
  - 3. Silver alloy contact buttons.
  - 4. Side or back wiring with up to No. 10 AWG solid conductors.

2.3 ACCEPTABLE MANUFACTURERS

- A. Safety Switches
  - 1. Square 'D'
  - 2. Eaton/Cutler Hammer
  - 3. General Electric
  - 4. Siemens
- B. Toggle Type Manual Control Switches
  - 1. Square D
  - 2. Eaton/Cutler-Hammer
  - 3. General Electric
  - 4. Siemens

**PART 3 - EXECUTION**

3.1 APPLICATIONS

- A. Provide each motor over ½ HP with a horsepower rated safety-type disconnect switch.
- B. Provide each piece of equipment utilizing multi-phase power with a safety-type disconnect switch.
- C. Provide each piece of equipment utilizing single-phase power but protected at over 30 amperes with a safety-type disconnect switch.
- D. Equipment other than that mentioned above shall utilize toggle type manual control switch properly sized and rated for equipment it disconnects.
- E. Factory installed disconnect switches may be used to satisfy the above requirements.
- F. Disconnect switches serving the fire alarm system shall be painted RED.

3.2 MOUNTING

- A. Provide connections and wiring to and from each disconnect switch.
- B. Disconnect switches shall be mounted on adjacent wall or from the floor with independent supports. Switches shall not be mounted on the equipment housings.

- C. Switch enclosure shall be rigidly mounted and with proper alignment on building structure or steel supports with centerline of operating handle not more than 6 feet above finished floor unless otherwise required. Steel supports fabricated from standard rolled structural steel shapes or framing channel shall be used to provide one-inch separation between enclosure and building wall for vertical flow of air.
- D. Fuses shall be used as specified in this Division.
- E. Completed installation shall contain no extraneous openings.
- F. All viewing windows shall be cleaned.

**3.3 IDENTIFICATION**

- A. Provide nameplate identification of all disconnect switches in accordance with these specifications.

**3.4 FIELD TESTING**

- A. The following field acceptance tests shall be performed and test report submitted:
  - 1. Compile a comprehensive listing of building motor loads, including voltage, phase, HP, FLA, and location.
  - 2. Compare equipment nameplate data with the Contract Drawings and specifications.
  - 3. Command inductive motor loads to start through respective manual or computer controls.
  - 4. With individual motor loads running break power to the load with respective disconnect switch and/or safety stop.
  - 5. Wait until motor loads come to a complete stop.
  - 6. Re-connect power to the motor load with the respective disconnect switch and/or safety stop.
  - 7. Compare fuse size with motor full-load current rating to verify correct sizing.
  - 8. Verify that no visible or audible arcing is present.

**END OF SECTION**



SECTION 26 29 19

SWITCHBOARDS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide service distribution switchboards rated 600V or less in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Switchboards.
- B. Service Switches
- C. Short Circuit Analysis and Arc Flash Study
- D. Instrumentation and Control Power

1.3 SUBMITTALS

A. Shop Drawings

- 1. Include fully detailed and dimensioned plans, sections and elevations of each section of the switchboards. Include information on type and size of structural supports, metal thicknesses, surface finishes, bus cross sections, and provisions for lifting. Drawings shall be a minimum of 1/4" scale.
- 2. All concrete housekeeping pads must be sized and illustrated.
- 3. Include all required code and maintenance clearance space around each piece of equipment.
- 4. Detail descriptive documentation of any barriers specified for electrical insulation and/or isolation.
- 5. Conduit entrance locations and requirements must be identified.

B. Product Data

- 1. Single line diagram of switch, fuse, circuit breakers, bus arrangements, ground fault protection, surge protective devices, fuse cut outs, metering arrangements, etc.
- 2. Furnish complete schematic wiring diagrams and a full set of equipment wiring diagrams for protective equipment relays, over

current protection devices, pilot lights, alarms, controls, etc.  
Provide narratives for all wiring diagrams submitted.

3. Include full load heat rejection in BTU per hour for total components by switchboard.
4. All fuse and circuit breaker sizes and types must be indicated.
5. All nameplate information must be complete.
6. All mimic bus arrangements must be illustrated.
7. Short circuit and coordination study must be provided at the time of the switchboard submission. The switchboard submission must be coordinated with the study results.
8. All diagrams shall include system voltage, phase, frequency, bus current ratings and withstanding ratings.
9. Detail features, characteristics, ratings, and factory settings of the individual overcurrent protection devices and auxiliary components.
10. Detail enclosure types for each type other than NEMA 250, Type 1.
11. Include time-current coordination curves for each type and rating of overcurrent protective device included in the switchboards. Submit on translucent log-log graph paper, include selectable ranges for each type of overcurrent protective device.
12. Submit testing procedures which will be used for field quality testing.

C. Test Reports

1. Submit test data verification of fault current withstand rating.
2. Submit certified reports of field quality testing.

1.4 QUALITY ASSURANCE

- A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
1. Ground Fault Circuit Protection UL 1053.
  2. QMQB Operators UL E1818.
  3. Bolted Pressure Switches UL 977.

4. Switchboards NEMA Standards PB-2, PB-2.1, PB-2.2; UL 891 and UL Service Entrance Label.
  5. Meters ANSI Specification C 39.1.
  6. ANSI C37.13.
  7. ANSI C37.51.
  8. NETA
  9. Molded Case Circuit Breakers UL 489 and NEMA AB1.
  10. NRTL labeled for service equipment.
- B. Each switchboard as a complete and finished product shall receive a single integrated equipment rating by the manufacturer. The integrated equipment short-circuit rating shall certify that all equipment is capable of withstanding the thermal and magnetic stress of a fault equal to the value specified on the Contract Drawings. Such rating shall be established by actual tests by the manufacturer on similar equipment. This certification shall be permanently affixed to each switchboard. Test data shall be submitted to the Engineer at the time of submission of Submittal Drawings.
- C. Only qualified staff shall be allowed to work on the installation of this equipment and all terminations, as defined in NEMA PB2.1 and NFPA 70E.

1.5 SHORT CIRCUIT AND COORDINATION STUDY

- A. Prepare a short circuit and coordination study based on the actual overcurrent protection devices proposed for use by the manufacturer. Provide overcurrent protective devices of suitable type and rating to meet or exceed the available short circuit currents indicated in the short circuit study. The study shall be prepared, signed and sealed by a professional electrical engineer licensed in the state of the project.
- B. The study shall be submitted with the distribution equipment submittal and shall indicate where device substitutions are being made in order to achieve adequate interrupting capacity ratings for each piece of equipment. This contractor shall be responsible for providing equipment which meets or exceeds the calculated interrupting capacity ratings indicated by this study. No extras will be given to provide equipment to achieve coordination by this manufacturer.
- C. The study shall include recommended settings of adjustable overcurrent and ground fault settings.
- D. The study shall include all stand-by power system equipment, ratings and recommended settings.

- E. The study shall be submitted at the time of the Switchboard and Panelboard submissions. If the product submittal is not accompanied by the short circuit study, the product submittal will be returned unreviewed.

1.6 ARC-FLASH HAZARD ANALYSIS

- A. The Arc-Flash Hazard Analysis shall be performed with the aid of computer software intended for this purpose in order to calculate Arc-Flash Incident Energy (AFIE) levels and flash protection boundary distances.
- B. The Arc-Flash Hazard Analysis shall be performed in conjunction with a short-circuit analysis and a time-current coordination analysis.
- C. Results of the Analysis shall be submitted in tabular form, and shall include device to bus name, bolted fault and arcing fault current levels, flash protection boundary distances, personal-protective equipment classes and AFIE levels.
- D. The analysis shall be performed under worst-case Arc-Flash conditions, and the final report shall describe, when applicable, how these conditions differ from worst-case bolted fault conditions.
- E. The Arc-Flash Hazard Analysis shall be performed by a registered professional engineer in the state of the project.
- F. The Arc-Flash Hazard Analysis shall be performed in compliance with IEEE Standard 1584, the IEEE Guide for Performing Arc-Flash Calculations, latest edition.
- G. The Arc-Flash Hazard Analysis shall include recommendations for reducing AFIE levels and enhancing worker safety.
- H. The proposed vendor shall demonstrate experience with Arc-Flash Analysis by submitting names of at least ten actual Arc-Flash Analyses it has performed in the past year.
- I. The proposed vendor shall demonstrate capabilities in providing equipment, services, and training to reduce Arc-Flash exposure and train workers in accordance with NFPA 70E and other applicable standards.
- J. The proposed vendor shall demonstrate experience in providing equipment labels in compliance with NEC Article 110 and ANSI Z535.4 to identify AFIE and appropriate Personal Protective Equipment classes.
- K. Labels shall be provided to list all arc flash boundaries, flash hazard levels, voltage levels, shock hazards and recommended PPE. Labels shall follow guidelines established in the latest version of NFPA 70E.
- L. Labels shall be made for all switchboards, switchgear, panelboards, switches, transformers, ATS and other pertinent electrical equipment.

**PART 2 - PRODUCTS**

2.1 **GENERAL**

- A. Provide switchboards of the front accessibility type, consisting of quick make/quick break type switches; self-contained switch units, size and arrangement shown on the Contract Drawings.
- B. Each switchboard shall be of front accessible only type where all connections are accessible from the front. Where indicated on the Contract Drawings as being positioned such that a front accessible switchboard would have limited access, provide front accessible equipment where all connections are accessible from the front.
- C. Overcurrent devices shall be provided as individually mounted devices in switchboards of 1,200 amperes or more. Provide group mounted in switchboards rated below 1,200 amperes.
- D. Carefully check the physical space limitations for each switchboard and furnish switchboards to match those conditions. Nothing in these Specifications shall preclude the use of a custom designed switchboard (as reviewed by the Commissioner) to meet those limitations.
- E. Switchboard enclosures shall be steel, NEMA 250, Type 1 and fully gasketed. Where installed within sprinklered areas, switchboard enclosures shall be raintight NEMA Type 3R.
- F. Provide service entrance label where required.
- G. Provide High Pressure Contact (HPC) type switches when feeding step-up or step down transformers. Switches must have a closing rating of twelve times (12x) the continuous current rating compared to a standard bolted pressure switch which has six times (6x) the closing rating.
- H. All switchboards and service switches shall be rated for 200,000 AIC bracing, U.O.N.

2.2 **CONSTRUCTION**

- A. The enclosure shall be formed structural steel, forming a rigid structure. Turned down peripheral edge on front and rear panels.
- B. Completely enclosed on the back, front, and sides with removable panels. All closure plates shall be small enough for easy handling by the operator.
- C. All sections shall be same height, 90 inches, except as otherwise required due to physical space limitations. All sections shall be the same depth.
- D. The switchboard enclosure shall be painted on all exterior surfaces. The paint finish shall be a medium gray, ANSI 49, applied by the electro-deposition process over an iron phosphate pre-treatment.

- E. Provide steel barriers between each section of the switchboard.

### 2.3 PULLBOX OVER SWITCHBOARD

- A. Where required for conduit terminations, provide a pullbox of the same type of construction and finish as the switchboard. Adequate ventilation to maintain temperature in the pullbox within same limits as the switchboard.
- B. Provide cable supports for horizontal support of cables. Construct supports of 3/4 inch conduit loosely enclosed by strong fiber tubes. Space supports no more than 24 inches horizontally and 6 inches vertically.
- C. Bottom shall be insulating, fire-resistive material with separate holes for cable drops into the switchboard.
- D. Removable covers shall form top, front and sides. Top covers at rear shall be easily removable.

### 2.4 BUSES

- A. Bus bars shall be arranged throughout A-B-C left to right, top to bottom, and front to rear.
- B. Conductor material shall be copper of 98% conductivity silver plated.
- C. Bus shall be sized at 1,000 amperes per square inch, but in no case less than of sufficient cross section to limit temperature rise to 55°C above an ambient temperature of 40°C.
- D. Horizontal bus shall be full size, tapered bus is not permitted. Provide bolt holes drilled and tapped for future extension at the end of the bus bars including the neutral and ground buses. The provisions shall include bus bars installed and extended to the extreme side of the section and shall be fabricated in such a fashion that the addition of a future section would require only the installation of standard bolted splice plates.
- E. All bus bars shall be rigidly braced to comply with the integrated equipment rating of the switchboard.
- F. Neutral bus shall be rated 100 percent of the ampacity of the phase buses.
- G. Bus bars shall be extended vertically to the fullest extent to allow the installation of future devices, space permitting.

### 2.5 FEEDER INSTALLATION AND TERMINATION

- A. Bolted and accessible from the front for front access type.

2.6 BOLTED PRESSURE SWITCHES

- A. Switches 800 amperes and above and all main switches and service switches shall be bolted pressure type.
- B. Manually operated and, where indicated, electrically tripped. Dead front, totally enclosed in a cabinet designed as a complete magnetic circuit. Interlock to prevent access to a closed switch. Interlock capable of intentional bypass by knowledgeable personnel.
- C. Fuse compartment shall be interlocked to prevent access when a switch is in the "CLOSED" position.
- D. Maximum temperature rise at full load - 30°C spot temperature.
- E. Short-Circuit Rating: 200,000 amperes Root Mean Square symmetrical.
- F. Capable of being opened when carrying 750 percent of its rated load. Opening under these conditions requires no major physical effort.
- G. Arc barriers and replaceable arcing contacts shall be provided.
- H. Switch shall be of the charge before closing type.
- I. U.L. listed for continuous operation.
- J. Handle shall be capable of being padlocked in the "OFF" position.
- K. Ground Fault Relay: Comply with UL 1053; self-powered type with mechanical ground-fault indicator, test function, tripping relay with internal memory, and three-phase current transformer/sensor.
  - 1. Configuration: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
  - 2. Internal Memory: Integrates the cumulative value of intermittent arcing ground-fault currents and uses the effect to initiate tripping.
  - 3. No-Trip Relay Test: Permits ground-fault simulation test without tripping switch.
  - 4. Test Control: Simulates ground fault to test relay and switch (or relay only if "NO TRIP" mode is selected).

2.7 SELF-CONTAINED SWITCH UNITS

- A. Switches 600 amperes and below shall be self-contained type.
- B. Switches shall be quick make/quick break dead-front type. Each switch shall be a self-contained unit, externally operated from the front.

- C. Fuse and switch compartment shall be interlocked to prevent access to the fuse compartment until the switch is thrown to the "OFF" position. Interlock shall be intentionally releasable by an externally applied tool to permit checking of the switch and fuses under load.
- D. Switches shall be equipped with rejection type clips suitable for Class R fuses.
- E. Handle shall be capable of being padlocked in the "OFF" position.

**2.8 GROUNDING**

- A. Provide ground bus of at least 33 percent of capacity of the switchboard extending along the full length of the switchboard.

**2.9 GROUND FAULT PROTECTION**

- A. Ground fault protection (GFP) shall be provided where indicated on the Contract Drawings and on all disconnect switches rated 1000 amperes or more as required by the National Electrical Code.
- B. The ground fault protection shall consist of the following:
  - 1. **Current Sensors:** Provide zero sequence current sensors for feeder and branch devices and ground return sensors for main service device; inputs compatible to relay. Construct sensor frame so it can be opened to permit removal or installation around conductors without disturbing conductors. Provide test winding in sensor for testing operation of GFP unit, including sensor pick-up, relay, and circuit protection device operation.
  - 2. **Ground-Fault Relay:** Provide solid-state ground-fault relay, which requires no external source of electrical power, drawing energy to operate GFP system directly from output of current sensor. Construct with adjustable pick-up current sensitivity for GF currents from 200 to 1200 amperes, with calibrated dial to show pick-up point settings. Provide factory-set time delay of 0.5 seconds and which precludes tampering with setting after installation.
  - 3. **Monitor Panel:** Provide monitor panel capable of indicating relay operation, and provide means for testing system with or without interruption of service. Construct so GFP system cannot be left in an inactive or "OFF" state. Provide indicator lamps and TEST and RETEST control switches. The panel shall be installed in the front of the switchboard adjacent to the device being protected.
  - 4. **Shunt-Trip:** Each device, switch, or circuit breaker, with ground fault protection, shall be provided with a shunt-trip mechanism which shall automatically "OPEN" the device when signaled by the ground-fault sensor.



C. Provide a fuse protected central power transformer from the switchboard line side for the ground fault systems. Ground fault and shunt-trip device shall be capable of operation at 55% of the rated voltage.

1. Settings

a. The electrical trade shall set each ground fault sensor pick up setting at 25% of the rating of the over-current device with a 6-cycle time delay unless specifically indicated otherwise in the short circuit and coordination study.

**2.10 ACCEPTABLE MANUFACTURERS**

A. Switchboards

1. Electrotech
2. All City Switchboard
3. Lincoln Electric
4. General Electric
5. Square D
6. Siemens.
7. Eaton/Cutler Hammer

B. Bolted Pressure Switches and High Pressure Contact Switches

1. Pringel Switch Company
2. General Electric
3. Siemens

**PART 3 - EXECUTION**

- 3.1 Install switchboards when the area is free and clear of dust and debris. Protect switchboards continuously from dust and moisture. Do not utilize switchboards for temporary lighting and power services except where authorized in writing by the City of New York.
- 3.2 Install switchboards on 4 inch high concrete housekeeping pads which shall follow the contour of the switchboards with 4 inch clear all around.
- 3.3 Provide steel channel sills below each switchboard where the switchboard frame is not suitable for use as a floor sill.

**3.4 FEEDER INSTALLATION AND TERMINATION**

- A. Group cables paralleling one another and arranged so as to permit easy insertion of a clamp-on ammeter on each cable.
- B. All line and load side conductors emanating from the top or bottom of the switchboards shall be lashed to cable braces provided in the switchboard. Lashing shall be performed as per the manufacturer's recommendations to maintain the integrated equipment rating. Lashing material shall be nonmetallic fire and heat resistant with a tensile strength of 2,000 pounds. In general on service entrance cable, run and bend the cable in a manner so as to rest directly against the cable braces. Make six (6) revolutions around the "A" and "B" phase and the six (6) revolutions around the "B" and "C" phase cables. With the remaining lashing material make four (4) to five (5) revolutions between each of the phase cables tying a knot to the cable braces as the last revolution is complete. All revolutions must be as tight as possible to prevent magnetic stress during short circuits. Load cables in general should be lashed with four (4) revolutions around the cable and the brace, then tied in a knot after the last revolution.

3.5 At the completion of the work, each switchboard shall be field tested by a manufacturer's representative as described below. A report recording each item of the testing shall be certified by the manufacturer and submitted to the Commissioner.

- A. Operation of each disconnecting means under load.
- B. Observation of cable bracing, both incoming and outgoing, certifying that it is in accordance with the manufacturer's recommendations.
- C. Verification of setting of all ground fault protection (GFP) systems. Test each system by checking coordination between ground fault and phase to ground fault of a single pole lighting branch circuit.
- D. Verification of torque for all nuts and bolts on buswork. Tighten connections in accordance with the manufacturer's specifications.
- E. Measure, using a megger, the insulation of each bus section phase-to-phase; and phase-to-ground for one (1) minute each, at a minimum test voltage of 1000 VDC for 460 volt and 500 VDC for 208 volt systems. Minimum acceptable value for insulation resistance is 1 megaohms. Coordinate testing with the equipment manufacturer prior to any testing.

**3.6 OPERATING AND MAINTENANCE MANUAL**

- A. Provide operating and maintenance manuals for all switchboards. Manuals shall include spare parts data listing, source of replacement parts and supplies and as-built drawings.

- B. Provide installation and maintenance instructions. Instructions shall be affixed to the cover of the incoming section of each equipment.

**3.7 AS-BUILT RISER DIAGRAM**

- A. Provide an as-built riser diagram of each distribution system mounted in a glass covered-frame. Media shall be high quality presentation type paper. Diagrams shall be located in the respective electrical room. A digital electronic version shall be submitted to the Commissioner and City of New York.

**3.8 FIELD QUALITY TESTING**

- A. Perform field testing in accordance with NETA Acceptance Testing Standards and to include, but not limited to, the following:

1. Perform resistance tests through all bus joints with a low-resistance ohmmeter. Any joints that cannot be directly measured due to permanently installed insulation wrap shall be indirectly measured from closest accessible connection.
2. Perform insulation-resistance tests on each bus section, phase-to-phase and phase-to-ground.
3. Bolt-torque levels shall be in accordance with the manufacturer specifications.
4. Compare bus connection resistances to values of similar connections.
5. Insulation-resistance values for bus, control wiring, and control power transformers shall be in accordance with the manufacturer's published data. Overpotential tests should not proceed until insulation-resistance levels are raised above minimum values.
6. Apply overpotential test voltages in accordance with the manufacturer's recommendations. The insulation shall withstand the overpotential test voltage applied.

- B. Perform the following infrared scan tests and inspections and prepare reports:

1. Initial Infrared Scanning: After substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each switchboard. Remove front and rear panels so joints and connections are accessible to portable scanner.
  - a. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each switchboard 11 months after date of Substantial Completion.

2. Instruments and Equipment

- a. Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
- C. Switchboard will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports; including a certified report that identifies switchboards included and that describes scanning results. Include notation of deficiencies detected, remedial action taken and observations after remedial action.

3.9 FIELD SETTINGS

- A. The Contractor shall perform field adjustments of the protective devices as required to place the equipment in final operating condition. The settings shall be in accordance with the final short-circuit study, ground fault protective device evaluation study, and protective device coordination study.
- B. Necessary field settings of devices and adjustments and minor modifications to equipment to accomplish conformance with the final short-circuit and protective device coordination study shall be carried out by the Contractor at no additional cost to the City of New York.

3.10 SPARE PARTS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  1. Fuses and Fusible Devices: Equal to ten (10) percent of the quantity installed for each size and type, but no fewer than three (3) of each size and type.
  2. Fuses for Fused Switches: Equal to ten (10) percent of the quantity installed for each size and type, but no fewer than three (3) of each size and type.
  3. Fuses for Fused Power-Circuit Devices: Equal to ten (10) percent of the quantity installed for each size and type, but no fewer than three (3) of each size and type.
  4. Indicating Lights: Equal to ten (10) percent of the quantity installed for each size and type, but no fewer than one (1) of each size and type.

3.11 WARRANTY

A. Provide a 2-year warranty from the date of substantial completion for all defects in materials and workmanship.

3.12 Provide a 36 inch wide x 1/4" thick insulation mat in the front and rear of the entire switchboard, rated for a dielectric test voltage of 30,000 volts.

END OF SECTION

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SECTION 26 40 01

FIRE ALARM AND DETECTION SYSTEM

PART 1- GENERAL

1.1 DESCRIPTION

- A. Work under this Section shall be governed by the Contract Documents. Provide materials, labor, equipment and services necessary to furnish, deliver and install all work of this Section as shown on the Contract Drawings and as specified herein.

1.2 STANDARDS AND CODES

- A. All equipment shall be U.L. listed and conform to the latest U.L. standards:
1. Control equipment - U.L. std. 864, meeting the requirements of NFPA 72.
  2. Smoke detectors - U.L. std. 268
  3. Audible alarm signals - U.L. std. 1480.
  4. Security Standard - U.L. std. 1076.
  5. All equipment shall be U.L. listed under UOJZ as an interrelated assembly by a single manufacturer.

1.3 SUBMITTALS

- A. Contractor shall submit complete shop drawings for the Life Safety System, including:
1. Fire Alarm Equipment approved for the purpose by the Board of Standards and Appeals of the City of New York.
  2. Wiring diagrams prepared specifically for this project showing the location of all devices and equipment.
  3. Electrical connection diagrams for all devices and equipment including power requirements.
  4. Manufacturer's catalog sheets for all devices and equipment being furnished.
  5. Samples of peripheral devices as requested by the Architect/Engineer.

- B. Within thirty (30) days of award of contract, contractor shall provide schedule of all submittals employing format as provided hereinafter and enumerating all drawings, samples and miscellaneous submittals by name, quantity, etc.

1.4 ACCEPTABLE MANUFACTURERS

- A. All equipment provided as part of this section shall be the product of a single fire alarm equipment manufacturer.
- B. Acceptable Manufacturers:
  - 1. Simplex Honeywell matching the existing system in the building.

1.5 SYSTEM DESCRIPTION

- A. Provide modifications to an existing Simplex Honeywell fire alarm system to add the devices as shown on Contract Drawings. Provide all necessary auxiliary devices necessary to make the additional devices operational under the existing system.

1.6 SYSTEM OPERATION

- A. Normal Supervisory Operation:
  - 1. Upon application of power, or re-application of power after an extended power outage, the Life Safety System shall automatically initialize all circuitry and shall automatically be put into a normal supervisory condition, indicated by a green "All Clear" LED.
  - 2. All alarm initiating, status monitoring, two-way warden telephone, alarm signaling and one-way emergency voice announcement circuits shall be NFPA 72A Style 6 (Class "A" four wire) so that a single line fault on any such circuit shall indicate a trouble condition per circuit. Each addressable communication circuit shall provide the capability of communicating with up to one hundred twenty-eight (128) addressable input devices or sixty-four (64) addressable control devices or a combination of both types.
  - 3. All system communication lines between panels, i.e., Fire Command Station, transponders and remote annunciators shall be supervised. Data links shall meet the requirements for NFPA 72 Style 6 (Class "A" 4 wire) so that a single line fault shall not prevent the system from functioning. Each multiplex data communications circuit shall provide the capability of communicating with up to sixty-three (63) system transponders. System transponders shall be evenly divided between the two (2) multiplex data communications circuits.
  - 4. All operating controls shall be supervised for placement in normal operating condition.



**B. Alarm Operation:**

1. Operation of any addressable manual fire alarm station, activation of any addressable automatic alarm initiating device or an automatic alarm initiating device connected to a Monitor Zone Addressable Module (MZAM) shall automatically:
  - a. Sound a "slow whoop" alarm tone on all voice/tone alarm speakers on the floor of alarm initiation and the floor above the floor of the alarm initiation. Sound an alert tone on all floors until the alarm is silenced at the Fire Command Station. Subsequent alarm conditions shall again sound the audible signals in the appropriate areas.
  - b. Flash all alarm strobe lights on the floor of alarm initiation and the floor above the floor of the alarm initiation. Subsequent alarm conditions shall turn on the alarm strobe lights in the appropriate areas.
  - c. Sound an audible signal at the FCS. Pressing the "PRIORITY 1 ALARM" acknowledge key on the FCS shall silence the audible signals during the alarm condition. Subsequent alarm conditions shall resound the audible signals.
  - d. The "PRIORITY 1 ALARM" LED shall flash on the FCS until the alarm has been manually acknowledged. When the alarm has been acknowledged, this same LED shall latch on. A subsequent alarm received after any acknowledgment shall again flash the same LED on the FCS CPU.
  - e. Flash the "FIRE" sign at the Fire Command Station (FCS).
  - f. Visually annunciate the software defined group of addressable alarm initiating devices, which includes the device in alarm condition, at the FCS, via an individual alarm LED indicator. The visual alarm indication shall remain "on" until the alarm condition is reset to normal.
  - g. Display a general alarm indication and the addressable device address number on the FCS light emitting diode (LED) alphanumeric display. Pressing the location information key shall display, for thirty (30) seconds, the individual device or circuit custom label (up to twenty characters and spaces) for the addressable device or circuit of alarm initiation on the LED display. At the end of the thirty (30) second display, the general alarm indication and system status summary shall again be displayed. The individual device custom label may be recalled at any time by repressing the location information key or until the alarm condition is reset to normal.

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- h. Initiate the Fire Command Station (FCS) printer to printout a hard copy record of the alarm activation to include the time and date and custom label for the addressable device in alarm.
  - i. Initiate the Cathode Ray Tube (CRT) displays to display the alarm activation information to include the time and date and custom label for the addressable device in alarm.
  - j. Operate control relay contact to initiate the transmission of an alarm indication to a central station agency via telephone lines. Selection of a central station agency, its equipment, its fees and fees for telephone lines are the responsibility of this contractor.
  - k. Sound an audible signal and visually annunciate a common alarm condition at the lobby security desk. The audible signal may be silenced during the alarm condition.
  - l. Override security system utilized in paths of egress.
2. Activation of any open area smoke detector (excluding elevator related area smoke detectors), duct smoke detector at a floor return duct or heat detector shall be considered a "Priority 1" alarm and shall provide the following automatic operations.
- a. Activate the same automatic operations as above listed in 1.06.B.1.a. through 1.
  - b. Operate control relay contacts to shutdown all air handling systems that serve the floor of alarm initiation. Fans that are used for smoke purge shall be permitted to restart from the operation of the Fire Department "Purge Enable" keyswitch at the FCS and associated "floor purge" and associated "pressurization" control switches located at the FCS provided as part of the fire alarm system. Air handling systems shall not be permitted to restart from the simple operation of the system reset switch. A separate air handling systems restart switch shall be provided at the Fire Command Station (FCS) to permit the restarting of air handling systems by the BMS. Fan shutdown initiated by the operation of a duct smoke detector shall require that the unit be manually reset at the unit prior to restarting of the unit for any function after the fire alarm system has been reset to normal.

3. Activation of both elevator lobby smoke detectors or any sprinkler waterflow alarm switch shall be considered a "Priority 1" alarm and shall provide the following automatic operations:
  - a. Activate the same automatic operations as above listed in 1.06 B.1.a. through 1. and 1.06 B.2.b.
  - b. Operate system control relay contacts to return all elevators that serve the floor of alarm initiation to the ground floor. If the alarm originates from the ground floor, operate control circuit contacts to return all elevators to the floor above or other level as directed by the New York City Fire Department.
  - c. The activation of any single elevator lobby smoke detector shall only annunciate at the FCS with floor identification.
  
4. Activation of any elevator shaft smoke detector shall be considered a "Priority 1" alarm and shall provide the following automatic operations:
  - a. Activate the same automatic operations as above listed in 1.06 B.1.c through k. and 1.06 B.3.b.
  - b. Operate control relay contact to open/release the smoke vent/hatch at the top of the elevator shaft.
  
5. Activation of any single elevator machine room smoke detector or alarm from elevator machine room pre-action sprinkler system shall be considered a "Priority 1" alarm and shall provide the following automatic operations:
  - a. Activate the same automatic operations as above listed in 1.06 B.1.c. through k.
  - b. Initiate elevator recall for elevators associated with the machine room. After completion of elevator recall, operate contact to signal confirmation to the pre-action sprinkler panel in the associated elevator machine room that elevator recall has been completed.
  
6. Activation of a duct smoke detector at an air handling system unit shall be considered a "Priority 1" alarm and shall provide the following automatic operations:
  - a. Activate the same automatic operations as above listed in 1.06 B.1.c. through k.
  - b. Operate control relay contacts to shut down the air handling system associated with that duct smoke detector. The restarting of the unit after the activation of its duct smoke

detector must be done manually at the unit and not by the BMS from a remote location.

**C. Supervisory (Off-Normal) Condition Operation:**

1. Activation of a sprinkler valve tamper switch, Fire and/or Booster Pump "Running" or "Start Failure" contact shall be considered a "Priority 2" condition and provide the following automatic operations:
  - a. Sound an audible signal at the Fire Command Station (FCS). Pressing the "PRIORITY 2 ALARM" acknowledge key on the FCS CPU shall silence the audible signals during the off-normal condition. Subsequent off-normal conditions shall resound the audible signals.
  - b. The "PRIORITY 2 ALARM" LED shall flash on the FCS CPU until the off-normal condition has been manually acknowledged. When the off-normal condition has been acknowledged, this same LED shall latch on. A subsequent off-normal condition received after any acknowledgment shall again flash the same LED on the FCS CPU.
  - c. Display a general off-normal indication and device/circuit address number on the FCS CPU alphanumeric, light emitting diode (LED) display. Pressing the location information key shall display, for thirty (30) seconds, the individual device or group custom label (up to twenty characters and spaces) for the addressable device reporting the off-normal condition on the alphanumeric LED display. At the end of the thirty (30) second period, the general off-normal indication and device address number shall again be displayed. The individual device custom label may be recalled at any time by repressing the location information key or until the off-normal condition is restored to normal.
  - d. Visually annunciate the supervisory device, connected to Monitor Zone Addressable Modules (MZAMs), which is reporting the off-normal condition, at the Fire Command Station (FCS), via an individual off-normal LED indicator. The visual indications shall remain on until the off-normal condition is restored to normal. The indication shall differentiate between the activation of an off-normal condition and a wiring fault on the MZAM supervisory circuit.
  - e. Initiate the FCS CPU printer to printout a hard copy record of the off-normal condition information to include the time and date and custom label for the device/circuit reporting the off-normal condition.

- f. Initiate the LCD display to display the off-normal condition to include the time and date and custom label for the device/circuit reporting the off-normal condition.
  - g. Operate a control relay contact to initiate the transmission of a supervisory indication to the central station agency.
  - h. Sound an audible signal and visually annunciate a common trouble condition at the lobby security desk. The audible signal may be silenced during the off-normal condition.
- D. One-Way Tone/Voice Communication From The Fire Command Station.
- 1. The fire alarm tone signal and alert tone shall be capable of being initiated automatically from the Fire Command Station (FCS), and transmitted to any speaker circuit, selected speaker circuits or all speaker circuits. No alarm tones or alert tones shall be automatically broadcast in stairwells or elevator cabs.
  - 2. The fire alarm tone signal, alert tone signal or live voice announcements shall be capable of being manually transmitted from the FCS to any speaker circuit, selected speaker circuits or all speaker circuits by manual selection of the associated speaker circuit control switches. Manual selection of any speaker circuit for live voice announcement shall also flash the alarm strobe lights in the same areas of the selected circuit of alarm speakers.
  - 3. Manual override, for live voice announcements, via the hand-held microphones and speaker circuit control switches shall take priority over any and all alarm tone signals or alert tone signals.
- E. Two-Way Warden Telephone Communication To/From The Fire Command Stations (FCS)
- 1. Picking up a warden telephone handset shall automatically:
    - a. Sound an audible signal at the FCS.
    - b. Flash the individual telephone "calling-in/ connected" LED indicator for the calling-in circuit at the FCS.
  - 2. Connecting the call, by operating the appropriate telephone line "connect" switch, at the FCS shall automatically:
    - a. Silence the audible call-in signal.
    - b. Connect the appropriate warden telephone circuit to the FCS master telephone for talking.

- c. Continuously light the individual telephone "calling-in/connected" LED indicator for the connected circuit at the FCS.
    - d. Light the LED indicator at the connected warden telephone.
  - 3. Operating additional warden telephone line "connect" switches, at the FCS shall automatically:
    - a. Permit warden telephones to talk to other warden telephone locations via a patch in the telephone network, controlled at the FCS. Up to ten (10) warden telephones may be operated simultaneously.
  - 4. Warden telephones shall be capable of making announcements over alarm speaker circuits via a "patch" circuit and speaker circuit control switches, controlled at the FCS.
- F. Trouble Condition Operation:
  - 1. The fire alarm system wiring (except control wiring to fans, dampers, door holders, etc.) shall be electrically supervised to automatically detect and report trouble conditions to the FCS.
  - 2. Any opens, grounds or shorts across multiplex data communications or addressable circuit wiring shall initiate a system trouble condition.
  - 3. Any opens or grounds on alarm initiating or supervisory circuit wiring and any opens, grounds or shorts across alarm signal, alarm speaker, warden telephone or alarm light wiring shall initiate a system trouble condition.
  - 4. System addressable devices shall be supervised for placement and normal operation. Removal of an addressable device or the failure of its internal electronic circuitry shall initiate a system trouble condition.
  - 5. Operation of the central station agency alarm disconnect switch or of any manual control commands that alter the system from its normal programmed standby configuration shall initiate a trouble condition.
  - 6. Trouble conditions shall automatically:
    - a. Sound an audible signal at the FCS. Pressing the "TROUBLE" acknowledge key on the FCS CPU shall silence the audible signals during the trouble condition. Subsequent trouble conditions shall resound the audible signals.

- b. The "TROUBLE" LED shall flash on the FCS CPU until the trouble condition has been manually acknowledged. When the trouble condition has been acknowledged, this same LED shall latch on. A subsequent trouble condition received after any acknowledgment shall again flash the same LED on the FCS CPU.
  - c. Display a general trouble indication and device/circuit address number on the FCS CPU alphanumeric, light emitting diode (LED) display. Pressing the location information key shall display, for thirty (30) seconds, the individual device or circuit custom label (up to twenty characters and spaces) for the addressable device or circuit in trouble on the LED display. At the end of the thirty (30) second period, the general trouble indication and device/circuit address number shall again be displayed. The individual device/circuit custom label may be recalled at any time by repressing the location information key or until the trouble condition is restored to normal.
  - d. Initiate the FCS CPU printer to print out a hard copy record of the trouble condition information to include the time and date and custom label for the device/circuit in trouble.
  - e. Initiate the Cathode Ray Tube (CRT) displays to display the trouble condition information to include the time and date and custom label for the device/circuit in trouble.
  - f. Operate a control relay contact to initiate the transmission of a trouble indication to the central station agency.
  - g. Sound an audible signal and visually annunciate a common trouble condition at the lobby security desk. The audible signal may be silenced during the trouble condition.
7. Faults in the following equipment shall initiate a trouble condition:
- a. Tone signal generators: The fire tone signal generators shall be arranged so that a trouble condition automatically transfers the operation to a standby signal generator. The standby signal generator and primary signal generator shall be electrically supervised at all times.
  - b. Pre-amplifiers: All pre-amplifiers shall be arranged so that a trouble condition automatically transfers the operation to a standby pre-amplifier. The standby pre-amplifier and the primary pre-amplifier shall be electrically supervised at all times.
    - (1) Audio Power Amplifiers: Amplifiers shall be arranged so that a trouble condition automatically

transfers the operation to a standby amplifier. The standby amplifiers and the primary amplifier shall be electrically supervised at all times.

**G. Basic System Equipment and Capabilities:**

1. The multiplex and addressable fire alarm system shall provide an individual digital address for each addressable manual fire alarm station, addressable area smoke detector, addressable duct smoke detector, addressable heat detector, Monitor Zone Addressable Module (MZAM), Control Zone Addressable Module (CZAM), or Signal Zone Addressable Module (SZAM). The FCS Central Processing Unit (CPU) shall be able to support up to a system total of two thousand, forty (2,040) individual input addresses or points and one thousand, twenty-four output addresses or control points. Any addressable device may be software programmed to activate any system control relay or signaling circuit.
2. The multiplex and addressable fire alarm system shall provide NFPA Standard 72A, Style 6 (Class A, four wire) multiplex data communications circuits to provide connection of and communication with the system transponders. Each multiplex data communications circuit shall provide the capability of communicating with up to sixty-three (63) system transponders. System transponders shall be evenly divided between two (2) multiplex data communications circuits.
3. The multiplex and addressable fire alarm system shall provide NFPA Standard 72A, Style 6 (Class A, four wire) addressable communications circuits to provide connection of and communication with the addressable devices and system transponders. Each addressable communications circuit shall provide the capability of communicating with up to one hundred twenty-eight (128) addressable input devices or sixty-four (64) addressable control devices or a combination of both types.

**PART 2- PRODUCTS**

**2.1 ADDRESSABLE AREA SMOKE DETECTORS**

- A. Shall be photoelectric, two-wire, 24 VDC smoke detector, and shall be calibrated and adjusted for sensitivity at the manufacturer's factory to U.L. standards (nominally 2.6% obscuration). Each detector shall utilize solid-state components and be equipped with a fully regulated LED light source for long life reliability, a thirty (30) mesh insect screen, a power-on/alarm LED indicator, and magnetically activated test. Detector electronics shall be completely shielded to protect against false alarms from EMI and RFI. Detectors shall be listed for U.L. Standard 268 and FM approved. Detectors shall be provided with surface mount, addressable base



assembly with an alarm LED indicator and screw terminals for all connections. The addressable base shall respond to polling signals from the FCS and local transponder and shall report alarm or trouble status changes. Base assemblies shall provide detector twist/lock capability.

**2.2 ADDRESSABLE DUCT SMOKE DETECTORS**

- A. Shall be photoelectric, two-wire, 24 VDC smoke detector and air duct housing, and shall be calibrated and adjusted for sensitivity at the manufacturer's factory to U.L. standards. Each detector and air duct housing shall be self-compensating for the effects of air velocity (from 400 to 4,000 feet per minute), temperature, humidity and atmospheric pressure. It shall not be necessary to field adjust the sensitivity to compensate for the above effects. Each detector shall utilize solid-state components and be equipped with a built-in power-on/alarm LED indicator. Detector electronics shall be completely shielded to protect against false alarms from EMI and RFI. Detectors shall be listed for U.L. Standard 268 and FM approved. Detector housings shall be provided with addressable base assembly with screw terminals for all connections. The addressable base shall respond to polling signals from the FCS and local transponder and shall report alarm or trouble status changes. Each duct detector housing shall be supplied with sampling tubes, sized according to duct width. Where indicated on the drawings, detectors shall be provided with remote alarm LED on a single gang plate, surface or flush mounted.

**2.3 MONITOR ZONE ADDRESSABLE MODULES (MZAM)**

- A. Shall be individually addressable alarm initiating/supervisory circuit board(s) and shall consist of printed circuit board with discrete circuitry for monitoring normally-open, dry contacts using NFPA 72A Style B (Class B, two-wire) circuit supervision. The MZAM shall respond to polling signals from the FCS and local transponder and shall report alarm initiating/supervisory circuit status changes to it. The MZAM shall include a field programming capability for the assignment of its individual address number and clamp-type terminals for making wiring connections. The MZAM shall draw its power from the local transponder via a separate power circuit. The MZAMs shall be furnished for flush mounting in finished areas or surface mounting with backbox in unfinished areas, where shown on the Drawings.

**2.4 CONTROL ZONE ADDRESSABLE MODULES (CZAM)**

- A. Shall be individually addressable control relay and shall consist of printed circuit board with discrete circuitry for controlling one (1) individually addressable control relay with double-pole/double-throw (DPDT) contacts rated at two amperes (2.0 A.) @ 120 VAC/28 VDC. The control ZAM shall respond to control signals from the FCS and local transponder. The control ZAM shall include a field programming capability for the assignment of its individual address number and clamp-type terminals for making wiring connections. The control ZAM shall draw its power from the local transponder via a separate power circuit. The control ZAMs shall be

provided for flush mounting in finished areas or surface mounting with backbox in unfinished areas, where shown on the Drawings.

**2.5 WALL MOUNT ALARM SPEAKERS WITH ALARM STROBE LIGHTS**

- A. Shall be four-inch (4.0") diameter cone-type loudspeaker with audio-visual unit. The loudspeaker shall provide field-selectable power inputs at 0.25, 0.5, 1.0 and 2.0 watts at 25 VRMS by changing transformer taps. The loudspeaker shall be U.L. listed as an approved audio appliance for fire alarm signaling per U.L. Standard 1480 and shall be humidity and vermin resistant. Loudspeaker frequency response shall be 400 to 4,000 Hz, with a U.L. Standard 1480 rated sound level output of 82 dB at 0.5 watt at 10 feet on axis. Each alarm speaker shall also provide seventy thousand candlepower (70,000 CP), 24 VDC (0.045 A.), polarized, Xenon strobe light with the word "FIRE" horizontally imprinted in red, on the front of a rectangular, opaque white lens. Alarm speaker/light units shall be provided for semi-flush wall mounting in finished areas or surface wall mounting with matching backbox in unfinished areas, where shown on the Drawings.

**2.6 ALARM SPEAKERS**

- A. Shall be four-inch (4.0") diameter cone-type loudspeaker. The loudspeaker shall provide field-selectable power inputs at 0.25, 0.5, 1.0 and 2.0 watts at 25 VRMS by changing transformer taps. The loudspeaker shall be U.L. listed as an approved audio appliance for fire alarm signaling per U.L. Standard 1480 and shall be humidity and vermin resistant. Loudspeaker frequency response shall be 400 to 4,000 Hz, with a U.L. Standard 1480 rated sound level output of 82 dB at 0.5 watt at 10 feet on axis. Alarm speakers shall be provided for flush mounting in finished areas or surface mounting with matching backbox in unfinished areas, where shown on the Drawings.

**2.7 WALL ALARM STROBE LIGHTS**

- A. Shall be 24 VDC (0.045 A.), polarized, seventy thousand candlepower (70,000 CP), Xenon strobe lamp with the word "FIRE" vertically imprinted in red on both sides and the front of a rectangular, opaque white lens. The lens shall be mounted on a single-gang, red plate and the alarm light unit shall be provided for semi-flush mounting in finished areas, where indicated by symbols on the Drawings.

**2.8 WARDEN TELEPHONES**

- A. Shall be telephone, in steel cabinet, with magnetically latched door, red thermoplastic handset and cradle assembly with armored line cord and "call connected" LED indicator. Cabinet shall be red in color and marked in white letters "FIRE WARDEN STATION". Warden telephone shall be provided for flush mounting in finished areas or surface mounting with matching backbox in unfinished areas, where shown on the Drawings.

Warden telephone located in the pump room to be provided with twenty-five foot cord.

**PART 3- EXECUTION**

**3.1 FIRE ALARM SYSTEM**

- A. The entire system shall be installed in a workmanlike manner, in accordance with approved manufacturer's wiring diagrams and U.L. UOJZ criteria. The contractor shall furnish all conduit, wiring, outlet boxes, junction boxes, cabinets and similar devices necessary for the complete installation. All wiring shall be of type recommended by the manufacturer and approved by the New York City Fire Department and shall be installed in conduit throughout. In recessed installations, steps shall be taken to maintain any required fire ratings of attendant walls and/or structures.
- B. End of Line Devices: Shall be furnished as required for mounting as directed by manufacturer.
- C. All wiring shall be to City of New York Electrical Code Standards throughout. The emergency telephone and speaker wiring shall be #16, twisted, shielded.
- D. The system shall be arranged to receive power from emergency 120 VAC circuits. All low voltage 24 VDC operation shall be provided within control cabinets.
- E. Field Quality Control: The completed system shall be fully tested under the supervision of a trained manufacturer's representative. The system shall be demonstrated to perform all of the functions as specified.
- F. Each individual system operation on a device-by-device basis shall be tested for its complete operation. Procedure for testing entire life safety system shall be set forth with the consent of the Owner's representative, engineer and manufacturer.
- G. Solid state components are to be programmed by manufacturer, including all basic items for program-by-event functions.
- H. All conduits shall enter control panels and transponders from the bottom only.
- I. Provide all wiring between, smoke detectors, elevator control panel, Building automated system controls, speakers, fire alarm annunciators, in accordance with manufacturer's instructions.
- J. Provide all outlet boxes required for the installation of the complete system.

- K. Color codes to be used throughout for all wiring. All wires to be tagged at all junction points, and shall test free of grounds or shorts between conductors.
- L. Final connection between equipment and the wiring system shall be made under direct supervision of a representative of the manufacturer.
- M. The contractor shall guarantee all wiring to be free from inherent mechanical and electrical defects for one (1) year from date of acceptance.
- N. The manufacturer shall guarantee all equipment to be free from inherent mechanical and electrical defects for one (1) year from date of acceptance.
- O. The manufacturer's local service facility shall, upon request, provide to the owner information about and prices for a system service and inspection agreement.
- P. Final acceptance test shall include, among other requirements, that the system perform for a 30-day time period completely free of any defects of system origin prior to system certification and commencement of any warranty period.
- Q. Duct type smoke detectors shall be furnished, installed and wired by this Contractor, but all openings required in ducts shall be made under separate contract.

**END OF SECTION**

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LUMINAIRES AND ACCESSORIES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide luminaires and accessories in accordance with the Contract Documents.

1.2 WORK INCLUDED

- A. Luminaires and Accessories.

1.3 SUBMITTALS

A. Shop Drawings

1. Provide scaled and dimensioned detail drawings of all luminaire types, except where specified fixtures are standard, unmodified, catalogued units. For catalogued units, fully detailed catalog information may be substituted for shop drawings. Provide full size cross sections for major luminaires and all custom designed luminaires. Indicate finished dimensions, metal thicknesses and gauges, material finishes, electrical and mechanical connections, fasteners, welds, joints, and provisions for the work of others. For fixtures specified as "continuous runs", provide scaled drawings showing fixture, connector, and lamp layout for the actual length of run. Detail all required fittings.
2. Submit fixture data with mounting details that include appropriate mounting accessories for each ceiling type.

B. Product Data

1. Indicate type of ballast and manufacturer, ballast quantity and location. Include information as to power factor, input watts, voltage and ballast factor. Indicate mounting distance limitations and standard wire sizes for remote ballasts for all luminaires.
2. Indicate quantity, color, and type of lamps to be used.
3. Provide independent laboratory photometric data for all luminaire types. Photometric testing and reporting shall conform to I.E.S. procedures. Where the lamps and/or ballasts specified are other than ones for which published photometric data is available, submit additional test data.

1.4 QUALITY ASSURANCE

- A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
  - 1. Underwriters Laboratories (U.L.)
  - 2. ASHRAE 90.1 and the State Energy Code.
  - 3. National Electric Code (N.E.C.)
  - 4. National Fire Protection Agency (N.F.P.A.)
  - 5. Certified Ballast Manufacturers Association (C.B.M.)
  - 6. Illuminating Engineering Society (I.E.S.)
  - 7. American Society for Testing and Materials (A.S.T.M.)
  - 8. American National Standards Institute (A.N.S.I.)
  - 9. National Electrical Manufacturers Association (N.E.M.A.)
  - 10. All applicable local codes.
- B. Guarantee ballasts against defects for a period of two (2) years, except electronic ballast guarantee shall be for three (3) years. Guarantee shall include replacing defective ballast with a new ballast.
- C. Emergency and exit lighting shall comply with UL924.

**PART 2 - PRODUCTS**

2.1 MARKING OF FIXTURES

- A. Plainly mark fixtures equipped with ballasts for operation of rapid start lamps "Use Rapid Start Lamps Only." Similarly, mark other fixtures according to proper lamp type. Clearly mark ballasts that have multilevel outputs, and indicate proper terminals for the various outputs. Provide markings that are clear and which are readily visible to service personnel, but not visible from normal viewing angles when lamps are in place.

2.2 FABRICATION AND MATERIALS

- A. Provide fixtures completely factory-assembled and wired, and equipped with necessary sockets, ballast, wiring, shielding, reflectors, channels, lenses and other parts necessary to complete the fixture installation, and deliver to project site ready for installation.

- B. Unless otherwise noted, use only completely concealed hardware. Weld exposed metal at joints, fill with weld material, grind smooth, and make free from light leaks. Gasket incandescent fixtures with overlapping trim. Weld ballast support studs, socket saddle studs and reflector support studs to fixture body. Self-threading screws are not approved. Ventilate ballast compartments and firmly secure ballast to conducting metal surface. Provide fixtures using bottom relamping, unless otherwise noted.
- C. Construct fixtures with the minimum number of joints. Make unexposed joints by approved method such as welding, brazing, screwing or bolting. Soldered joints are not acceptable. Do not use self-tapping methods or rivets for fastening part which shall be removed to gain access to electrical components requiring service or replacement, or for fastening any electrical components or their supports.
- D. Provide metallic cast or extruded parts of fixtures that are close grained and free from imperfections or discolorations. Provide cast or extruded parts that are rigid, true to pattern, and of ample weight and thickness. Provide cast or extruded parts that are properly fitted, filed, ground, and buffed to provide finished surfaces and joints free of imperfections.
- E. Provide housings for discharge lamps (fluorescent, H.I.D.) fixtures that make electrical components easily accessible and replaceable, without removing the fixture body from its mounting.

### 2.3 FINISHES

- A. Apply fixture finishes after fabrication in a manner that will assure a durable wear-resistant surface. Prior to finishing, hot clean the surfaces by accepted chemical means, and treat them with corrosion inhibiting (phosphating) treatment to assure positive paint adhesion. Give exposed metal surfaces, brass, bronze, aluminum, etc. and finished castings (except chromium plated or stainless steel parts) an even coat of high grade methacrylate lacquer or transparent epoxy. Anodize exposed aluminum surfaces in a 20 minute bath for corrosion resistance. Make sheet steel fixture housing, and iron and steel parts which have not received phosphating treatment, or which are to be utilized in exterior applications, corrosion resistant by zinc or cadmium plating, or hot-dip zinc galvanizing after completion of all forming, welding, or drilling operations.
- B. Cadmium plate screws, bolts, nuts and other fastening or latching hardware.
- C. Unless specifically indicated otherwise, provide fixtures with a high-temperature baked enamel coating of color and finish as specified. Unless otherwise specified, provide white baked enamel reflective surfaces with a minimum reflectance of 86%. Give all parts proper etched surface preparation prior to painting to assure paint adherence and durability.

2.4 ACCEPTABLE FIXTURE MANUFACTURERS

- A. Acceptable manufacturers are listed in the Lighting Fixture Schedule in the Contract Documents and within these specifications. The designations indicated on the Lighting Fixture Schedule are a design series reference (not necessarily a complete catalog number), and do not necessarily represent all of the special requirements as specified in the Contract Documents. Contractor is responsible for meeting all requirements of the Contract Documents and applicable codes.
- B. The listing of a manufacturer as "acceptable" does not assure acceptance of a particular fixture. It is the sole responsibility of the Contractor to insure that any price quotations and submittals made are for lighting equipment which meets or exceeds the specifications included herein. Substitution of fixture manufacturers are acceptable only by prior written approval. Acceptable manufacturers shall provide proof of satisfactory production of equal or similar fixtures for a period of at least three (3) years prior to bidding.

2.5 BALLASTS

A. General

- 1. Provide ballasts which are suitable for the electrical characteristics of the supply circuits to which they are to be connected, and which are suitable for operating the specified lamps. No extra compensation will be allowed for failure to properly coordinate ballast voltage with circuitry or dimming requirements.
- 2. Provide ballasts that are listed with Underwriters Laboratories and bear the U.L. label. All ballasts shall be designed, built and tested in accordance with ANSI and NEC standards.
- 3. Provide ballasts having the lowest sound rating available for the lamps specified; clearly show their respective sound ratings. Replace ballasts found by the Commissioner to be too noisy, without charge, prior to acceptance of the project.
- 4. Provide identical ballasts within each fixture type. All ballasts within the same luminaire must be of the same manufacturer.
- 5. Provide dimmer type ballasts of design recognized and approved by U.L. These ballasts shall coordinate with dimming control devices specified for the particular application.
- 6. Ballasts shall be approved for the respective application. Approval shall be in writing from the ballast manufacturer. The manufacturer shall perform an 8 hour documented test before installation verifying the ballast compartment and lamp temperatures will not exceed the manufacturer's published limits.



**B. Fluorescent**

1. Provide ETL/CBM certified ballasts which are super low heat, energy-saving, rapid-start type, sound rated 'A' unless noted otherwise. Multi-lamp rapid start ballasts shall be of the series sequence type. Use only two-lamp ballasts unless otherwise indicated.
2. Provide Class "P" protected ballasts, indicating that the ballasts have an integral self-resetting, thermally-actuated device that will remove the ballast from line when excessive ballast temperature is reached, and allow reconnection to line when normal temperature is resumed.
3. Rigidly mount ballasts, unless specifically indicated otherwise to the inside of the top of the fixture housing, with ballast surfaces and housing in complete contact for efficient conduction of heat. Permanently affix ballast mounting screws to the fixture housing. Provide only fixtures whose design, fabrication, and assembly prevent overheating or cycling of lamps and ballasts.
4. For outdoor use and wherever ballasts are used outside a heated environment (such as walk-in freezers or cold food handling areas) provide fluorescent ballasts capable of lamp-starting at any temperature down to minus 20° F.
5. Ballasts for T5HO lamps or smaller shall have end of life sensing circuits.
6. Fluorescent electronic ballasts shall conform to the following requirements:
  - a. FCC Regulations, Part 18, Class A, for electromagnetic interference.
  - b. IEEE C62.41, "Guide for Surge Voltages in Low-Voltage AC Power Circuits," Category A, for resistance to voltage surges for normal and common modes.
  - c. UL 935, "Fluorescent Lamp Ballasts."
7. High Frequency Solid State Electronic Ballasts:
  - a. Provide ballasts with the following:
    - (1) High power factor (95% or above).
    - (2) Minimum starting temperature of 50°F.
    - (3) Provide ballasts with sound rating of 'A'.

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- (4) Instant start, parallel operation.
- (5) Total harmonic distortion (THD) of 10%.
- (6) Minimum .87 ballast factor.
- (7) Ballast case temperature not to exceed 90°C during normal operation in 30°C ambient temperature.
- (8) Certified Ballast Manufacturer's (CBM) Certification.
- (9) Maximum Crest Factor: 1.70.
- (10) Acceptable Ballast Manufacturers
  - (a) Advance Transformer Co.
  - (b) MagneTek
  - (c) Motorola
  - (d) General Electric

**8. Fluorescent – Dimming Type**

- a. Fluorescent dimming ballasts shall meet all the criteria outlined above for fluorescent electronic ballasts. In addition, the dimming performance shall be as follows:
  - (1) Dimming range shall be continuous between 100% and 10% light output for general lighting applications.
  - (2) Dimming range shall be continuous between 100% and 1% light output for all conference and meeting room applications.
- b. Acceptable Manufacturers
  - (1) Advance – Mark X (10-100%)
  - (2) Lutron Electronics Co., Inc.
    - (a) Hi-Lume (1-100%)
    - (b) ECO-10 (10-100%)

**C. Solid State LED**

1. Provide LED drivers with the following:

- a. High power factor (95% or above)
  - b. Minimum starting temperature of 0°C.
  - c. Provide driver with sound rating of 'A.'
  - d. LED driver is UL certified.
  - e. Total harmonic distortion (THD) of less than 20%.
  - f. LED driver is certified by UL for use in a dry or damp location. Outdoor drivers shall be weatherproof. Provide enclosure acceptable to the manufacturer to maintain driver criteria.
  - g. Provide input and output voltages, and wattage for operating.
  - h. Provide dimming standard (0-10V, etc.).
  - i. Inherent thermal protection.
2. LED drivers shall be installed within an electrical enclosure, unless it is rated as a remote mounted enclosure.
  3. Drivers shall carry minimum of 5 years warranty.

## 2.6 FIXTURE WIRING

- A. Provide wiring between fluorescent lamp holders and associated operating and starting equipment, of similar or heavier gauge than the leads furnished with the approved types of ballasts, and having equal or better insulating and heat resisting characteristics. Provide internal wiring of fixtures containing a minimum number of splices. Make splices with acceptable mechanical insulated steel spring type connectors, suitable for the temperature and voltage conditions to which the splices are to be subjected.
- B. Make connections of wires to lamp holder terminals and other accessories in a neat and workmanlike manner, electrically and mechanically secure, with no loose strands protruding. Provide the number of wires extending to or from the terminals of a lamp holder or other accessory that does not exceed the number which the accessory is designed to accommodate.
- C. Provide wiring channels and wireways free from projections and rough or sharp edges. At points or edges over which conductors shall pass and may be subject to injury or wear, round bush to make a smooth contact surface with the conductors.
- D. Install insulated bushings at points of entrances and exit of flexible wiring.
- E. Where outlet boxes are required to support a luminaire, the wall or ceiling outlet box must be securely fastened to support at least 50 pounds. A box

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may be used to support a luminaire weighing more than fifty pounds if the box is listed and marked for the maximum luminaire weight to be supported. A wall box intended to support a luminaire must be marked to indicate the maximum weight of the luminaire to be supported, if other than fifty pounds.

**2.7 LAMPS**

- A. Provide a complete set of new lamps in each fixture immediately prior to turnover to the City of New York.
- B. Unless specified otherwise, provide lamps as follows:
  - 1. For fluorescent fixtures, provide lamps as indicated in the Lighting Fixture Schedule. Supply lamps from one (1) manufacturer and of one (1) color temperature unless otherwise noted.
    - a. T8 RAPID-START LAMPS: CRI of 75 minimum, color temperature of 3500 K, average rated life of 20,000 hours, unless otherwise indicated.
    - b. COMPACT FLUORESCENT LAMPS: CRI of 80 minimum, color temperature 3500 K, average rated life of 10,000 hours at 3 hours operation per start, unless otherwise indicated.
  - 2. For incandescent fixtures, provide long-life inside frosted, with an average life of 3,000 hours, 130 volt lamps unless otherwise indicated in the Lighting Fixture Schedule. Supply lamps from one (1) manufacturer unless otherwise noted.
  - 3. Provide pulse start type metal halide lamps with a lamp life of 10,000 hours.
  - 4. For other fixtures, provide lamps as specified. If not specified, and for fixtures by others, provide lamps as rated by the manufacturer. For each lamp type, provide all lamps from one (1) manufacturer.
  - 5. For LED fixtures, manufacturers are to meet the following criteria:
    - a. LED color consistency
    - b. LED efficiency should not be less than 80 lumens per watt.
    - c. LED maintenance to be L70 or 70% lumen output after 50,000 life span.
    - d. LED color rendering index (CRI) to be no less than 80.
    - e. Minimum of 5 year warranty on all LED boards.
- C. All lamps shall be low mercury type.

- D. Acceptable Lamp Manufacturers - Lamp catalog numbers specified in the Contract Documents define performance criteria. Equal products by any of the following manufacturers may be utilized unless otherwise noted.
  - 1. General Electric
  - 2. Philips Lighting Corp.
  - 3. Osram Sylvania, Inc.

**2.8 LAMP HOLDERS**

- A. Provide incandescent and H.I.D. lamp sockets with porcelain housings over copper screw shells, with medium base sockets rated at 660W. Plastic or metal sheet sockets are not acceptable.
- B. Provide fluorescent fixture sockets that are white, of heat resistant plastic and rated at 660W. Fluorescent lamp sockets operating with an open circuit voltage in excess of 300 volts shall be of the safety type which opens the supply circuit when the lamp is removed from the sockets.
- C. Rigidly and securely attach lamp holding sockets to the fixture enclosure or husk.
- D. Provide sockets suitable for specified lamps, and set to position the lamps in optically correct spacing and relationship to lenses, reflectors, filters, and baffles.
- E. Where fluorescent lamps are to be used "bare", without diffusers or lenses, provide at least two (2) acceptable lamp retaining clips per fluorescent lamp, for safety.

**2.9 REFLECTORS**

- A. Aluminum Reflectors
  - 1. Provide reflectors and reflecting cones or baffles fabricated from #12 aluminum reflector sheet, .057 inch (15 gauge) or heavier; and absolutely free of tooling marks including spinning lines, and free of marks or indentation caused by riveting or other assembly techniques. No rivets, springs, or other hardware shall be visible after installation.
  - 2. Provide reflectors and baffles of first-quality polished, buffed and anodized finish, "Alzak" or accepted equal, and with specular finish color as selected by the Commissioner.
  - 3. Provide other aluminum reflectors where required; formed and finished as noted on the Contract Documents and elsewhere in the specifications. Provide only reflectors free from blemishes, scratches, or indentations which would distort their reflective

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function and finished by means of the "Alzak" process, or accepted equal, unless otherwise noted.

**B. Painted Reflectors**

1. Provide painted reflectors completely formed before application of primer and enamel paint. Make reflectors and reflector bodies for fluorescent fixtures, having baked-on white enamel finish, applied to meet the following requirements and tests: Provide minimum tested reflectance of 86%. After 100 hours exposure to fade-o-meter, reflectance may not be less than 86%, and finish may show no visible color change. Exposure to 100% humidity at 100°F, for 100 hours (cook box test) may show no blistering or other effects. Salt spray (20% sodium chloride) for 150 hours may cause no breakdown of film. When requested, submit a sufficient quantity of flat steel panels having the same primer and paint, applied in the same manner as proposed for the contract items, for subjection to any one or all of the tests listed above by an approved independent testing laboratory. Contractor will pay the cost of the tests. Tests will be required only in case of dispute about reflector characteristics. Reflectors which do not meet the criteria expressed here shall be replaced at the Contractor's expense.

**2.10 LENSES, FACEPLATES AND TRIMS**

- A. Plastic lenses shall be of virgin methyl methacrylate, unless otherwise indicated. No polystyrene lenses will be accepted.
- B. Make lenses, louvers, or other light diffusing elements contained in frames, removable but positively held within the frames so that hinging or other motion of the frame will not cause the diffusing element to drop out.
- C. Provide faceplates of recessed fixtures which open for access to the interior of the fixture, serve as a ceiling trim, and are positively held to the fixture body by adjustable means that permit the faceplate to be drawn up to the ceiling as tight as necessary to insure complete contact of faceplate with ceiling.
- D. Provide ceiling trims for rectangular recessed fixtures with mitered corners, continuously welded and smoothed before shop finishing. Lapping of trim metal is not acceptable.
- E. All prismatic lenses shall have an efficiency of 83% or greater.

**2.11 EXTERIOR FIXTURES**

- A. Provide fixtures designed and manufactured specifically for outdoor service. Make components, including nuts, bolts, rivets, springs, and similar parts, of corrosion resistant materials or of materials which will assure such resistance.

- B. Provide fixtures for use outdoors, or in areas designated as damp locations, which are suitably and effectively gasketed to prevent access of moisture into electrical components or enclosing diffusers, lenses or globes. Outdoor fixtures which are directly exposed to the elements shall be rated for wet locations. Fixtures which are aimed up, shall be approved for wet locations in this position.
- C. Metal parts of fixtures requiring painting, shall be painted with suitable weather and moisture-resisting paint equal to epoxy-based coatings.
- D. Provide anodized aluminum for aluminum parts of exterior fixtures which are not specified as requiring a painted finish.
- E. Installations shall be UL labeled as "Suitable for Wet Locations."

2.12 ACCESSORIES

- A. Recessed incandescent luminaires shall be furnished with thermal protection in accordance with Article 410 of the NEC.
- B. Where utilized as raceways, luminaires shall be suitable for use as raceways. Provide feed through splice boxes where necessary.
- C. Provide plaster frames or mounting frames for fixtures that require them. Such frames shall be appropriate for the ceiling construction in which they shall be installed.
- D. Provide necessary hardware with fixtures, such as stems, plates, plaster frames, hangers, and similar items, for safe support of fixtures for the ceiling construction in which they shall be installed. Provide plaster frames made of non-ferrous metal, or of steel that has been suitably rustproofed after fabrication.
- E. For fluorescent luminaires used indoors, where ballast sound rating of 'A' is not available, provide acoustic mounting pads between luminaire housing and ballast to minimize vibration and noise level. Pads shall be installed to the Commissioner's acceptance.
- F. Provide tempered glass lenses for all high intensity discharge (HID) fixtures.
- G. Provide fastening devices of a positive locking type, which do not require special tools to apply or remove them. Do not use tie wires in place of fastening devices.
- H. Attach reflectors to the housing by means of safety chains, to prevent reflectors from falling. No part of the chain may be visible after installation, when viewed from any angle up to 45 degrees from horizontal.
- I. Provide an approved ceiling canopy for each stem, exactly matching stem finish, unless otherwise requested by the Commissioner.

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**2.13 EMERGENCY LIGHTING**

**A. General**

1. Provide emergency lighting as required by referenced standards and indicated on the Contract Drawings. The main function of emergency lighting is to direct building occupants safely out of the building in the event of an emergency.
2. Provide integral battery ballast power for emergency lighting where an emergency power distribution system does not exist. Provide all long life batteries. High temperature, maintenance free, nickel-cadmium batteries are acceptable, however, lead-calcium type are not. Batteries shall have a 10 year guarantee.
3. All battery ballasts shall be capable of providing full illumination in emergency mode.

**B. Exit Signs**

1. Exit signs shall have cast-aluminum housings and stencil edge-lit faces. Letters shall be red and 8" high. Light source shall be light emitting diodes (LED). Exit signs shall employ a diffuser lens for even illumination of letters. Products that exhibit "dots" or "hot spots" shall not be acceptable. Exit signs shall have internal sealed lead calcium maintenance free battery rated for 90 minutes.

**C. Fluorescent Battery Systems**

1. Emergency battery power supply suitable for installation remote from or in ballast compartment of fluorescent luminaires, rated for 90 minutes continuous. Unit shall be capable of providing normal fixture operation in a switched fixture. Include "TEST" switch and "AC ON" indicator light capable of installation in the luminaire or remote from the luminaire. Power supply shall have self-test diagnostic feature. Test shall be performed at a minimum of 30 seconds every 30 days and 90 minutes once a year.
2. Emergency battery power supply shall be capable of operating one (1) lamp, providing a minimum of 1400 lumens. Battery shall have a 5 year guarantee.
3. Night light connector: operate one (1) fluorescent lamp continuously.
4. Acceptable Manufacturers



- a. Bodine Co.
  - b. Dual-Life
  - c. Lithonia.
- D. LED Battery Systems
- 1. Emergency battery power supply suitable for installation remote from or in the driver compartment of the LED luminaire. Unit shall be capable of providing normal fixture operation in a switched fixture. Include "TEST" switch and "AC ON" indicator light capable of installation in the luminaire or remote from the luminaire. Power supply shall have self-test diagnostic feature.
  - 2. Emergency battery power supply shall be capable of operating the LED fixtures specified. Battery shall have a 5 year guarantee.
  - 3. Provide LED battery with the following:
    - a. Rated input and output voltage and wattages.
    - b. Temperature rating.
    - c. Illumination time (minimum 90 minutes)
    - d. Suitable for indoor and damp locations and for sealed and gasketed features.
  - 4. LED battery shall meet all associated UL ratings, including UL924.
  - 5. Acceptable Manufacturers
    - a. Bodine Co.
    - b. Dual-Life.
    - c. Lithonia.

### **PART 3 - EXECUTION**

#### **3.1 GENERAL**

- A. Fixture locations as indicated on the Contract Drawings are generalized and approximate. Carefully verify locations with the Commissioner's plans, reflected ceiling plans and other reference data, prior to installation. Check for adequacy of headroom and non-interference with other equipment, such as ducts, pipes, conduit, or openings. Bring conflicts to the Commissioner's attention before proceeding with any work.

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- B. Although the location of equipment may be shown on the Contract Drawings in certain places, actual construction may disclose that the work does not make its position easily and quickly accessible. In such cases, call the Commissioner's attention to this situation before installing this work, and comply with the installation instructions.
- C. Verify ceiling conditions and ceiling types prior to ordering any fixtures. Furnish appropriate luminaire mounting accessories for each fixture. Such mounting details shall be reviewed by the Commissioner.
- D. Install fixtures in mechanical areas after the ductwork and piping installation. Locate and mount fixtures as indicated on the Contract Drawings unless mechanical equipment prohibits or makes it impractical to do so. In such cases, chain or wall mount fixtures so that serviceable equipment is illuminated.
- E. Install fixtures complete with lamps, as indicated, and with equipment, materials, parts, attachments, devices, hardware, hangers, cables, supports, channels, frames and brackets necessary to make a safe, complete, and fully operative installation.
- F. Verify and provide fixtures that are appropriate for the ceiling mounting conditions of the project.
- G. Reject and do not install blemished, damaged or unsatisfactory fixtures. Replace imperfect or unsatisfactory fixtures, if installed, as directed by the Commissioner.
- H. When installed, fixtures shall be free of light leaks, warps, dents, or other irregularities. No light leaks are permitted at the ceiling line or from any visible part or joint of the fixtures.
- I. Provide finish for exposed parts or trims as specified or indicated on the Contract Drawings. If finish for exposed parts are not indicated, provide a finish as directed by the Commissioner.
- J. Do not install reflector cones, aperture plates, lenses, diffusers, louvers, and decorative elements of fixtures until completion of wet work, plastering, painting and general clean-up in the area of the fixtures.
- K. Mount fixtures at heights and locations indicated on the Contract Drawings, or as requested by the Commissioner.
- L. Adequately protect the housing of recessed lighting fixtures during the installation by internal blocking or framing to prevent distortion of sides, or dislocation of threaded lugs, which, upon completion, shall be in perfect alignment and match the corresponding holes in frames and rims. Holding screws shall be inserted freely without forcing, and shall remain easily removable for servicing. Threads intended to receive holding screws shall

be chased after plating and finished to insure easy installation and removal of knurled headed screws.

- M. Parabolic luminaires shall be installed with mylar cover over louvers; cover shall be U.L. listed for temporary lighting. Upon completion of work, remove mylar cover with white gloves.
- N. Fixture supports shall, as a minimum, be adequate to support the weight of the fixtures.
- O. Provide visible hanging devices that are finished to match the fixture finish, unless indicated otherwise.
- P. Where necessary to meet fire resistance requirements set forth by the Building Code, provide enclosure housings for recessed fixtures that are constructed to provide required fire resistance rating.
- Q. Provide attachment devices, including brackets, plaster rings, saddle hanger and tie bars, made of formed, rolled, or cast metal shapes with the requisite rigidity and strength to maintain continuous alignment of installed fixtures. Attach fixtures to the ceiling supporting members, and do not depend upon lathing, plaster or ceiling tile for alignment or support.
- R. Provide fixtures mounted in suspended ceilings that are supported by saddle hangers or the bars attached to runners or between crossbars of ceiling systems. Provide mounting splines or other positive means of maintaining alignment and rigidity.
- S. Provide pendant or surface mounted fixtures with required mounting devices and accessories, including hickey, stud-extensions, ball aligners, canopies, and stems. Make mounting stems of pendant fixtures of the correct length to uniformly maintain the fixture heights shown on the Contract Documents or established in the field. The allowable tolerance in mounting individual fixtures shall not exceed ¼ inch and may not vary more than ½ inch from the floor mounting height shown on the Contract Drawings. Install fixtures hung in continuous runs absolutely level, and in line with each other. Hanging devices shall comply with code requirements.
- T. Provide hanging devices which, if visible from normal viewing angles, exactly match fixture finishes, unless otherwise requested by the Commissioner.
- U. Place stems to be vertical.
- V. Provide at least two (2) supports for individually mounted fluorescent fixtures. Where fixtures are ganged, provide supports at 8 ft. minimum intervals, unless otherwise indicated. All fixtures shall be supported to the structure or black iron. Fixtures and appliances shall not be supported by ceiling tiles, sheet rock, or plaster.

3.2 ACCESSIBILITY

- A. Install equipment such as junction and pull boxes, fixture housings, transformers, ballasts, switches and controls, and other apparatus that requires occasional access for operation and maintenance, to be easily accessible and appropriate for mounting and ceiling conditions.

3.3 ADJUSTMENT

- A. Provide manpower and tools for final focusing and adjustment, under the Commissioner's supervision, of all adjustable fixtures (including fixtures with variable socket positions) after regular working hours, whenever necessary, at no additional cost of the City of New York.

3.4 CLEANING

- A. Immediately prior to occupancy, clean reflector cones, reflectors, aperture plates, lenses, louvers, lamps and decorative elements. Destaticize lenses after cleaning, installing them to leave no finger or dirt marks. At the time of final observation, fixtures shall be clean and free from marks, dust, spotting or other defects. Replace any broken or defective parts prior to final inspection. Replace or make good all defects revealed by final observation.
- B. Remove labels and other markings, except the UL listing label.
- C. Regulated Waste Disposal
  1. All waste shall be labeled, stored, handled, transported, and disposed of in accordance with applicable State and Federal regulations.
  2. All fluorescent lamps shall be assumed hazardous waste and shall be boxed and removed to an approved lamp recycler. Provide required documentation and comply with all hazardous waste regulations.
  3. All ballast waste shall be labeled, stored, handled, transported and disposed of in approved plastic lined drums. Contractor shall arrange for the proper disposal of the ballasts with an approved recycler. Provide all required documentation and comply with all hazardous waste requirements.

3.5 FIELD QUALITY CONTROL

- A. Inspect each installed fixture for damage then replace damaged fixtures and components. Verify normal operation of each fixture after installation.

- B. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify normal transfer to battery power or emergency power source and retransfer to normal.
- C. Prepare a written report of tests, inspections, observations, and verifications indicating and interpreting results. Retest to demonstrate compliance with specification requirements where adjustments are made. Replace fixtures with damage or corrosion during warranty period.

**3.6 SPARE PARTS**

- A. Provide spare materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents. Provide at least one (1) of each type.
  - 1. Lamps: Five (5) for every 100 of each type and rating installed.
  - 2. Plastic Diffusers and Lenses: One (1) for every 100 of each type and rating installed.
  - 3. Battery and Charger: One (1) for every 20 emergency lighting units installed.
  - 4. Ballasts: One (1) for every 100 of each type and rating installed.
  - 5. Globes and Guards: One (1) for every 20 of each type and rating installed.
  - 6. Exit Signs: Ten (10) additional exit signs to be installed at locations determined in the field, if necessary. If not used in the field, turn over to the City of New York for attic stock.
- B. Submit Operations and Maintenance instructions, including parts list, for each luminaire installed.

**END OF SECTION**

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**January 5, 2015**

**LUMINAIRES AND ACCESSORIES**  
**26 50 00-18**

SECTION 28 00 00

SECURITY GENERAL SYSTEM REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The general conditions for contracts of construction, referred to in the contract documents as the general conditions, together with the following articles of the security systems specifications, which amended, modify or supplement various sections, articles and provisions of the general conditions, are made part of the Contract and shall apply to all work under the Contract.
- B. All articles or parts of articles of the general conditions not so amended, modified or supplemented by these security systems specifications shall remain in full force and effect. Should any discrepancy become apparent between the general conditions and these security systems specifications the contractor shall notify City of New York, in writing and the Commissioner shall interpret and decide such matters in accordance with the provisions of the General Conditions.
- C. The contractor will comply with all applicable governmental regulations and with all City, and other applicable codes and ordinances.
- D. These specifications call out certain duties of the contractor and his suppliers. They are not intended as a materials list of items required by the contract.
- E. These divisions of the Specifications cover the security systems requirements for City of New York.
- F. It is the intent of these specifications to provide a complete workable security system ready for the City of New York's use as described within the section 13000-13999. Any items not specifically detailed on the drawings or described in the Specifications, but normally required to conform to the intent, are to be considered as part of the Contract.
- G. These specifications are equipment and performance specifications. Actual installation shall be as indicated on drawings, specifications and/or contained within the manufacturers written installation instructions. Any discrepancies found between the specification, drawings and manufacturers installation instructions shall be immediately brought to the attention of Commissioner/City of New York in writing at once. Installation and details indicated on the drawings shall govern if they differ from the specifications.

1.2 RELATED SECTIONS

- A. 28 0000-28799 Security Systems Specifications
- B. 26 0000 Electrical General Provisions
- C. 26 1100 Electrical Raceways and Boxes

1.3 SUMMARY

A. General Systems Overview

1. The security system will be the center point for the receiving of security signals from the various security systems. The Security Center (SCC) will receive signals from the video surveillance as well as, the Access control, Intrusion detection systems and provide control of these systems, based on level of authority provided to an individual.
2. The contractor for the project shall be responsible for the coordination and providing the interface for all the systems, but also interfacing and coordinating the signals from other systems from BMS, Fire Alarm (FA), intrusion, video surveillance, access control systems, and other systems in the future.
3. Video surveillance- The video signals are to be transmitted from each location to the Security Command Center (SCC). These video feeds are live with full control from SCC. The number of camera views is to be user definable based on bandwidth of the Ethernet connection. The video surveillance system will be configured to allow all cameras to be setup with video motion or field of view changes to trigger alarms requiring action from the operators. These triggers are to be audible and visual. When an alarm is triggered a sound will be generated and the frame around the camera view will flash in "red." Alarms will also be triggered for the video surveillance system by the intrusion control system. All alarm points are to be connected to the video surveillance system and upon activation of any point the video surveillance system will activate the presets for that point and Pan, Tilt, Zoom associated cameras to the general location, if no direct view is available from a fixed camera.
4. Video surveillance Recording - All Cameras shall be recorded 24/7 at a minimum of 7fps for a period of not less than 45 days for determining necessary storage space or sizing the RAID-6 drives. Of course, fixed cameras with motion detection will not use the space 24/7, but this storage space will provide the project extra overhead needed with the addition of cameras in the future.
5. The Door monitoring system will provide alarm input and output points for all doors shown on drawings and listed in the Architectural door schedule. The alarm relay for 16 inputs shall be wired to



provide an alarm output for all and future input points for each control panel. The Alarm or relay outputs shall provide the inputs to the video surveillance system allowing the programming of presets to any or all alarm points. All cabling is to be supervised with EOL resistor(s) or relay for the system. This is to include relays in case of power failure the SCC will know of failure without testing.

**B. Labor and Materials**

1. Unless otherwise provided in the drawings and specifications, the contractor shall provide and pay for all labor, materials, equipment, tools, utilities, permits, construction equipment and machinery, transportation and other facilities and services necessary for the proper execution, operation and completion of the work.

**C. Specification Language**

1. Specifications and notes are written in imperative and abbreviated form. Imperative language of the technical specifications is directed at the contractor, unless specifically noted otherwise. Inserting "shall", "shall be", "the contractor shall", and similar mandatory phrases shall complete incomplete sentences by inference. The words "shall be" shall be supplied by inference where a colon (:) is used within product specifications.
2. Certain terms such as "shall, provide, install, complete, startup" are not used in some parts of these specifications. This does not indicate the items shall be less than completely installed or the systems shall be less than complete.

**D. Drawings and Specifications**

1. Contractor shall be provided three (3) sets of the drawings and specifications for his use. Additional sets, if requested by contractor, shall be furnished to the contractor for the actual cost of reproduction.
2. Contractor shall carefully study the drawings and specifications, and shall report any errors, unforeseen circumstances, inconsistencies or omissions that may be discovered at once to the Commissioner/City of New York in writing.
3. The City of New York's project manager shall be the interpreter of the requirements of the drawings and Specifications and subject to the final approval of City of New York. All interpretations and opinions of the security engineering consultant shall be made in writing or in the form of drawings.

**E. Intent and Correlation**

1. The intent of the Project drawings and Specifications is to include all

items necessary for the proper execution and completion of the work.

2. The Project drawings and Specifications are complementary, and what is required by any one shall be as binding as if required by both.
3. It is the intent of these specifications is to provide a complete workable security SYSTEMS, WHICH INCLUDE(s):
  - a. Video surveillance systems
  - b. Peripheral equipment
  - c. Head-end
  - d. Software
  - e. Computers
  - f. Licenses
  - g. All Systems Ready for the City of New York's use. Any items not specifically shown on the drawings or called for in the Specifications, but normally required to conform to the intent are considered as part of the Contract.

#### 1.4 REFERENCES

- A. Submit the names and phone numbers of customers for at least three other projects of similar size and complexity using similar technologies and equipment.
- B. Contractors must meet eligibility requirements of the project or other approving agencies prior to bid.

#### 1.5 CODES, REGULATIONS, AND STANDARDS

- A. The installation shall be in compliance with the requirements of the National Electrical Code, recommendations and the rules, regulations and requirements of Federal Communications Commission.
- B. The installation shall comply fully with all City; county and state laws and ordinances, regulations and codes applicable with the installation.
- C. Local electrical and building codes may differ with national codes. Follow the most stringent code or recommendations. Where there are instances of ambiguity refer to the Commissioner/City of New York's project manager for interpretation.
- D. All equipment shall be equal to or exceed the minimum requirements of NEMA, IEEE, ASME, ANSI and Underwriters Laboratories and approved for

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commercial installation.

- E. When any change in the plans or specifications is required to comply with governmental regulations, the contractor shall notify the Commissioner/City of New York at the time of submitting the construction schedule.
- F. Utilize the following abbreviations for applicable codes, standards and regulations on the drawings and within the Specifications which apply to the security system and are to be considered part of these specifications:
  - 1. NEC National Electric Code
  - 2. ANSI American National Standards Institute
  - 3. NFPA National Fire Protection Association
  - 4. IEEE Institute of Electrical and Electronics Engineers
  - 5. UL Underwriters' Laboratories, Inc.
  - 6. ASTM American Society of Testing Materials
  - 7. EIA/TIA Electronic Industries Association/  
Telecommunications Industries Association
  - 8. FCC Federal Communications Commission

1.6 DEFINITIONS

- A. Words that are in common use are used throughout the drawings and Specifications, except:
  - 1. Words, which have well-known technical or trade meanings, are used in accordance with such recognized meanings.
  - 2. Whenever the following listed words and phrases are used, they shall be mutually understood to have the following respective meanings:
    - a. The words "as indicated" means: as shown on the drawings and in accordance with the Specifications.
    - b. The words "as required" means: as required to provide complete and satisfactory work in full conformance with the drawings and Specifications.
    - c. The word "New" means: new work to be provided by contractor.
    - d. The words "Relocate existing" mean: remove existing item from present location. Reinstall, re-connect, and test existing item and make ready for use at new location as

shown on the Drawings.

- e. The words "Remove existing" means: remove existing item and return item to City of New York.
- f. The word "Replace" means: remove existing item and return item to City of New York. Provide new item as indicated.
- g. The word "work": The work is the completed construction required by the drawings and Specifications, and includes all labor necessary to produce such construction, and all materials and equipment incorporated or to be incorporated in such construction.
- h. "PROVIDE" or "FURNISH" means to supply, purchase, transport, place, erect, connect, test and turn over to City of New York, complete and ready for regular operation, the particular work referred to.
- i. "SUPPLY" means to purchase, procure, acquire, and deliver complete with related accessories.
- j. "INSTALL" means to move from property line, set in place, join, unite, fasten, link, attach, set up or otherwise connect together before testing and turning over to City of New York of equipment supplied under another division. Installation to be complete and ready for regular operation, the particular work referred to.
- k. "WIRING," means the inclusion of all fittings, conductors, connectors, connector strips, connections, termination and all other items necessary and/or required in connection with such work.
- l. "CONDUIT" means the inclusion of all fittings, hangers, supports, sleeves, etc.
- m. "AS DIRECTED" means: as directed by City of New York or his representative.
- n. "CONCEALED," means embedded in masonry or other construction, installed behind wall furring or within double partitions, or installed within hung ceilings.
- o. "EXPOSED" means not installed underground or "CONCEALED" as defined above.
- p. "Bypass" and "Shunt" means to provide or divert (current) by means of a shunt. As applied to access control, not sound or send an alarm when a door is "shunt or bypassed".

1.7 CONTRACTOR DESIGN REQUIREMENTS

- A. The Project drawings represent the level of system design to be provided by City of New York. Contractor shall provide all additional system design work required, including:
  - 1. Conduit layout and sizing
  - 2. Wire and cable layout and sizing
  - 3. Point-to-point wiring and equipment hook-up information
  - 4. Equipment mounting details
  - 5. Design and layout of equipment cabinets
  - 6. Other detailed design work required
- B. Contractor's design shall conform to all applicable codes and ordinances. All electrical design, including the sizing and placement of conduit, raceways and conductors, shall be in accordance with:
  - 1. Current edition of NFPA 70 National Electrical Code, (unless local codes establish more stringent requirements).
  - 2. Division 26 of specifications
- C. Contractor's design work is subject to review and approval by Commissioner/City of New York's project manager.
- D. Contractor's design shall also include:
  - 1. The addition of all wire, cable, conduit, connectors and junction boxes required for system operation.
  - 2. Install conduit between all equipment as specified and/or necessary.
  - 3. Complete "as-built" documentation of all security systems, including documentation of existing equipment, wiring, conduits, and raceways.
  - 4. Other work as defined within the Project drawings and Specifications.

**1.8 SUBMITTALS**

- A. Shop Drawings: Shop drawings shall be submitted in accordance with Section 01200, SUBMITTALS, and shall consist of a complete list of equipment and materials, including manufacturer's descriptive and technical literature, performance charts and curves, catalog cuts, and installation instructions
- B. After notice to proceed or as directed by the City of New York or Commissioner, or after execution of City of New York/contractor Agreement,

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prepare an index of all submittals for the project. Include a submittal identification number, a cross-reference to the Specification sections or Drawing number, and an item description. Prefix the submittal identification number by the Specification sections to which they apply. Indicate on each submittal, the submittal identification number in addition to the other data specified. All contractors shall utilize the assigned submittal identification number.

- C. After the contract is awarded, obtain complete shop drawings, product data and samples from the manufacturers, suppliers, vendors, and all contractors, for all materials and equipment as specified.
- D. Submit to the Commissioner for review all equipment, data and details of such materials. Prior to submission, certify the shop drawings, product data and samples are in compliance with the Contract Documents.
- E. Check all materials and equipment upon their arrival on the job site and verify their compliance with the Contract Documents. Modify any work that proceeds prior to receiving accepted shop drawings as required to comply with the Contract Documents and the shop drawings.
- F. Review of submittals is for general compliance with the design concept and Contract Documents. Comments or absence of comments shall not relieve the contractor from compliance with the Contract Documents. The contractor remains solely responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes, for techniques of construction, for performing the work in a safe manner and for coordinating the work with that of other trades.
- G. No part of the work shall be started in the shop or in the field until the shop drawings and samples for that portion of the work have been submitted reviewed and accepted.
- H. A minimum period of ten working days, exclusive of transmittal time, is required in the Commissioner's office each time a shop drawing, product data and/or samples are submitted for review. The contractor in the scheduling of the work must consider this time period.
- I. Submit two prints of all items required in shop drawings. Submit six copies of manufacturer's product submittals.
- J. Submittals will be stamped as follows:

Stamp	Interpretation
-------	----------------

No Exceptions Noted	Fabrication, manufacture, or construction may proceed providing submittal complies with the Contract Documents.
Exceptions Noted <input type="checkbox"/> Resubmit for Record <input type="checkbox"/> No Resubmission Required	Fabrication, manufacture, or construction may proceed providing submittal complies with the Contract Documents and the Engineer's notations are complied with.
Revise and Resubmit	The submittal does not comply with the Contract Documents; do not proceed with fabrication, manufacture, or construction. The work and shop drawings are not permitted at the job site. Resubmit appropriate shop drawings.

1.9 PRODUCT DATA

- A. Product Data submittal shall be required from the contractor for all security equipment to be installed regardless whether or not a particular brand product is or is not specified or recommended.
  
- B. Any system substitution proposed as an equal to what is herein specified shall be proven to be such by the contractor. The contractor shall send a letter stating why the contractor feels the systems are equal along with the name and model numbers of substituted equipment and material together with three copies of specifications and dimensional drawings to the Commissioner no less than ten days prior to the bid date. The contractor shall obtain the Commissioner's approval in writing, by addendum, prior to bid date. No substitutions will be allowed, approved or accepted after bid date. Any substitution submitted without approval may be rejected and may void the complete bid package submitted.
  
- C. Procedures
  - 1. Provide submittals to City of New York's project manager.
  - 2. Submit electronic color copies of each submittal.
  
- D. Shop Drawings
  - 1. Submit shop drawings, as specified general shop drawings for the project as described elsewhere.
  - 2. Provide other shop drawings if specifically requested by City of New York's project manager.

**E. Manufacturer's Installation and Programming Instructions**

1. Provide manufacturers written installation and programming instructions as requested in the various Specification Sections.
2. Spare Parts Data: After approval of the shop drawings, and not later than one month prior to the date of beneficial occupancy, a list of spare parts data for each item of specified materials and equipment shall be submitted. The data shall include a complete list of parts and supplies with current unit prices and source of supply. All spare parts shall be on site prior to commencement of acceptance testing. Depleted spare parts shall be replaced prior to beneficial occupancy.

**F. Operating and Maintenance Instructions**

1. Operating Instructions: The contractor shall furnish to the City of New York/ Commissioner six copies of operating instructions outlining the step-by-step procedures required for system startup, operation, and shutdown at least 30 days prior to acceptance test. The instructions shall include the manufacturer's name, system model number, service manual, parts list, and brief description of all equipment and their operating features.
2. Maintenance Instructions: The contractor shall furnish six complete copies of manufacturers written maintenance instructions listing routine maintenance procedures, possible breakdowns and repairs, and troubleshooting guidelines at least 30 days prior to acceptance test. The instructions shall include simplified diagrams for the systems as installed.
3. Performance Test Reports: Upon Completion and testing of the installed system, test reports shall be submitted in booklet form showing all field tests performed to prove compliance with specified performance criteria. Each test report shall indicate the final position or readings of calibrating controls.

**G. Project Record Drawings**

1. Definition: Project Record drawings are drawings that completely record and document all aspects and features of the work. (Project Record drawings are also, known as "As-Built" Drawings.)
2. The purpose of Project Record drawings is to provide factual information regarding all aspects of the work, to enable future service, modifications, and additions to the work.
3. Project Record drawings are an important element of this work. contractor shall accurately maintain Project Record drawings throughout the course of this project. Project Record drawings shall include documentation of all work, including the documentation of



existing equipment, wiring, conduits, and raceways that are to be reused in the work.

4. City of New York project manager shall furnish contractor with two (2) sets of site plans for contractor's use in preparing Project Record Drawings. One set shall be used as a working set; the other shall be used to prepare the final record set.
5. Contractor shall maintain the working set of Project Record drawings at the project site throughout the course of the work. The working set shall be updated on a daily basis as the work progresses.
6. Project Record drawings shall accurately show the physical placement of the following:
  - a. Equipment and devices
  - b. Conduit and raceways
  - c. Junction and pull box locations
  - d. End-of-line resistor locations
  - e. Interfaces to external equipment
  - f. Connections to power and telephone circuits
7. Project Record drawings shall show the physical placement of each device and conduit or aerial centerline, to be accurate to within one foot (1') of the nearest landmark. Where the site plan furnished by City of New York project manager, conflicts with actual conditions, contractor shall amend site plan as required. Indicate exact description of conduit runs (above ground, two foot (2') trench, along outside wall of building, etc.).
8. Project Record drawings shall show wire and cable runs, zone numbers, tap/circuit configuration, panel/circuit breaker numbers from which, equipment is powered and splice points. Such information may be shown on the site plans.
9. Project Record drawings shall be available for inspection by City of New York project manager on a daily basis. Incomplete or inaccurate Project Record drawings may be cause for delay of contractor's payment.
10. Upon completion of work, and prior to Final Acceptance, contractor shall prepare and submit to City of New York project manager a final record set of Project Record Drawings. This set shall consist of all data transferred from the working set, supplemented by Riser Diagrams and other information. The final record set of Project Record drawings shall be drafted by a skilled draftsman, under the supervision of contractor. All final Project Record drawings shall

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be provided to City of New York.

11. Contractor shall provide three (3) sets of Project Record Drawings: one for the Security Department, one for the Facilities Department, and one for the System Designer/Consultant.
12. Each "set" of Project Record drawings shall consist of all sheets plotted on 30x42-inch paper suitable for reproduction and shall provide all drawings on disk (floppy, ZIP, or CD-ROM depending upon the file sizes.)

H. System Documentation

1. Definition: System Documentation is a complete collection of all installation, programming, operation, and maintenance manuals and work sheets relating to the equipment provided as part of the work.
2. Contractor shall maintain a file of System Documentation at the project site throughout the course of the work. Such file shall be updated with new information as equipment is received and installed. System Documentation shall be available for inspection by City of New York's project manager on a daily basis.
3. Upon completion of work, and prior to final Acceptance, contractor shall prepare and submit to City of New York's project manager three (3) sets of System Documentation.

I. Closeout Submittals

1. Provide all sets of as-built drawings and manuals to the City of New York project manager as described within these documents:
  - a. As-Built Drawings
  - b. Mounting Details
  - c. Product Data
  - d. Installation Manuals
  - e. Operating Manuals
  - f. Maintenance/Service Manuals
2. Provide the City of New York project manager- with all programming sheets, keys to the equipment cabinets, as-built drawings, operating manuals, maintenance/repair manuals, spare fuses, tools for tamper-resistant enclosures and tools for manual resetting devices.

1.10 QUALITY ASSURANCE

- A. All materials furnished shall be new and unused and free from any defects.

All materials shall meet all applicable codes provided a standard has been established for the material in question.

B. All products and materials are to be clean, free of defects, and free of damage and corrosion.

C. QUALIFICATIONS OF CONTRACTOR

1. Contractor shall be an installation and service contractor regularly engaged in the sale, installation, maintenance and service of electronic security systems.
2. Contractor shall have five (5) years' experience with the installation, start-up and programming of systems of a similar size and complexity to the one proposed.
3. Contractor shall be a factory authorized dealer of the system proposed for at least two (2) years.
4. Contractor shall have permanent offices and factory trained personnel to install and service the security system within twenty-five (25) miles of the jobsite.
5. The contractor shall be factory certified for the installation, design and programming of the manufacturers equipment to be installed.

D. Supervision of work

1. Contractor shall employ a competent Foreman to be in responsible charge of the work. Foreman shall be on the project site daily during the execution of the work.
2. Contractor's Foreman shall be a regular employee, principle, or officer of contractor, who is thoroughly experienced in projects of a similar size and type. Contractor shall not use contract employees or contractors as Foremen.

E. Qualifications of Technicians

1. All electronic systems work shall be performed by electronic technicians thoroughly trained and certified in the installation and service of specialty low-voltage electronic systems.
2. Journeyman Wireman electrical workers may be used to install conduit, raceways, wiring, and the like, provided that final termination, hook-up, programming, and testing is performed by a qualified and certified electronic technician. All such work conducted by Journeyman Wireman electrical workers is supervised by the contractor's Foreman.
3. All incidental work, such as cutting and patching, lock hardware installation, painting, carpentry, and the like, shall be accomplished

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by skilled craftsperson's regularly engaged in such type of work. All such work shall comply with the highest standards applicable to the respective industry or craft.

4. All 120 VAC power wiring and connections are to be performed by a qualified Journeyman Electricians, licensed to perform such work.

**F. Contractors**

1. Definition: A contractor is a person or entity that has a direct contract with the contractor to perform any of the work at the site.
2. Use of any contractor is subject to the approval of the Commissioner. The contractor shall identify all Subcontractors on the Bid Form. The contractor shall make no substitution for any contractor previously selected without approval from the Commissioner.
3. Contractor's Foreman shall be on the project site daily during all periods when contractors are performing any work. Contractor's Foreman shall be in responsible charge of all work, including any work being performed by contractors.
4. By an appropriate written agreement, the contractor shall require each contractor, to the extent of the work to be performed by the contractor, to be bound to the contractor by the terms of the drawings and Specifications, and to assume toward the contractor all the obligations and responsibilities which the contractor, by these documents, assumes toward the Commissioner.
5. Within two (2) months after notice to proceed by the Commissioner or the Commissioner's Representative, or after execution of the Commissioner/contractor Agreement, submit a complete typed list of all electrical equipment manufacturers and material suppliers for the equipment proposed to be provided on this project, as well as names of all contractors.

**G. Supervision and Construction Procedures**

1. The contractor shall supervise and direct the work, using his best skill and attention. Contractor is solely responsible for all construction means, methods, and techniques.
2. The contractor shall employ a competent foreman who shall be in attendance at the project site during the progress of the work. The foreman shall represent the contractor and all communications given to the foreman shall be as binding as if given to the contractor.

**H. Regulatory Requirements**

1. All work is to conform to all building, fire, and electrical codes and ordinances applicable in the City of New York. In case of conflict

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between the Drawings/Specifications and codes, the codes shall govern. Notify the Commissioner's project manager of any such conflicts.

2. Contractor shall secure and pay for all licenses, permits, plan reviews, engineering certifications, and inspections required by regulatory agencies. Contractor shall prepare, at contractor's expense, any documents, including drawings, which may be required by regulatory agencies.

I. Permits

1. The contractor shall make application for and obtain any and all permits required by federal, state, county, city, or other authority having jurisdiction over the work.

1.11 DELIVERY, STORAGE, AND HANDLING

A. Security of contractor's Tools and Equipment

1. City of New York is not responsible for the care, storage or security of any of the contractor's tools or equipment.

1.12 PROJECT/SITE CONDITIONS

A. Environmental Conditions

1. Power: City of New York will supply electrical power to the extent that the usage is compatible with available facilities in the vicinity of the work.
2. Telephone: contractor may use a telephone designated by City of New York for local and toll-free calls. The costs of long distance calls are the responsibility of the contractor and shall not be charged to City of New York.
3. Restroom Facilities: contractor may use existing Restroom facilities designated by City of New York.
4. Parking: City of New York reserves the right to limit or restrict contractor parking based upon the daily requirements of the other contractors on site.
5. Dust Control: Make provisions to control all dust, dirt, and foreign material caused by the performance of the work.
6. Use of explosive type fastening equipment is prohibited.
7. Notify City of New York immediately of any damage or possible damage to any other equipment.

B. Clean-Up

1. Contractor shall clean up, on a daily basis as the work progresses, all dirt, dust and debris caused by contractor's operations. Clean up shall be completed by the end of each workday to the satisfaction of Commissioner.
2. In the event that contractor fails to clean up, City of New York may elect to have clean up performed by others, with the costs of such clean-up being charged to the contractor.

**C. Construction Aids**

1. Definition: Construction Aids are facilities and equipment required by personnel to facilitate the execution of the work. Construction Aids include scaffolds, staging, ladders, platforms, hoists, cranes, lifts, trenchers, core drillers, protective equipment, and other such facilities and equipment.
2. Contractor shall provide all Construction Aids required in the execution of the work.
3. Persons authorized to provide such use of requested construction aids shall not use Construction Aids that are the property of City of New York or other contractors without written permission.
4. Storage of Construction Aids shall be coordinated with Commissioner.

**D. Safety**

1. The contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work.
2. Contractor shall comply with all local, state, and federal regulations and laws for the safety of the work place.

**E. Accident Reports**

1. Serious or fatal accidents shall be reported immediately by telephone, radio or in person to the City of New York's project manager.

**F. Existing Conditions**

1. City of New York does not warrant the condition of any portion of the existing wiring, conduit or raceway systems. Prior to submitting his proposal, contractor shall examine all existing conditions and determine to what extent the existing wiring, conduit, and raceway systems may be reused. This is to include work performed by other trades in connection with the security systems (i.e. conduit, wiring).
2. Contractor's proposal price shall include the cost of replacing

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existing wiring, conduit, and raceways as required.

**1.13 COORDINATION OF THE WORK**

- A. The Contract Documents establish scope, materials and quality but are not detailed installation instructions. Drawings are diagrammatic.
- B. Coordinate work with other trades and furnish, in writing, any information necessary to permit the work of related trades to be installed satisfactorily and with the least possible conflict or delay.
- C. The Security drawings show the general arrangement of equipment and appurtenances. Follow this drawing as closely as the actual construction and the work of other trades will permit. Provide offsets, fittings, and accessories that may be required but not shown on the Drawings. Investigate the site, review the drawings of other trades to determine conditions affecting the work, and provide such work and accessories as may be required to accommodate such conditions.
- D. The locations of cameras, outlets, panels and other equipment indicated on the drawings are approximately correct, but they are understood to be subject to such revision as may be found necessary or desirable at the time the work is installed in consequence of increase or reduction of the number of devices, or in order to meet field conditions, or to coordinate with modular requirements of ceilings, or to simplify the work, or for other legitimate causes. Such revisions shall not constitute a change order and no additional funds will be provided for these moves.
- E. Exercise particular caution with reference to the location of panels, cameras, switches, etc., and have precise and definite locations accepted by the Commissioner before proceeding with the installation.
- F. The drawings show only the general run of raceways and approximate locations of security devices. Any significant changes in location of cameras, panels, etc., necessary in order to meet field conditions shall be brought to the immediate attention of the Commissioner for review before such alterations are made. Modifications shall be made at no additional cost to the City of New York.
- G. Verify with the Commissioner the exact location and mounting height of cameras and equipment not dimensionally located on the security Drawings.
- H. Circuit tags in the form of numbers are used where shown to indicate the circuit designation numbers in electrical panels. Show the actual circuit numbers on the as-built Record drawings and on the associated typed panel board directory card. Where circuiting is not indicated, provide required circuiting in accordance with the loading indicated on the drawings and/or as directed.
- I. The drawings generally do not indicate the number of wires in conduit for

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the branch circuit wiring of fixtures and outlets, or the actual circuiting. Provide the correct wire size and quantity as required by the indicated circuiting and/or circuit numbers indicated, the control intent, referenced wiring diagrams by the manufacturer, the specified voltage drop or maximum distance limitations, and the applicable requirements of the NEC.

- J. Carefully check space requirements with other trades to insure that equipment can be installed in the spaces allotted. This is especially applicable in the telecommunications rooms.
- K. Wherever work interconnects with work of other trades, coordinate with other trades to insure that they have the information necessary so that they may properly install the necessary connections and equipment. Identify items (remote power supplies, pull boxes, etc.) requiring access in order that the other trades will know where to install access doors and panels.
- L. Consult with other trades regarding equipment so that, wherever possible, controls and equipment are of the same manufacturer.
- M. Furnish and set sleeves for passage of risers through structural masonry and concrete walls and floors and elsewhere as required for the proper protection of each security riser passing through building surfaces.
- N. Provide fire stop around all pipes, conduits, ducts, sleeves, etc. which pass through rated walls, partitions and floors per section 16820.
- O. Provide detailed information on openings and holes required in pre-cast members for security work.
- P. Provide required supports and hangers for conduit and equipment, designed so as not to exceed allowable loadings of structures.
- Q. Examine and compare the Contract drawings and Specifications with the drawings and specifications of other trades, and report any discrepancies between them to the Commissioner and obtain written instructions for changes necessary in the work. Install and coordinate the work in cooperation with other related trades. Before installation, make proper provisions to avoid interferences.
- R. Wherever the work is of sufficient complexity, prepare additional detail drawings to scale to coordinate the work with the work of other trades. Detailed work shall be clearly identified on the drawings as to the area to which it applies. Submit these drawings to the Commissioner for review. At completion include a set of these drawings with each set of Record Drawings.
- S. Furnish services of an experienced Superintendent, who shall be in constant charge of all work, and who shall coordinate work with the work of other trades. No work shall be installed before coordinating with other trades.

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- T. Coordinate with service providers as to their requirements for service connections and provide all necessary metering provisions, grounding, materials, equipment, labor, testing, and appurtenances.
- U. Before commencing work, examine adjoining work on which this work is in any way affected and report conditions, which prevent performance of the work. Become thoroughly familiar with actual existing conditions to which connections must be made or which must be changed or altered.
- V. Adjust location of conduits, panels, equipment, etc., to accommodate the work to prevent interferences, both anticipated and encountered. Determine the exact route and location of each conduit prior to fabrication.
  - 1. Right-of-Way: Lines which pitch has the right-of-way over those which do not pitch. For example: condensate, steam, and plumbing drains normally have right-of-way. Lines whose elevations cannot be changed have right-of-way over lines whose elevations can be changed.
  - 2. Provide offsets, transitions and changes in direction of conduit as required to maintain proper headroom and pitch on sloping lines.
  - 3. In no case shall the maximum bend radius of any conduit exceed 180 degrees before a pull box is required.
- W. In cases of doubt, as to the work intended, or in the event of need for explanation, request supplementary instructions from the Commissioner in writing via proper distribution channels.

1.14 SEQUENCING AND SCHEDULING

- A. Description
  - 1. This implementation plan describes the general approach that shall be followed in order to minimize the time before the Security systems are operational.
- B. Approach
  - 1. Contractor shall plan and schedule all work in such a sequence as to minimize the time before the system is operational. The following is a suggested work sequence:
    - a. Order all equipment needed and notify any contractors to schedule their participation.
    - b. Perform all system layout work.
    - c. Insure there are an adequate number of power receptacles and/or circuits available to operate all security equipment and coordinate with City of New York as to where power is available.

- d. Provide shop drawings to verify location of all equipment, conduit runs, power connections, etc. Submit shop drawings to City of New York project manager.
- e. Coordinate with City of New York to provide space in each building's Communications Room for mounting of equipment.
- f. Provide City of New York training on filling out the programming sheets.
- g. Prepare and pre-test all equipment to the greatest extent possible.
- h. Install all equipment.
- i. Provide City of New York training on selecting the system settings.
- j. Test and inspect all systems.
- k. Perform all other work as required by City of New York.
- l. Provide as-built drawings.
- m. Perform the Acceptance Test
- n. Provide final training.

1.15 INTELLECTUAL PROPERTY

- A. Patents: Should patented articles, methods, materials apparatus, etc., be used in this work, the contractor shall acquire the right to use same. The contractor shall hold City of New York and its agents harmless for any delay, action, suit, or cost growing out of the patent rights for any device on this Project.
- B. Copyrights: Should copyrighted software be used in this work, the contractor shall acquire the right to use it. The contractor shall hold the City of New York and its agents harmless for any delay, action, suit, or cost growing out of the copyrights for any software on this Project.
- C. License to use: All software required for the complete operation of the system as specified herein shall be delivered with either full City of New Yorkship transferred to the City of New York or a License to use at this site, including the right to make backup copies.

1.16 SCHEDULING

- A. The contractor, within five (5) days after being awarded the contract, shall prepare and submit for City of New York's information, an estimated progress schedule for the work. The progress schedule shall be related to

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the entire project, and shall indicate start and completion dates.

1.17 WARRANTY

- A. Contractor warrants that all work furnished (material and labor) under this Contract will be of good quality, free from faults and defects, and in conformance with the Project drawings and Specifications.
- B. Contractor shall provide a parts and labor guarantee on all work. Unless otherwise specified herein, contractor's guarantee shall be for a period of two (2) years from date of Acceptance, except where any specific guarantees from a supplier or equipment manufacturer extends for a longer time.
- C. Contractor's guarantee shall cover all costs associated with troubleshooting, repair, and replacement of defective work, including costs of labor, transportation, lodging, meals, materials, and equipment.
- D. Guarantee shall not cover any damage to material or equipment caused by accident, misuse, unauthorized modification or repair by City of New York, or acts of god, after the systems acceptance by the City of New York.
- E. Contractor shall promptly respond to City of New York's requests for service during the guarantee period. Contractor shall provide repair service as soon as reasonably possible upon request from City of New York, but in no case shall service response exceed eight (8) hours from time of request. When contractor is unable to meet the 8-hour time frame the City of New York may contact others to repair the system and back charge the contractor for any funds paid and/or charged to repair, replace any component that would normally have been covered under warranty.
- F. Contractor shall provide repair service "after hours" including weekends and holidays during the warranty period at no additional cost for covered system components.
- G. Contractor shall provide repair service charges to City of New York in advance for non-warranty items.

1.18 SERVICE CONTRACT

- A. Contractor shall provide the City of New York an option for a service contract for a period of 18 months with options for extending the service contract for a period requested by the City of New York. The service contract shall be for the period after the 24 month warranty period required by these specifications has expired.

1.19 CITY OF NEW YORK'S INSTRUCTIONS

- A. Coordination with City of New York
  - 1. Contractor shall closely schedule and coordinate his activities with designated Commissioner.

2. Contractor shall provide City of New York's project manager with a work plan on a weekly basis. Such work plan will describe locations of intended activities, types of activities, and potential conflicts to facility operations.

B. City of New York's Right to Carry-Out the work

1. As set forth in Division 1 of the specifications
2. If the contractor defaults or neglects to carry out the work in accordance with the Project drawings and Specifications, and fails to respond within seven (7) days after receipt of written notice from City of New York to commence and continue correction of such default or neglect with diligence and promptness. The City of New York may, after seven days following receipt of an additional written notice and without prejudice to any other remedy, the City of New York may have, make good such deficiencies. In such case, an appropriate Change Order shall be issued deducting from the payments then or thereafter due the contractor the cost of correcting such deficiencies.

C. Minor Changes in the work

1. City of New York shall have the authority to order changes in the work not involving an adjustment in the Contract Sum or an extension of the Contract Time and not inconsistent with the intent of the Project Drawing and Specifications. Such changes shall be provided by written order by the City of New York. The contractor shall carry out such work without cost unless additional equipment is required to carry out such work. Any additional equipment shall be discussed with the City of New York prior to commencing work.

1.20 COMMISSIONING

- A. After all work is completed, and prior to requesting the Acceptance test, contractor shall conduct a final inspection, and pre-test all equipment and system features. Contractor shall correct any deficiencies discovered as the result of the inspection and pre-test.
- B. Contractor shall submit a request for the Acceptance test in writing to the City of New York project manager, no less than fourteen (14) days prior to the requested test date. The request for Acceptance test shall be accompanied by a certification from contractor that all work is complete and has been pre-tested, and that all corrections have been made.
- C. During Acceptance test, contractor shall demonstrate all equipment and system features to City of New York. Contractor shall remove covers, open wiring connections, operate equipment, and perform other reasonable work as requested by City of New York.
- D. Any portions of the work found to be deficient or not in compliance with the

Project Drawing and Specifications will be rejected. City of New York's project manager will prepare a list of any such deficiencies observed during the Acceptance test. Contractor shall promptly correct all deficiencies. Upon correction of deficiencies, contractor shall submit a request in writing to City of New York project manager for another Acceptance Test.

- E. If, at the conclusion of the Acceptance Test, all work is found to be acceptable and in compliance with the Project drawings and Specifications, City of New York project manager will issue a letter of Acceptance to contractor and City of New York.

## **PART 2 - PRODUCTS**

### **2.1 GENERAL**

- A. All products not provided by City of New York shall be new and unused, and shall be of manufacturer's current and standard production.
- B. Where two or more equipment items of the same kind are provided, all shall be identical and provided by the same manufacturer throughout the facility. Multiple manufacturers of any one item will not be permitted, unless specifically noted otherwise.
- C. Any equipment, parts, pieces, boards, relays, and other equipment that is to be connected to, work in conjunction with, be controlled by and/or control any part of the security system is to be manufactured by, for and/or with or approved by the manufacturer to perform the function for which is to be installed.
- D. Any equipment, parts, pieces, boards, relays, and other equipment that is to be connected to, work in conjunction with, be controlled by and/or control any part of the security system is to have been tested and approved for such application by UL, Fire Marshal's Office, FM, FCC, Authority Having Jurisdiction (AHJ) and others.
- E. Drawings and Specifications indicate major system components, and may not show every component, connector, module, accessory and/or option required to support the operation specified. The contractor shall provide all components needed for complete and satisfactory operation.
- F. **Product Availability**
  - 1. Contractor, prior to submitting a proposal, shall determine product availability and delivery time, and shall include such considerations into his proposed Contract Time.
  - 2. Certain products specified may only be available through factory authorized dealers and distributors. Contractor shall verify his ability to procure the products specified through the manufacturer prior to submitting a proposal.

- a. Third party or non-factory authorized and/or trained contractors will not be acceptable for sale, installation or design of proposed systems.

G. Wire and Cable

- 1. All wiring, field devices and panels shall be supervised with the use of end-of-line (EOL) resistors. Supervision shall report to its associated panel(s) and to the Security Command Center (SCC) including but not limited to:
  - a. Alarms
  - b. Opens Circuits
  - c. Fault Conditions
  - d. Grounds Faults
- 2. General: Provide all wire and cable required to install systems as indicated. Wire and cable shall be sized to provide minimum voltage drop and minimum resistance to the devices being supplied.
- 3. All cables shall be specifically designed for their intended use (plenum, direct burial, aerial, etc.).
- 4. Comply with equipment manufacturers recommendations for wire and cable.
- 5. Comply with all applicable codes and ordinances.

H. If products and materials are specified, or indicated on the drawings, for a specific item or system, use those products or materials. If products and materials are not listed in either the Specification or drawings, use first class products and materials, subject to approval of shop drawings and submittals.

I. Any given item of equipment or material shall be the product of one manufacturer. Multiple manufacturers of any one item will not be permitted, unless otherwise specifically noted.

J. All materials furnished shall bear the UL label, provided that a standard has been established for those materials.

K. No substitutions or alternates will be permitted without the written consent of the Commissioner. Substitutions or alternates will be considered only on products where "Or Approved Equivalent" is noted.

L. For products with lists of several acceptable manufacturers, part numbers are provided only for the first manufacturer listed.

2.2 LABELS

- A. Labels- Self-adhesive, self-laminating, with white matte finish printing area, clear plastic shield. Pin feed for machine printing. Used for cable identification. Labels shall be provided on both ends of all cables, 1"width for horizontal cabling, 2" width for riser cabling. Length as required for other cable media  
Labels, White polyester, Laser printable. Used for faceplates: 1-1/2" x 3/8", patch panels: 3/4" x 1/4", cable ladders, racks, frames, etc., as required: 1" x 1/2", 2" X 3/4".
1. Labels - Paper label inserts for 110 blocks. Utilize TIA/EIA-606 compliant colors.  
Purple - PBX Terminations  
White - Riser cables  
Gray - Tie cables
  2. Manufacturer: Brady or approved equal
- B. CABLE TESTING
1. Test all cables installed under the contract.
- C. Pre-installation Inspection
1. Visually inspect all cables, cable reels and shipping cartons for shipping damage. Return visibly damaged items to the manufacturer.
  2. Prior to testing, submit for review and approval copies of test report forms proposed for use. Forms shall, at minimum, contain: Project name; contractor's name; Date of test; Media type and description; Make, model and serial number of the test equipment used and date of last calibration.
- D. Post Installation Testing
1. Test only completed systems. Partial or statistically sampled testing is not acceptable, except by prior, written approval from the Commissioner.
  2. Paired and multi-conductor metallic cables: perform an end-to-end test for continuity, ground fault, shorts and crossed pairs for each cable pair/conductor.
    - a. Test cable pairs from the work area field device, through all conductors, patches and cross connects, to the equipment room.
    - b. Test horizontal cable pairs not cross-connected to backbone from their furthest termination point to the work area field device.
    - c. Test backbone cable pairs not cross-connected to horizontal

cables from their furthest termination point to the equipment room.

**3. Optical Fiber Cable**

- a. **Multimode fiber:** Perform end-to-end attenuation (dB loss) tests for each backbone fiber strand at 850nm and 1300nm wavelengths in accordance with TIA/EIA-526-14A, Method B and with test instrument manufacturer's printed instructions.
- b. Calculate the total link loss for each fiber in each direction based on the number of mated connector pairs, the connector's published loss per mated pair and the cable's published loss based on distance, minus the system power reference values established at set up. Demonstrate that measured link loss does not exceed calculated link loss by more than 5%.
- c. Strands with measured attenuation falling outside of the acceptable range by power meter testing shall be subjected to further testing to determine the nature of the fault. Utilize an OTDR to determine the loss factor for each connected pair, the exact length of the fiber and to identify any core damage.
- d. Correct any faults related to connector and re-test fiber as stated above until acceptable attenuation results are received.
- e. Where defects cannot be corrected, replace any cable having fewer than the manufacturer's guaranteed number of serviceable fiber strands.

4. Remove all defective cables from cable pathways. Do not abandon cables in place.
5. The City of New York and Commissioner reserve the right to observe the conduct of any or all portions of the testing process and to conduct, using the contractor's equipment and labor, a random re-test of up to five (5) percent of the cable plant to confirm documented test results.
6. Document all test results and corrective procedures and submit to the Commissioner within ten (10) working days of test completion.
7. In addition to the actions specified above. The contractor may be required to be present while City of New York or City of New York's designated representatives conduct performance tests of the transport electronics connected to the cabling system.

**E. Test Equipment**



1. Optical fiber power meter and light source: Siecor OTS-210 (850/1300nm and 1310/1557nm) and OS-302 light source, FOTEC FM310 and S785 light source, or equivalent.
2. OTDR (if required) Siecor OTDR Plus Multitester, Tektronix TFP2 FiberMaster, Laser Precision TD-2000, or equivalent, with 850nm and 1300nm light emitter modules and hard copy printout.
3. Metallic cable pair tester: Independent Technologies, TEST-ALL IV or 25, Siemon Company Multi-test MT-5000 or equivalent.
4. 4-pair UTP automated cable tester: Tester shall be Level II-compliant with ANSI/TIA/EIA-568-B.3 Draft 10, provide bi-directional testing and be capable of testing to 250 MHz Category 6 Class D standards for both basic links and channels. Test equipment must be approved by Commissioner prior to use on the job. Fluke DSP 4100/4300 is pre-approved.

### 2.3 ACCEPTANCE

- A. Once testing has been completed, as-built and testing documentation delivered to the Commissioner, and the Commissioner is satisfied that all work is in accordance with the contract documents, the Commissioner shall notify the contractor in writing of the acceptance of the work performed. The date of this acceptance shall constitute the commencement of the warranty period as defined in Section 1.12 of this Specification.

### 2.4 CABLE CONNECTOR PROTECTION

- A. All installed connectors shall be protected and insulated by one of the following methods.
  1. Any installed connector exposed to construction activities shall be protected with a clear, heat sealed 3 mil plastic bag sealed shut with waterproof tape after installation. The bag must be removable for testing. Any protective bags removed for testing or other installation activities must be replaced immediately after such activities are completed.
  2. Any connector normally shipped with an insulating protective cover over the connector pins shall be left with the cover in place after the connector has been installed on the cable. The protective cover shall be taped in place if easily dislodged.
- B. Any connector fouled or damaged as a result of activities related to the construction process shall be replaced.

### 2.5 CABLE IDENTIFICATION SYSTEM

- A. Use color-coding in accordance with ANSI/TIA/EIA-606 standards, unless otherwise noted.

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- B. Field devices at the user locations, termination blocks, patch panels, equipment racks/enclosures, and individual riser and lateral cables shall be labeled with (at minimum) machine generated black uppercase lettering on a permanent adhesive label stock, covered with a permanent, water resistant sealer. Labeling stock and/or lettering must be used that provides a high contrast with the color of the terminating equipment, faceplate or cable.
- C. Place labels on both ends of the cable at least 4 inches from the point at which the cable is terminated on the connector or terminal block.
- D. Provide permanent, machine generated cable tags. Temporary tags are acceptable only during construction. Label each tag with the appropriate cable number as shown on the drawings and as indicated on the cable schedules provided by the Commissioner.
- E. Cable identification numbers shown on the plans are presented in an abbreviated format. All cable ID's shall (at minimum) indicate the floor, the sequential cable number shown on drawings. For example: The first cable pulled to Field device #7 from Closet "A" on the 2nd floor shall be labeled: 2A-07-1, the second cable pulled to Field device #12 out of the "B" closet on that floor shall be labeled: 2B-12-2, and so forth.
- F. If at any time during the job the permanent cable tag becomes illegible or is defaced or removed, immediately replace it with a duplicate pre-printed cable tag.
- G. All equipment shall be assembled and installed as per manufacturers' printed instructions.
- H. Conduit and Raceway Systems
  - 1. Follow Division 26 requirements.
  - 2. Conduit is required for all cabling for this project.
  - 3. Conduit shall be used in the following areas without exception:
    - a. Where cabling is below 8 feet
    - b. Any inaccessible area (i.e. inside walls, hard ceilings etc.)
    - c. Locations where Security cabling may come in close association with 120 VAC or above power sources including, transformers, conduits, lights, ballast etc.
    - d. In any area where RF interference may be or become a factor, interfering with the security systems normal operation and functions.
    - e. Other locations directed by other specification divisions and/or sections and/or drawings.

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4. General: The placing of surface mounted conduit on the exterior of any building or interior wall shall be approved by City of New York prior to its installation.
5. Interior Conduit:
  - a. EMT
6. Surface Raceways
  - a. Sheet metal channel with fitted cover, suitable for use as surface metal raceway, WIREMOLD or approved equal.
  - b. Provide fittings, elbows, and connectors designed for use with raceway system.
7. Exterior Conduit: (any of the following as determined by local code requirements):
  - a. Rigid Steel Conduit
  - b. Rigid Aluminum Conduit
  - c. Provide rain-tight fittings and connectors as required for installation of exterior conduit.
8. Exterior Flexible Conduit:
  - a. Liquidtight Flexible Conduit: Flexible metal conduit with PVC jacket.
  - b. Provide rain-tight fittings and connectors as required for installation of Liquidtight Flexible Conduit.
9. Junction and Pull Boxes
  - a. Interior Boxes: Sheet Metal Outlet Boxes: Sizes to be determined in accordance with code requirements for conductor fill. No box shall be smaller than a single gang 1-1/2 deep. Provide box covers as required.
  - b. Exterior Boxes: All exterior boxes shall NEMA 4 or NEMA 3R, watertight and dust-tight
  - c. All interior and exterior boxes shall have their covers fastened using security screws.
10. Lighting Protection
  - a. The contractor shall provide suitable lightning protection for all electronic security equipment.

- b. All lightning protection equipment shall be UL listed.

2.6 ELECTRICAL PROVISIONING FOR TELECOMMUNICATIONS/SECURITY ROOM

- A. Each security room (SCC) shall be equipped with a minimum of four 20-amp, 120VAC electrical outlets; each on its own dedicated circuit breaker, for each cabinet or rack.
- B. Security Panels shall each have one dedicated circuit hard-wired into the back-box and connected to the transformer for each panel, controller etc.
- C. There shall be a minimum of two quads Convenience outlets located within the room. These shall be colored orange and identified as Security Technical Power. These outlets shall be used exclusively for security electronic equipment. Do not use Technical Power outlets for general-purpose or utility devices such as electric drills, vacuum cleaners, or coffeepots. These outlets are in addition to and no in replace of power requirements of the security devices, panel, monitors etc.
- D. The Security Technical Power circuits should originate from a dedicated power panel serving the security room. The power panel shall not be used to supply power to sources of electromagnetic interference such as large electric motors, arc welding, or industrial equipment. The power panel must be located in the security equipment room, or in close proximity to the security equipment room.
- E. Some security equipment, such as video surveillance switches are ordered with dual power supplies. The placement of equipment with dual power supplies should be identified and the appropriate racks should have two, separate, dedicated 20-amp 120VAC electrical circuits from the Technical Power panel, terminated in separate duplex outlets and be appropriately marked to identify the separate circuit breakers.
- F. 120VAC Power wired to racks, panels, consoles, monitors etc, shall be direct wired from dedicated circuits and labeled accordingly. Each system's requirements are special and require coordination. The contractor shall coordinate all power requirements with the contractor to insure enough power, proper power and locations of the power are correct.
- G. Refer to Telecommunications specifications when security shares a room/space with telecom for their requirements. In no case shall these specifications interfere with power required for other systems such as Telecommunications or other convenience power outlets.

PART 3 - EXECUTION

3.1 PREPARATION

- A. The contractor shall order all required parts and equipment upon notification

**SECURITY GENERAL SYSTEM  
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of award of the work as directed by City of New York.

- B. The contractor shall bench test all equipment prior to delivery to the job site.
- C. The contractor shall verify the availability of power where required. If a new source of power is required, a licensed electrician shall be used to install it. Contractor is responsible for coordinating all power requirements with contractor.
- D. The contractor shall arrange for obtaining all programming information and provide adequate training on the meaning of the programming terms for the City of New York to understand the programming form(s).
- E. The contractor shall arrange for obtaining all programming information including access times, free access times, door groups, operator levels, etc. from the City of New York project manager.

### 3.2 INSTALLATION

- A. The contractor shall coordinate with the City of New York's Information Systems Department when the security system interfaces with the client's network.
- B. The contractor shall carefully follow the instructions in the manufacturers' Installation Manual to insure all steps have been taken to provide a reliable, easy to operate system.
- C. Materials shall be installed in strict compliance with local building codes and manufacturer's installation guidelines. All work shall be performed in accordance with the manufacturer's printed instructions and in a manner satisfactory to the Commissioner.
- D. The installer shall be fully qualified, factory trained and certified by each of the product manufacturer's that are to be installed, Certification and training shall include the installation, operation, and programming of all the systems.
- E. Perform all work as indicated in the drawings and Specifications.
- F. The contractor shall install the appropriate cable from the CPU to all field devices (i.e. door contacts, motion detectors), access control and video surveillance panels for alarm monitoring and reporting.
- G. All communications cables shall be kept away from power circuits.
- H. The contractor shall install spare conductors within the cable pairs from the control panels in such quantities that additional devices may be installed in the future without the need to re-pull cable from the controller to the existing door. These spare conductors shall exceed 25% (i.e. when 6 conductors are required an 8 conductor shall be installed) this will allow for growth and replacement of a conductor when/if a conductor is damaged in the future. In no case shall less than one spare pair be installed.

- I. The contractor shall coordinate the installation of the power supply(s) for electric locks in locations where they won't interfere with other operations (see door hardware specifications and coordinate) and monitor all power supplies for alarms and supervisory signals (i.e. A/C failure, tampering, low battery, short, fault, etc.)
- J. The contractor shall also execute 100% testing of the system to insure proper operation.

3.3 TRAINING

- A. The contractor shall provide training of the security systems to City of New York's personnel insuring adequate understanding of all systems operation and maintenance to prevent errors and/or accidental operation and false alarms.
- B. Adequate training shall consist of not less than 48 hour's system training, scheduled after all systems are installed and accepted by City of New York.
- C. Training of personnel shall be in small groups of not more than 5 individuals and broken down by level of access and responsibilities (i.e. operators, Administrators, Maintenance etc.)
- D. Command Center (Head-end) training shall include but not limited to:
  - 1. Use and control of camera management systems
  - 2. Use and control of video recording systems
  - 3. Use and control of video photograph systems
  - 4. Identification and prediction of potential events
  - 5. Familiarity with the local area
  - 6. Knowledge of identified potential trouble spots
  - 7. Police policy and procedures relating to recording of information, exhibit handling and incident reporting
  - 8. Emergency response and procedures
  - 9. Accountability and confidentiality
  - 10. Privacy
- E. Phone support shall provide ongoing training and assistance in operational, programming and maintenance issues at no additional charge for the first two years after acceptance of the installation by the City of New York.

3.4 WORKMANSHIP

- A. Comply with highest industry standards, except when specified requirements indicate more stringent standards or more precise workmanship.
- B. Perform work with persons experienced and qualified to produce workmanship specified.
- C. Maintain quality control over suppliers and contractors.
- D. Quality of workmanship is considered important. The City of New York's project manager will have the authority to reject work, which does not conform to the drawings and Specifications.

3.5 EQUIPMENT PRE-TEST

- A. All equipment shall be bench tested prior to delivery to job site and prior to installation. Bench test shall be performed per manufacturer's installation instructions.

3.6 WIRE AND CABLE

- A. Design, layout, size, and plan new wire and cable runs as required by the systems complexity.
- B. All wire and cable from the processors to all security devices shall be "home-run" unless otherwise specified.
- C. All wire and cable, including any wire and cable that is existing and will be reused in the work, shall be installed in conduit or surface metal raceway, except as follows:
  - 1. Wire or cable, in lengths of less than ten (10) feet, that is "fished" within ceilings, and doorframes.
  - 2. All wire and cable passing thru metalwork shall be sleeved by an approved grommet or bushing.
- D. Avoid splicing conductors. All splices when necessary shall be made in junction boxes (JB) (except at equipment) with tamper switches installed notifying security when the cover, door or panel has been opened. Splices shall be made with an approved crimp and/or solder connection.
- E. The following shall **not** be used on any security low-voltage wiring:
  - 1. Wire nuts
  - 2. "Beenies"
  - 3. Telecommunications press connectors.
- F. Identify all wire and cable at terminations and at every junction box. Identification shall be made with an approved permanent label, Brady or

equal.

3.7 WIRE AND CABLE TERMINATIONS

- A. Identify all inputs and outputs on terminal strips with permanent marking labels (Brady or equal).
- B. Neatly dress and tie all wiring. The length of conductors within enclosures shall be sufficient to neatly train the conductor to the terminal point with no excess. Run all wire and cable parallel or normal to walls, floors and ground.
- C. Install connectors as required by equipment manufacturers written instructions.
- D. Terminations shall be made so that there is no bare conductor at the terminal. The conductor insulation shall bear against the terminal or connector shoulder.
- E. Do not obstruct equipment controls or indicators with wire or cable. Contractor shall route wires and cables away from heat producing components such as resistors, regulators and the like.
- F. Strain relief and service loops shall be included in all pull and/or junction boxes.

3.8 CONDUIT AND RACEWAY INSTALLATION

- A. Design, layout, size and plan new conduit and raceway systems as required.
- B. Indoor Requirements:
  - 1. Route conduit and raceway parallel and perpendicular to walls and adjacent piping
  - 2. Maintain minimum six (6) inch clearance between conduit and piping.
  - 3. Group conduit in parallel runs where practical and use conduit rack constructed of steel channel with conduit straps or clamps.
  - 4. Use conduit bodies to make sharp changes in direction, as around beams. Fasten conduits and raceways to structural steel using approved spring clips or clamps.
  - 5. Where conduit penetrates fire-rated walls and floors, seal opening with UL listed fire rated sealer and/or other fire stop system methods as approved by codes.
  - 6. No exposed conduit, raceway, or junction box shall be installed without written approval of City of New York and/or Commissioner.



7. Install all boxes straight, plumb and flush.
8. Do not support conduit from mechanical, plumbing, or fire sprinkler systems.
9. Drill or core drill all holes in walls, ceilings, or floors where required for new conduits. Do not cause damage to any structural steel or other structural support member by drilling or cutting.
10. Do not use flexible conduit in lengths longer than six (6) feet.
11. All cables below seven (7) feet shall be installed within conduit.
12. All cables which pass through Fire Rated walls, floor or ceiling shall have the appropriate fire and temperature rating of the wall, floor or ceiling restored to its designed limits.

C. Outdoor Requirements

1. Where conduit penetrates exterior walls contractor shall seal opening around conduit in an approved manner to make watertight.
2. Use galvanized straps and fasteners on all exterior conduits.
3. All exterior boxes will only be used to aid in pulling the cable between points and are not to be used as splice points.

3.9 PENETRATIONS

- A. Do not penetrate any floor, roof, flashing, exterior wall, or parapet without prior approval from City of New York's designated Construction Project representative. (Floor slabs that have radiant heating system installed; penetrations of the slab shall be coordinated to insure heating system is not damaged).

3.10 FIRE RATED DOORS AND FRAMES

- A. Do nothing to modify a U.L. Rated door or frame that may void or alter the UL listing or fire rating.

3.11 GROUNDING

- A. Provide earth grounding of equipment as required by equipment manufacturer. Earth ground shall be connected to ground rod or approved cold water pipe. All systems installed in one or more building shall have a common ground to prevent ground faults.
- B. Electrical or telephone ground connections shall not be used as earth grounds unless approved by electrical engineer, telecommunications engineer and City of New York.
- C. Connections to mounting posts or building structural steel shall not be used

as earth grounds.

3.12 POWER TO SECURITY EQUIPMENT

- A. Power all equipment from 120 VAC circuit dedicated for security use, except as noted. Mark all panel circuit breakers with labels worded "Security Equipment - Do Not Operate", or equivalent.
- B. All security systems devices and systems power shall be from UPS with generator back up. See Electrical drawings and specifications for exact requirements.
- C. Provide "Breaker locks" to prevent accidental operation of the breakers.
- D. Avoid using plug-in type transformers. Hardwire 120 VAC to all panels, power supplies, console, racks etc.

3.13 CUTTING AND PATCHING

- A. The contractor shall be responsible for all cutting, fitting or patching that may be required to complete the work.

3.14 PAINTING

- A. Not Applicable

3.15 PLYWOOD BACKING

- A. Install the processor(s), power supplies, and all other related equipment on a plywood backboard. The mounted assemblies will be mounted in the telecommunication, Mechanical Room(s) as shown on drawings.
- B. Fasten the plywood backing to the wall using a hanger bolt at the four corners, which align with pre-drilled holes in the plywood. Secure with flat washers and a nut.
- C. Equipment, which is "rack mountable", shall be installed within "cabinets" designated for security equipment. Cabinets are specified within additional sections of the specifications.

END OF SECTION

SECTION 28 23 13VIDEO SURVEILLANCE CONTROL AND MANAGEMENT SYSTEMSPART 1 - GENERAL1.1 GENERAL PRODUCT REQUIREMENTS

- A. The software shall be of the video management system provider's official product line and designed for commercial use 24/7/365.
- B. The software shall be based upon standard components and proven technology using open and published protocols.
- C. The video management system provider shall be defined as the manufacturer of the video management software, and the party responsible for rigorous self-testing of the software prior to the release of the software.

1.2 QUALITY ASSURANCE

- A. The video management system provider shall offer thorough training to contractors in the service and installation of the provided software.
- B. All installation, configuration and setup of software as well as related work hereto shall be carried out by qualified technicians thoroughly trained by the video management system provider in the installation and service of the provided software.

1.3 GENERAL SYSTEM DESCRIPTION

- A. The system shall be a fully distributed solution, designed for multiple server installations requiring 24/7 surveillance with support for devices from different vendors.
- B. The video management system shall support Windows 7 Professional/Enterprise/Ultimate and Windows Server 2012. All as 64-bit applications and with the latest patches and service packs installed. The system shall use DirectX and .NET.
- C. The following eight major components shall be included in the system:
  - 1. Surveillance system server, which shall consist of the following add-on applications/solutions or services:
    - a. Recording server (a service).
    - b. Management application.
    - c. Image server (a service).
    - d. Event server (a service).
    - e. Download manager.

- f. Mobile viewing client server.
  2. Viewing client.
  3. Web viewing client.
  4. Standalone viewing client (for exported video recordings).
  5. Video-sharing application.
  6. Transactional data application.
  7. Graphical alarm management solution.
  8. Mobile viewing client.
- D. The system shall incorporate a fully integrated video-sharing functionality that shall enable distributed viewing of any camera in the system, from any computer with the viewing client or video-sharing application installed.
- E. The system shall include support for a graphical alarm management solution. This solution shall support continuous monitoring of the operational status and event-triggered alarms from system servers, cameras and other external devices. The solution shall visualize the status of cameras and other inputs with graphical and interactive icons.
- F. The system shall include a software development kit (SDK) which shall integrate the system with third-party software. The SDK shall enable the user to:
1. Retrieve live and recorded video in different ways:
    - a. In raw data format, either encoded or decoded, or
    - b. As a window to be resized and shown embedded in another application.
  2. Create plug-in components for the viewing client.
  3. Control the operation of video-sharing functionality.
  4. Retrieve alarm/event information.
  5. Integrate data sources for the transactional data application.
- G. The system shall provide connectivity with third-party systems and devices using the OPC (Object-Linking and Embedding Process Control) Data Access set of communication standards. The supported third-party systems must include industrial automation and SCADA (Supervisory Control and Data Acquisition) systems. The system shall support the following commands and interfaces:
1. Get configuration.

2. Get server CPU load.
  3. Get camera status and frame rate.
  4. Get camera and global events.
  5. Set events.
  6. Set the video-sharing application's live view and playback.
- H. The system shall include a standalone viewing client that shall show video exported from the viewing client. The standalone viewing client shall enable recipients of the video to browse and play back exported video without installing separate software on their computers.
- I. The system shall be designed to support each component on the same computer for efficiency in smaller systems or in a distributed architecture for large system deployments. Video management system core components must be installed on the same server.
- J. It shall install and run the system on virtualized Windows servers.

## **PART 2 - PRODUCTS**

### **2.1 UNIFIED SECURITY PLATFORM (USP)**

- A. The USP shall support the seamless unification of IP access control system (ACS), IP video surveillance system and Managed Video Services (MVS) system.
- B. The Unified Security Platform (USP) shall be an enterprise class IP-enabled security software solution.
- C. The ACS and MVS systems shall be seamlessly unified within the USP.
- D. The ACS shall support both fixed applications.
- E. The USP surveillance user interface (UI) shall be a unified security interface for monitoring access control, video surveillance, or any combination thereof.
- F. USP functions shall include:
1. ACS and MVS live and real-time event monitoring.
  2. Live MVS video monitoring
  3. MVS video archive playback.
  4. ACS and MVS reporting, including custom reports and report templates.
  5. ACS and MVS alarm management.
  6. ACS and MVS system partitioning (e.g. for use with multi-tenant

applications).

7. ACS and MVS dynamic graphical map viewing.
  8. Microsoft Active Directory integration for synchronizing USP users (ACS, MVS) and ACS cardholders.
  9. Federation for global monitoring, reporting, and alarm management of multiple remote and independent ACS and/or MVS systems spread across multiple facilities and geographic areas.
  10. ACS and MVS incident reports.
  11. ACS visitor management to check-in and check-out visitors.
  12. ACS people counting or mustering to dynamically track people located in specific areas.
- G. Through the appropriate licensing the ACS and MVS shall be enabled as sub-systems within the USP.

## 2.2 SYSTEM ARCHITECTURE

- A. The USP is based on a client/server model. The USP shall consist of Server Software Modules (SSM) and Client Software Applications (CSA).
- B. The USP shall be both a multi-user and a multi-tasking environment.
- C. The USP shall install SSM and CSA on the same machine. Conversely, the USP shall support a distributed environment where one or more SSM and CSA modules can be installed across several servers/PCs over an IP network.
- D. The USP shall be an IP enabled solution. All communication between the SSM and CSA shall be based on standard TCP/IP protocol and shall use encryption when enabled by the administrator.
- E. The USP shall support multi-tenant installations and environments by segmenting its database(s) using the security partitions.
- F. The USP shall protect against potential database server failure through standard off-the-shelf solutions, e.g. Microsoft Windows Clustering.
- G. The USP shall support the concept of Federation whereby multiple independent ACS and MVS installations can be merged into a single large virtual system. Federation shall seamlessly facilitate the centralization of the following activities across multiple remote sites: global monitoring of access control and video events, live video viewing, video playback, as well as centralized report generation and alarm management.

## 2.3 SYSTEM DESIGN GUIDELINES

- A. The USP shall be installed as one or more of the following types of installations:
  - 1. Unified access and video platform, and any combination thereof.
  - 2. Standalone access control or video platform.
  - 3. Standalone video platform that federates one or more MVS. Refer to the section **Error! Reference source not found.** for more information on Federation.
- B. The USP shall be designed to run on a standard PC-based platform running a Microsoft Windows operating system.
- C. The USP interface shall be easy-to-use and minimize the number of external applications required to configure and monitor the system. The user interface shall consist of a single configuration client interface and a single live monitoring/reporting client interface.
- D. The USP server modules shall be compatible with multiple 64-bit operating systems including Windows 7, Windows 8, Windows Server 2003, and Windows Server 2008.
- E. The USP client modules shall run on Windows
- F. The USP shall be designed using the latest and most advanced design tools.
  - 1. The core client/server software shall be built in its entirety using the Microsoft .NET software framework and the C# (C-Sharp) programming language.
  - 2. The USP database server(s) shall be built on Microsoft's SQL Server 2005, SQL Server 2008, including SQL Server 2005/2008 Express Editions. All versions and packages of the USP can run on SQL 2005/2008 Express editions.
  - 3. The USP shall use the latest user interface (UI) development and programming technologies such as Microsoft WPF (Windows Presentation Foundation), the XAML markup language, Direct3D, and .NET software framework.

## 2.4 SYSTEM SECURITY AND ENCRYPTION

- A. Communication between the SSM and CSA (server-to-server and client-to-server) shall be encryption enabled. The encryption method shall use a 128-bit AES encryption algorithm, at a minimum.
- B. The USP client applications (CSA) shall be password protected. Passwords shall be stored in the Configuration Server database in an encrypted manner.
- C. When integrated with Microsoft's Active Directory, the USP shall

authenticate users using their Windows credentials. As such, the USP will benefit from Active Directory's password authentication and strong security features.

- D. The USP shall limit what users can view in the configuration database via security partitions.
  - 1. The administrator, who has all rights and privileges, shall segment a database into multiple security partitions.
  - 2. A user who is given access to a specific partition shall only view entities that are members of the partition assigned.
  - 3. Additional security features shall be provided via a large number of user privileges.
  - 4. In addition to system-wide privileges, administrators shall assign privileges on a per partition basis.

## 2.5 SERVER SOFTWARE MODULES (SSM)

- A. The USP core architecture shall provide a variety of SSMs whose roles include storing the configuration database, communicating with client applications, unifying the ACS, and MVS systems, as well as the integration to third party applications and systems.
- B. The SSM shall be Windows services configured to start when the operating system is booted and run in the background. The SSM shall automatically launch at computer startup, irrespective of whether a user is logged onto the machine or not. It shall start and stop the SSM manually when required.
- C. The SSM shall receive, process, and respond to requests from the CSA. The SSM shall consist of a Configuration Server, an Access Server and an Integration Server. Multiple Access Server and Integration Server modules shall be supported by Configuration Server.
- D. A dedicated SSM module (Access Server) shall permit the USP to perform all access control related functionality, including synchronizing IP-enabled door controllers and IO modules.
- E. A dedicated SSM module, the Integration Server, shall permit the USP to connect to multiple external systems such as a Microsoft Active Directory server, an external video surveillance system, among many more.
- F. The SSM shall be installed on either the same server, on several servers to enable distributed operation in a LAN or WAN environment. The SSM shall not limit the number of servers which can be networked together to form a distributed server system.

## 2.6 CONFIGURATION MODULE

- A. The Configuration Module shall be the central database that contains all the system information and component configuration of the USP. The



Configuration Server shall also manage alarms and communications with the USPs client applications (CSA).

- B. The Configuration Server shall configure/manage of the following components common to the ACS and MVS sub-systems:
1. Security Partitions
  2. Areas
  3. Alarms
  4. Users and user groups
  5. Schedules
  6. Scheduled tasks
  7. Macros
  8. Dynamic Graphical Maps
  9. Events/Actions
  10. Custom events
- C. The Configuration Server shall support the configuration/management of the following components specific to the ACS:
1. Door Controllers (hardware units)
  2. Doors
  3. Elevators
  4. Zones
  5. Input and Output (IO) modules (hardware units)
  6. Input – Output (IO) linking rules
  7. Custom output behavior
  8. Access rules
  9. Cardholders and cardholder groups
  10. Credentials
  11. Badge Templates
  12. Custom fields
- D. The Configuration server shall import cameras directly from the MVS. The unified platform for ACS and MVS is required; the Configuration Server shall permit the assignment of cameras to doors, zones,

elevators and more. It shall not require reconfiguring the settings of imported cameras.

- E. The Configuration Server shall authenticate users and give access to the USP based on predefined user access rights or privileges, and security partition settings.

## 2.7 ACCESS MODULE

- A. The Access Server shall be the server that synchronizes all access control hardware units under its control, such as door controllers and IO modules. The Access Server shall validate and log all access activities and events when the door controllers and IO modules are online.
- B. The Access Server shall maintain the communication link with the hardware controllers under its control. It shall continuously monitor whether the controllers are online or offline.
- C. Synchronization of hardware units shall be automated and transparent to users and shall occur in the background. It shall manually synchronize units or on a schedule.
- D. The Access Server shall support doors and controllers located within the facilities. The Access Server shall support a minimum of 250 readers per machine, depending on the installed hardware units.
- E. At system startup, the Access Server shall load all the configuration information that is applicable to the units.
- F. The Access Server shall store all access events associated with the doors, areas, zones (input points), elevators, and controllers.

## 2.8 INTEGRATION MODULE

- A. The Integration Server shall enable the connection of the USP to the following types of external systems:
  - 1. A single MVS to embed video within the USP.
  - 2. Multiple USP to form an access control Federation (virtual system consisting of multiple remote independent ACS).
  - 3. Microsoft Active Directory.
- B. The following features shall ensure the USP is highly scalable over an IP network:
  - 1. A single Integration Server shall support connections of remote entities (cameras, doors, cardholders, Active Directory users etc.)
  - 2. A single Integration Server shall connect to multiple remote ACS and MVS systems.
  - 3. Multiple Integration Servers can be installed on the same

machine or PC.

4. Multiple Integration Servers can be distributed across several machines to increase the number of connections supported.

## 2.9 SERVER MONITORING SERVICE

- A. The USP shall include a Server Monitoring Service. The Server Monitoring Service shall continuously monitor the state of all SSM services. It shall be installed on all PCs/servers running SSM. The Server Monitoring Service shall be a Windows service that automatically launches at system startup, irrespective of whether a user is logged into his account or not.
- B. In the event of a malfunction or failure, the Server Monitoring Service shall restart the failed service. As a last resort, the Server Monitoring Service shall reboot the server/PC should it be unable to restart the service. It shall also offer manual start and/or stop one or more of the SSM.
- C. The Server Monitoring Service user interface (UI) shall be accessible from the system tray. The Server Monitoring Service UI shall provide the user with the functionality listed below, among many more.
  1. A real-time list of SSM running on a PC or server
  2. The status of the SSM (started or stopped)
  3. A log of status-related events and associated timestamps.
  4. Telnet console to log onto an SSM.
  5. Configuration for the SSM databases, including backup and restore.
  6. SMTP configuration for email notifications.
  7. License configuration.

## 2.10 CLIENT SOFTWARE APPLICATIONS (CSA) (SECURITY DESK)

- A. The Client Software Applications (CSA) shall provide the user interface for USP configuration and monitoring. The CSA shall consist of the Configuration UI for system configuration and the Surveillance UI for monitoring. The Server Administrator shall configure the server database(s). The CSA shall be Windows based and provide an easy-to-use graphical user interface (UI).
- B. The CSA shall seamlessly merge access control and video functions.
- C. The USP shall use the latest user interface (UI) development and programming technologies such as Microsoft WPF (Windows Presentation Foundation), the XAML markup language, Direct3D, and the .NET software framework.

- D. The CSA shall perform functions listed in the sections CONFIGURATION USER INTERFACE (UI) and SURVEILLANCE USER INTERFACE (UI) without interfering with any of the SSM operations (for example, responding to access control or video system requests, logging USP events, etc.).
- E. The CSA shall support multiple forms of IP network connectivity, including LAN, WAN, VPN, and Internet technologies. The CSA shall log into the USP from a remote site.
- F. All applications shall provide an authentication mechanism, which verifies the validity of the user. As such, the administrator can define specific access rights and privileges for each user in the system.
- G. Logging on to a CSA shall be done either through locally stored USP user accounts and passwords or using the operators Windows credentials when Active Directory integration is enabled.
- H. When integrated with Microsoft's Active Directory, the CSA and USP shall authenticate users using their Windows credentials. As such, the USP will benefit from Active Directory password authentication and strong security features.
- I. The CSA shall support multiple languages, including but not limited to, the English, the French, the Dutch, the German, the Spanish, and the Japanese languages.

#### 2.11 CONFIGURATION USER INTERFACE (UI)

- A. The Configuration UI application shall allow the administrator or users with appropriate privileges to change the system configuration.
- B. The Configuration UI shall provide decentralized configuration and administration of the USP system from anywhere on the IP network.
- C. The Configuration UI shall provide decentralized configuration and administration of the embedded ACS system from anywhere on the IP network.
- D. The USP Configuration UI application shall be the same Configuration UI application for the ACS. It shall configure the ACS entities and all their settings.
- E. The Configuration UI shall configure the USP entities. An entity shall be defined as a system component used to create an access control system, video system.
- F. The user shall easily navigate between this application and the other CSA by single point and click function.
- G. USP entities such as cameras, doors, zones, elevators and more shall be accessible from the Logical View, a tree-like display that groups entities by area (grouping of doors, cameras, elevators, and zones) or by integrated systems such as an MVS.

- H. The operator shall have tools to quickly find any entity (cameras, doors, cardholders and groups, zones, elevators) based on partial name or description.
- I. The Configuration UI shall include a variety of troubleshooting utilities.
- J. The Configuration UI shall provide a static reporting interface to:
  1. View historical events based on entity activity. This reporting interface shall be in addition to the monitoring and reporting interface provided by the Surveillance UI. The user shall perform actions such as printing a report and troubleshooting a specific access event from the reporting view.
  2. View audit trails that show a history of user / administrator changes to an entity.

## 2.12 SURVEILLANCE USER INTERFACE (UI)

- A. The Surveillance UI shall provide a graphical user interface to control and monitor the USP.
- B. The Surveillance UI shall perform the role of a Unified Security Interface to monitor video and access control events and alarms, video live and recorded video.
- C. The Surveillance UI shall provide decentralized monitoring of the entire system from anywhere on the IP network.
- D. The Surveillance UI shall require a graphics card that supports Direct3D due to its use of advanced user interface software tools.
- E. The Surveillance UI shall provide the latest UI concepts to enhance usability and operator efficiency such as
  1. An OS-like (operating system) Start Menu.
  2. Real-estate maximization, both within a tile and the entire UI.
  3. Dynamically adaptive interface that adjusts in real-time to what the operator is doing.
  4. Task-oriented approach to operator activities where each type of activity (surveillance, visitor management, individual reports, and more) is an operator task.
  5. A taskbar that groups all individual tasks.
  6. A dynamic dashboard loaded with entity-specific widgets, e.g. door and camera widget.
  7. Use of transparent overlays that can display multiple data in a seamless fashion.
  8. Display tile menus and quick commands.

9. Consolidated and consistent workflows.
10. Tile menus and quick commands easily accessible within every display tile of the user workspace.
11. Single click functionality for reporting and tracking. The Surveillance UI shall support single-click reporting for access control and video, as well as single-click tracking of areas, cameras, doors, zones, cardholders, elevators and more. Single-click reporting or tracking shall create a new task with the selected entities to report on or to track.

## 2.13 SURVEILLANCE UI START MENU AND TASKS

- A. The Surveillance UI shall be task-oriented.
- B. A task shall be user interface design patterns whose goal is to simplify the user interface by grouping related features from different systems such as video and access in the same display window. Features are grouped together in a task based on their common relevance to help the user perform a specific task.
- C. Tasks shall be accessible via the Surveillance CSA's Start Menu and sub-menus.
- D. Newly created tasks shall be accessible via the Surveillance UI taskbar.
- E. Similar tasks shall be grouped into the following categories:
  1. Operation: Access control/video surveillance, visitor management, access control and video alarm monitoring and more.
  2. Investigation: Video bookmark/motion/archive reports, access control activity reports, visitor activity reports, alarm reports and more.
  3. Maintenance: Access control and video configuration reports, troubleshooters, audit trails, and more.
  4. Administration: Various configuration tools.
  5. Tasks shall facilitate the number of concepts a casual user needs to learn leading to increased simplicity of operation.
  6. An operator shall launch a specific task only if he has the appropriate privileges.
  7. The Start Menu content shall be customized, through the use of privileges, to hide tasks an operator should not have access to. Editing a USP XML file to add new tasks on the fly shall be possible.

## 2.14 DYNAMICALLY ADAPTIVE UI, DASHBOARD, AND WIDGETS

- A. The Surveillance UI shall dynamically adapt to what the operator is doing. This shall be accomplished through the concept of widgets that are grouped in the Surveillance UI dashboard.
- B. Dynamically adapting the UI for the operator activities at a specific time shall de-clutter the UI and make it more intuitive.
- C. Widgets are mini-applications or mini-groupings in the Surveillance UI dashboard that let you perform common tasks and provide you with fast access to information and actions.
- D. With a single click on an entity (e.g. door or camera) the specific widgets associated to that entity appear and other non-relevant widgets disappear dynamically (instantly). Widgets shall bring the operator information such as door status and camera stream information, as well as user actions such, door unlock, PTZ controls, and more.
- E. Specific widgets include those for a door, camera, alarm, zone, display tile, video stream (statistics), PTZ camera, and more.

## 2.15 OPERATOR WORKFLOWS

- A. A workflow shall be a sequence of operations an operator or administrator shall execute to complete an activity. The "flow" relates to a clearly defined timeline or sequence for executing the activity.
- B. The Surveillance UI shall be equipped with consistent workflows for video and access control systems.
- C. Generating or printing a report, setting up or acknowledging an alarm, or creating an incident report shall follow the same process (workflow) whether the operator is working with video, or access control, or both.

## 2.16 LOGICAL VIEW AND ENTITY SEARCH

- A. USP entities such as cameras, doors, zones, elevators and more shall be accessible from the Logical View, a tree-like display that groups entities by area (grouping of doors, cameras, elevators, and zones) or by integrated systems such as an MVS.
- B. The operator shall have tools to quickly find any entity (cameras, doors, cardholders and groups, zones, elevators) based on a partial name or description search.

## 2.17 Each task within the surveillance UI shall consist of one or more of the following items:

- A. Event list.
- B. Logical tree. Doors, cameras, zones and elevators shall be grouped under Areas in a hierarchical fashion.
- C. Tracking list.

- D. Display tiles with various patterns (1 x 1, 2 x 2, and more).
  - E. Display tile menu with various commands related to cameras, doors, PTZ, and tile controls.
  - F. Dashboard with widgets.
- 2.18 The Surveillance UI shall have a multiple event lists and display tile patterns, including:
- A. Event/alarm list layout only
  - B. Display tile layout only
  - C. Display tile and alarm/event list combination
  - D. The visitor management, alarm management and people counting tasks shall be optimized for their specific use cases.

2.19 USER WORKSPACE CUSTOMIZATION

- A. The user shall have full control over the user workspace through a variety of user-selectable customizations.
- B. Once customized, the user shall save his workspace.
- C. The user workspace shall be accessible by a specific user from any client application on the network.
- D. Display tile patterns shall be customizable.
- E. A user shall add new display tile patterns through the editing of a standard XML file.
- F. Event or alarm lists shall span anywhere from a portion of the screen up to the entire screen, and shall be resizable by the user. The length of event or alarm lists shall be user-defined. Scroll bars shall enable the user to navigate through lengthy lists of events and alarms.
- G. The Surveillance UI shall provide multiple display tile patterns, e.g. 1 display tile (1x1 matrix), or 16 tiles (4x4 matrix), and multiple additional variations.
- H. The Surveillance UI shall enable live monitoring of up to 16 video streams simultaneously on a single monitor. It shall support as many monitors as the PC video adapters and Windows Operating System accept. Each monitor shall display from 1 to 16 video streams.
- I. Additional customization include
  - 1. Show/hide window panes.
  - 2. Show/hide menus/toolbars.
  - 3. Show/hide overlaid information on video.



4. Resize different window panes.
  5. Choice of tile display pattern on a per task basis.
- 2.20 The Surveillance UI shall provide an interface for the following tasks and activities common to access control and video:
- A. Monitoring the events from a live security system (ACS and/or MVS).
  - B. Generating reports, including custom reports.
  - C. Monitoring and acknowledging alarms.
  - D. Creating and editing incidents and generating incident reports.
  - E. Displaying dynamic graphical maps and floor plans. Execute actions from a dynamic graphical map and floor plan.
  - F. Manage and execute hot actions and macros.
- 2.21 The Surveillance UI shall monitor the following entities in real-time through the surveillance task, among others:
- A. Doors
  - B. Cameras
  - C. Cardholders
  - D. Cardholder groups
  - E. Elevators
  - F. Zones (input points)
  - G. Areas
- 2.22 The Surveillance UI shall provide an interface for the following access control tasks:
- A. Monitoring and management of access events and alarms.
  - B. Viewing of cardholder picture or badge IDs.
  - C. Verification of cardholder picture IDs against live video.
  - D. Zone monitoring (input points).
  - E. Visitor management.
  - F. People counting or mustering, including resetting the people count in an area
  - G. Door control (remotely unlocking doors, overriding a door's unlocking schedules, enabling door maintenance mode).

- H. Forgiven antipassback.
  - I. Generation of ACS configuration and activity reports.
  - J. Viewing of HTML files including alarm instructions
- 2.23 The Surveillance UI shall include advanced video functions:
- A. Advanced live video viewing functionality.
  - B. Advanced archive playing and video playback functionality.
  - C. Monitoring and management of video system events and alarms.
  - D. Intercom and/or duplex audio.
  - E. Generation of video reports.
  - F. Control of PTZ cameras.
- 2.24 The Surveillance UI's video live viewing shall include:
- A. Display of all cameras attached to the USP and all cameras attached.
  - B. Shall support live video monitoring on each and every display tile within a task in the user's workspace.
  - C. The operator shall drag and drop a camera into a display tile for live viewing.
  - D. The operator shall drag and drop a camera from a map into a display tile for live viewing.
  - E. Shall provide digital zoom on live camera video streams.
  - F. Shall provide for audio communication with video units with audio input and output.
  - G. The operator shall control pan-tilt-zoom, iris, focus, and presets.
  - H. Shall bookmark important events for later retrieval on any archiving camera. Operators to uniquely name each bookmark in order to facilitate future searches.
  - I. The operator shall start/stop recording on any camera in the system, which is configured to allow manual recording, by clicking on a single button.
  - J. The operator shall activate or de-activate viewing of all system events as they occur.
  - K. Shall allow switching to instant replay of the video for any archiving camera with the simple click of button.
  - L. Users shall take snapshots of live video and save or print the snapshots.

- M. The user shall view the same camera view multiple times in different tiles.
- 2.25 The Surveillance UI's video playback (archive playing) shall include:
- A. Shall support audio and video playback of any time span.
  - B. Shall support video playback on each and every display tile.
  - C. Operators shall switch to instant replay of the video for any archiving camera with the simple click of button.
  - D. Operators shall select between instant synch of all video streams in playback mode allowing operators to view events from multiple angles, across several camera fields, or non-synchronous playback.
  - E. Operators shall simultaneously view the same camera in multiple tiles at different time intervals.
  - F. Operators shall to control the playback with:
    - 1. Pause
    - 2. Lock Speed
    - 3. Forward Playback at: 1x, 2x, 4x, 10x, 20x, 50x, 100x.
    - 4. Reverse Playback I-frame by I-frame.
    - 5. Fast rewind at: -10x, -20x, -50x, -100x.
    - 6. Slow Forward Playback at: Frame by frame, 1/8x, 1/4x, 1/3x, 1/2x, 1x.
    - 7. Loop playback between two time markers
  - G. Shall display a single timeline, or one timeline for each selected video stream, with which the operator can navigate through the video sequence by simply clicking on any point in the timeline.
  - H. Shall display the level of motion at any point on a timeline.
  - I. Shall clearly display bookmarks events on the timeline(s).
  - J. Shall query archived video using various search criteria, including but not limited to, time, date, camera, and area, among others.
  - K. Shall provide the tool to search video and associated audio on user-defined events or motion parameters.
  - L. Operators shall define an area of the video field in which to search for motion as well as define the amount of motion that will trigger search results. The Surveillance UI then retrieves all archived video streams which contain motion which meets the search parameters. There shall be a graphical timeline where the time of each search hit shall be

indicated.

- M. Operators shall browse through a list of all bookmarks created on the system and select any bookmarked event for viewing.
- N. Shall add bookmarks to previously archived video for easier searching and retrieval.
- O. Shall digital zoom on playback video streams.
- P. Shall provide still image export to PNG, JPEG, GIF, and BMP format with Date and Time stamp, and Camera Name on the image (snapshot).
- Q. Shall provide tools to export video on various media such as a CD-ROM.
- R. Operators shall load previously exported video files from their computer or network.
- S. Shall save a query upon closing the Archive Player Application and reappear when the application is reopened.

## 2.26 TRACKING

- A. The USP shall select multiple entities to monitor from the Surveillance UI by adding the entities one by one to the tracking list.
- B. The Surveillance UI shall filter events displayed in the display tile layout and/or event list layout.
- C. It shall lock a Surveillance UI display tile so it only tracks the activity of a specific entity, e.g. specific door or camera.
- D. The user shall drag and drop an event from an event list (or an alarm from an alarm list) onto a display tile to view a cardholder's picture ID, badge ID, and/or live/archived video, among other features.
- E. Event, alarm, monitoring/tracking, and report lists shall contain cardholder pictures.
- F. The user shall start or pause the viewing of events within each display tile.

## 2.27 DISPLAY TILE PACKING AND UNPACKING

- A. The Surveillance UI shall single-click unpack and pack for doors, zones, and alarms.
- B. Packing and unpacking of entities shall quickly obtain additional information and camera views of a specific entity.
- C. Unpacking of an entity shall display associated entities. For example, unpacking a door with multiple associated cameras shall display all cameras associated to the door. Unpacking shall reconfigure the display tiles to display all associated entities. For example, unpacking a

door (or zone , or alarm) that is currently in a 1 x 1 tile configuration and that has 3 cameras tied to it will create a 1 x 3 display tile arrangement to view all associated entities.

- D. Packing will return the display to the original tile pattern.

#### 2.28 VISUAL TRACKING

- A. The Surveillance UI shall manually track a moving target with the single click of a button.
- B. Switch from one camera view to an adjacent camera shall be done within a single display tile.
- C. Switching between camera streams shall be accomplished by simply clicking on a semi-transparent shape or overlay.
- D. Visual tracking shall be available with both live and recorded video.

2.29 The following additional tools and utilities shall be from the Surveillance UI:

- A. Create credentials
- B. Create cardholders
- C. Troubleshooter

#### 2.30 ACS WEB CLIENT

- A. The Web Client users and operators shall perform configuration, management, and reporting activities.
- B. The Web Client shall be accessible through Microsoft Internet Explorer.
- C. The Web Client shall be a thin client. It shall not require the download of any USP-specific files or executable on the client workstation.
- D. Functionality available through the web client shall include:
  - 1. Configuration and management of cardholders and cardholder groups
  - 2. Configuration and management of credentials
  - 3. Configuration and management of access rules
  - 4. Badge printing over the network
  - 5. Assignment of access rules to doors and areas
  - 6. Visitor management including visitor check-in and check-out and reporting
  - 7. Advanced reporting

## 2.31 SERVER ADMINISTRATOR

- A. The Server Administrator shall configure all the SSM (Configuration Server, Integration Server, Access Server, and Server Monitoring Service), associated licenses, as well as the services available on each local machine. The Server Administrator shall be accessible through a graphical user interface (UI) and shall be installed on all machines that run one or more SSM.
- B. The Server Administrator shall allow the administrator (user) to perform the following functions:
  - 1. Configure the databases and database servers.
  - 2. Start/Stop a database server.
  - 3. Define the client-to-server communications security settings.
  - 4. Configure the network communications hardware, including connection addresses and ports.
  - 5. Add and configure hardware extensions and discovery options.
  - 6. Configure system SMTP settings (mail server and port)
  - 7. Configure the Server Monitoring Service automatic email settings.
  - 8. Configure event and alarm history storage options.
  - 9. Manually back up databases and/or restore the server databases, as well as configure scheduled backups of the databases.

## 2.32 SYSTEM FUNCTIONALITY

- A. Unification of Video surveillance and Access Control
  - 1. The Surveillance UI shall present a true Unified Security Interface for access control and video surveillance. Advanced live video viewing and playback of archived video shall be available through the Surveillance UI. Refer to the section SURVEILLANCE USER INTERFACE (UI) for more information on the video functionality from the Surveillance UI.
  - 2. User shall associate one or more video cameras to the following entity types, among others:
    - a. Door
    - b. Area
    - c. Elevator
    - d. Zone (input points)

- e. Alarm
  - f. Dynamic graphical map
3. It shall view video associated to access control events when viewing a report.
  4. The USP shall connect to multiple external video systems, MVS through Federation.

### 2.33 ALARM MANAGEMENT

- A. The USP shall support the following Alarm Management functions:
1. Create and modify user-defined alarms. An unrestricted number of alarms shall be supported.
  2. Assign a time schedule or a coverage period to an alarm. An alarm shall be triggered only if it is a valid alarm for the current time period.
  3. Set the priority level of an alarm and its reactivation threshold.
  4. Define the time period after which the alarm is automatically acknowledged.
  5. Define the recipients of an alarm. Alarm notifications shall be routed to one or more recipients. Recipients shall be assigned a priority level which prioritizes the order of reception of an alarm.
  6. Define the alarm broadcast mode. Alarm notifications shall be sent using either a sequential or an all-at-once broadcast mode.
  7. Define whether to display the source of the alarm, one or more entities, an HTML page.
  8. Specify whether an incident report is mandatory during acknowledgment.
  9. Associate an action to an alarm event.
  10. The workflows to create, modify, add instructions and procedures, and acknowledge an alarm shall be consistent for access control and video alarms.
  11. Alarms shall be federated allowing global alarm management across multiple independent USP, ACS, and MVS systems.
  12. The USP shall also support alarm notification to an email address or any device using the SMTP protocol.
  13. Create alarm-related instructions shall display of one or more HTML pages following an alarm event. The HTML pages shall be user-defined and can be interlinked.

14. Alarm unpacking and packing shall be where all the entities associated to an alarm can be display in the Surveillance UI with the single click of button.
15. User shall acknowledge alarms, create an incident upon alarm acknowledgement and put an alarm to snooze.
16. The user shall spontaneously trigger alarms based on something he or she sees in the system.

#### 2.34 REPORT GENERATION

- A. The USP shall support report generation (database reporting) for access control and video.
- B. Each and every report in the system shall be a USP task, each associate with its own privilege. A user shall access specific report task with privileges.
- C. All reporting tasks shall be accessible within the Surveillance UI.
- D. The workflows to create, modify, and run a report shall be consistent for access control and video reports.
- E. Reports shall be federated allowing global consolidated reporting across multiple independent USP, ACS, and MVS systems.
- F. Access control and shall support cardholder pictures.
- G. Report generation shall not result in any degradation of system performance.
- H. The USP shall provide the following types of reports:
  1. Alarm report
  2. Video-specific reports (archive, bookmark, motion, and more)
  3. Configuration reports (cardholders, credentials, units, access rules, readers/inputs/outputs, and more)
  4. Activity reports (Cardholder, cardholder group, visitor, credential, door, unit, area, zone, elevator, and more)
  5. Visitors report
  6. Audit trail reports
  7. Incident reports
  8. Time and attendance reports

#### 2.35 GENERIC REPORTS, CUSTOM REPORTS AND REPORTS TEMPLATES

- A. A user shall generate generic reports from an existing list, generating



reports from a list of user-defined templates, or creating a new report or report template.

- B. The user shall customize the predefined reports and save them as new report templates. There shall be no need for an external reporting tool to create custom reports and report templates.
- C. All report templates shall be created with the Surveillance UI.
- D. These templates can be used to generate reports on a schedule in PDF or Excel formats.
- E. Customization options shall include setting filters, report lengths, and timeout period. The user shall also set which columns shall be visible in a report.
- F. The sorting of reported data shall be by clicking on the appropriate column and selecting a sort order (ascending or descending).
- G. An unrestricted number of custom reports and templates shall be supported.
- H. A reporting task layout shall consist of panes with settings (report length, filters, go and reset commands, etc.), the actual report data in column format and a pane with display tiles. The user shall drag and drop individual records in a report onto one or more display tiles to view a cardholder's picture ID, playback a video sequence, or both.
- I. The USP shall support comprehensive data filtering for most reports based on entity type, event type, event timestamp, custom fields, and more.
- J. The user shall click on an entity within an existing report to generate additional reports from the Surveillance UI.
- K. The USP shall support the following actions on a report:
  - 1. Print report
  - 2. Export report to a PDF file
  - 3. Export report to a Microsoft Excel file
  - 4. Export a report to a CSV file
  - 5. Automatically email a report based on a schedule and a list of one or more recipients

#### 2.36 ACCESS CONTROL SYSTEM (ACS)

- A. The USP shall have a variety of access control functions.
  - 1. Controller (Unit) Management.
  - 2. Cardholder and Cardholder Group Management.

3. Credential Management.
4. Badge Designer.
5. Door Management.
6. Elevator management.
7. Area Management.
8. Zone Management.
9. Input/Output Linking.
10. Access Rule Management.
11. Visitor Management.
12. People Counting, Area Presence Tracking, and Mustering.
13. Custom Fields.
14. Import Tool (Cardholders and Cards).

2.37 USER AND USER GROUP, SECURITY PARTITIONS AND PRIVILEGES MANAGEMENT

- A. The USP shall configure and manage users and user groups. A user shall add, delete, or modify a user or user group if he has the appropriate privileges.
- B. Common access rights and privileges shared by multiple users shall be defined as User Groups. Individual group members shall inherit the rights and privileges from their parent user groups. User group nesting shall be allowed.
- C. User privileges shall be extensive in the USP. All configurable entities for the USP, including access control/video/video, shall have associated privileges.
- D. Specific entities such as cardholders, cardholder groups and credentials shall include a more granular set of privileges such as the right to access custom fields and change the activation or profile status of an entity.
- E. USP privilege templates shall quickly and efficiently assign templates to users and user groups. Available USP privilege templates shall include those for a user who is provisioning, supervisor, investigator, operator, and reporting privilege templates.
- F. The USP shall limit what users view in the configuration database via security partitions (database segments). The administrator, who has all rights and privileges, shall segment a system into multiple security partitions.

- G. All entities that are part of the USP can be assigned to one or more partitions.
- H. A user who is given access to a specific partition shall only view entities (components) within the partition assigned. Access to a user is given by assigning the user as an accepted user to view the entities that are members of a particular partition.
- I. A user or user group can be assigned administrator rights over the partition.
- J. It shall specify user and user group privileges on a per partition basis.

#### 2.38 EVENT/ACTION MANAGEMENT

- A. The USP shall configure and manage events for access control and video.
- B. A user shall add, delete, or modify an action to an event with appropriate privileges.
- C. The USP shall receive all incoming events ACS and/or MVS. The USP shall take the appropriate actions based on user-define event/action relationships.
- D. The USP shall view events from multiple access control systems (ACS) and video systems (MVS).
- E. The USP shall support event-to-actions in the form of IO linking; one or more inputs shall trigger one or more outputs.
- F. The USP shall receive and log the following events:
  - 1. System-wide events
  - 2. Application events (clients and servers)
  - 3. Area events
  - 4. Camera events
  - 5. Cardholder events
  - 6. Credential events
  - 7. Unit events
  - 8. Door events
  - 9. Elevator events
  - 10. Zone events
  - 11. Alarm events

12. First Person In and Last Person Out events
  13. Entity about to expire events
  14. Macro events
  15. User events
  16. Antipassback events
  17. Hardware tamper events
- G. The USP shall allow the creation of custom events.
- H. The USP shall execute an action in response to an event for both access control and video. Possible actions include, but are not limited to the following:
1. Display an entity in the Surveillance UI: cardholder, cardholder group, area, camera, door, elevator, map, or zone
  2. Send an email
  3. Email a report
  4. Send a message
  5. Trigger an alarm
  6. Trigger a macro
  7. Sound or silence a buzzer
  8. Play a sound
- I. Access control related actions shall include the following:
1. Forgive antipassback violation.
  2. Reset area people count.
  3. Trigger an output.
- J. Video and camera-related actions shall include the following:
1. Add bookmark.
  2. Go to preset.
  3. Run a pattern.
  4. Start recording.
  5. Stop recording.
  6. Trigger video system macro.

- K. The USP shall allow a schedule to be associated with an action. The action shall be executed only if it is an appropriate action for the current time period.
- L. Scheduled Tasks
  - 1. The USP shall schedule tasks for access control and video.
  - 2. Scheduled tasks shall be executed on a user-defined schedule at a specific day and time. Recurring or periodic scheduled tasks shall be supported.
  - 3. Scheduled tasks shall support all standard actions available within the USP such as sending an email or emailing a report. Refer to the section EVENT/ACTION MANAGEMENT for more information on the Event/Action mechanism.

### 2.39 SOFTWARE DEVELOPMENT KIT (SDK)

- A. Integration with external applications and databases shall be through the use of an SDK. The SDK shall enable end-users to develop new functionality (standalone applications, services) to link the USP to third party business systems and applications such as Badging Systems, Human Resources Management Systems (HRMS) and Enterprise Resource Planning (ERP) systems.
- B. The SDK shall have the following at a minimum:
  - 1. Shall be based on a .NET framework
  - 2. Shall dynamic or transactional update USP configuration
  - 3. Shall change notification of USP entity configuration
- C. The SDK shall provide an extensive list of programming functions to view and configure most USP entity configuration information.
  - 1. Cardholders (create, modify, and delete)
  - 2. Cardholder groups (modify and delete)
  - 3. Credentials (create, modify, and delete)
  - 4. Access Rules (modify)
  - 5. Users (modify)
  - 6. User groups (modify)
  - 7. Visitors (check-in, check-out, modify, and delete)
  - 8. Custom Fields (create, modify, and delete)
  - 9. Custom Events (create, modify, and delete)

10. Alarm (create, modify and delete)
- D. The SDK shall receive real time events from the USP entities:
1. Door Controllers (units)
  2. Input and Output (IO) modules (units)
  3. Doors
  4. Elevators
  5. Areas
  6. Zones
  7. Cameras
  8. Cardholders
  9. Cardholder groups
  10. Credentials
  11. Users
  12. User Groups
- E. The SDK shall query the history of events for:
1. Cardholders
  2. Doors
  3. Areas
  4. Credentials
  5. Zones
  6. Alarms
  7. Visitors
- F. The SDK shall have the following alarm functions:
1. View alarms in real time
  2. Acknowledge alarms
  3. Change priority
  4. Change recipient
- G. IO linking: Receive the state of inputs, and control outputs.

## 2.40 MACROS OR CUSTOM SCRIPTS

- A. The USP shall enable users to automate and extend the functionalities of the system through the use of macros or custom scripts for access control and video.
- B. Macros shall be programmed with the Software Development Kit (SDK) to create sophisticated system behavior. Refer to the section SOFTWARE DEVELOPMENT KIT (SDK)
- C. A macro shall be executed either automatically or manually. In automatic mode, it shall be loaded in a background process and shall execute when a set of conditions are met. Macros shall be loaded into the USP without requiring a system upgrade or re-installation.
- D. In the Surveillance UI, a macro shall be launched through hot actions.

## 2.41 DYNAMIC GRAPHICAL MAPS

- A. The USP shall have Mapping functionality for both access control and video. Digital maps shall be used to represent the physical location of:
  - 1. Cameras
  - 2. Doors
  - 3. Alarms
  - 4. Zones (monitored inputs)
  - 5. Output Groups.
- B. It shall add advanced functionality to dynamic maps using the USP SDK. Any functionality available through the SDK shall be within maps.
- C. Various actions shall be within maps for execution through simple and intuitive double-click, right-click, or drag-and-drop functionality. Examples of actions through maps shall include unlocking a door and acknowledging an alarm.
- D. Mapping shall support the following drag-and-drop user actions
  - 1. Drag-and-drop a door from a map into a display tile for viewing
  - 2. Drag-and-drop a camera from a map into a display tile for viewing
- E. Graphical maps shall be mouse-based contextual pop-ups and associated actions:
  - 1. Over an area, the map shall display number of people in an area (People Counting)
  - 2. Over a door, the map shall unlock the door and override a door's unlocking schedules.

3. Over an output group, the map shall activate/deactivate (trigger) an output
4. Over a zone, the map shall view the status of the associated input(s).

#### 2.42 INCIDENT REPORTS

- A. Incident reports shall allow the security operator to create reports of incidents that occurred during a shift.
- B. Both video-related and access control-related incident reports shall be supported.
- C. The operator shall create standalone incident reports or incident reports tied to alarms.
- D. Incident reports shall allow entities, events and alarms to be added to support the report's conclusions.

### PART 3 - EXECUTION

- 3.1 The contractor shall carefully follow the instructions in the documentation provided by the video management system provider to ensure that all steps have been taken to provide a reliable, easy-to-operate system.
- 3.2 All equipment shall be tested and configured in accordance with instructions provided by the video management system provider prior to installation.
- 3.3 It is the responsibility of the Contractor to provide a system that is fully functional and that meets the intent of the specifications as described herein.

#### 3.4 GENERAL REQUIREMENTS

- A. Installation shall include the delivery, storage, setting in place, fastening to the building structure, interconnection of the system components, adjustment and all other Work, whether or not expressly specified which is necessary to result in a tested and operational system.
- B. All installation practices shall be in accordance with, but not limited to, the plans and specifications. Installation shall be performed in accordance with the applicable standards, requirements and recommendations of the National Electrical Code and any authorities having jurisdiction.
- C. During the installation and up to the date of final acceptance, the Contractor shall protect his finished and unfinished work against damage or loss. In case of such damage or loss, he shall replace or repair such work at no cost to the City of New York.
- D. All equipment shall be firmly secured in place unless requirements of portability dictate otherwise. Fasteners and supports shall be adequate to support their loads with a safety factor of at least three.
- E. All boxes, equipment, etc. shall be plumb and square. The Contractor



must take such precautions that are necessary to prevent and guard against electromagnetic and electrostatic hum, to supply adequate ventilation and to install the equipment to provide reasonable safety for the operator.

- F. In the installation of equipment and cables, considerations shall be given not only to operational efficiency, but also to overall aesthetic factors.
- G. Supply and install all fittings and accessories, whether or not they are specified, required for proper, safe and reliable operation of the system.
- H. No exposed equipment shall be installed without approval of design, finish and mounting details.
- I. All cabling in racks, cabinets and junction boxes shall be neatly strapped, dressed and adequately supported. Cable installation shall conform to good engineering practices and to the standards of the most current National Electrical Code.
- J. Cables shall be terminated with the proper connector required for the associated operation of the equipment to which it is connected. Screw terminal blocks shall be furnished for all cables that interface with racks, cabinets, consoles or equipment modules. Wire shall be interfaced with screw terminal blocks through the use of spade lugs installed on the cable with an installation tool specifically recommended by the manufacturer of the lug. Evidence of the installation of cables without the appropriate connectors, spade lugs and tools shall be sufficient cause for rejection of the work and reinstallation of the cables or wires.
- K. Every cable or wire shall be labeled or coded at each end.

### 3.5 PREPARATION OF SITE

- A. The END-USER is to be a newly constructed facility located within the city limits.

### 3.6 INSTALLATION AND QUALITY CONTROL STANDARDS

- A. A statement of how inspections and quality control procedures will be conducted and records will be kept.

### 3.7 WIRING

- A. All necessary and incidental wiring associated with the installation of the specified system shall be the responsibility of the Contractor.
- B. All 120 VAC sources and connections are the responsibility of the Contractor.
- C. All wiring must conform to the requirements of the latest edition of the National Electrical Code.
- D. Transformers and power supplies shall be identified, along with their cable, at both transformer and load fed end of the cable.

- E. All cabling must be clearly and permanently identified.
- F. Any BNC connectors required must be "crimp-on" style connectors, "screw-on" connectors will not be permitted.

### 3.8 TRADE COORDINATION

- A. Coordination with contractor is required.
- B. Coordination with Network Manager
- C. Coordination with appropriate local authorities (e.g. ain Police and Fire Departments, and utilities).

### 3.9 CONTRACTING

- A. Any contractor use must be reviewed by and accepted by the customer. Contractor use must be specified in the bid response by the Contractor. END-USER will retain the right to refuse any contractor.

### 3.10 SPECIAL EQUIPMENT

- A. The Contractor is responsible for providing all special equipment required to safely install equipment (bucket trucks, lifts, etc.).

### 3.11 HEALTH AND SAFETY

- A. The Contractor must comply with all health and safety requirements of the customer and of the authority having jurisdiction (AHJ).

### 3.12 PROJECT MEETINGS

- A. The contractor must agree to attend Project Meetings on a periodic basic as determined by END-USER the contractor must provide project scheduling with updates throughout the project in a pre-approved scheduling format. Accurate meeting minutes must be kept by the contractor.

### 3.13 PREASSEMBLY AND TESTING

- A. All equipment should be pre-built and tested at the contractor's premises before being delivered to the jobsite. Head-end equipment including control and recording equipment should be programmed, tested and demonstrated to the customer prior to delivery to the site.
- B. Testing and Commissioning
  - 1. Factory Acceptance Testing. Prior to installation, the contractor shall provide a factory acceptance test which includes, at a minimum, the set-up and demonstration of:
    - a. The system server and software.
    - b. Access Control System IP Interface and full complement of door associated equipment including but not limited to:

- (1) All cameras and integration
- (2) Card Reader
- (3) Magnetic Door Contact Switch
- (4) Request-to-Exit Device
- (5) Electromechanical Door Locking Hardware

2. The test must be conducted with the actual equipment purchased for this project.
3. Site Acceptance Testing. It will be the responsibility of the Contractor to verify that all provided and installed systems; software and equipment are installed and are functioning to manufacturer's published specifications and instructions.
4. Before conducting the site acceptance test, the contractor must provide a report to END-USER describing functional tests, diagnostics and calibrations, including written certification that the installed system has been calibrated and tested and is ready to begin the site acceptance test. The contractor must then submit the acceptance test procedures in writing to END-USER for approval prior to conducting the test.

- C. When the system is considered by both the purchaser and the Contractor to be complete, a certificate of completion shall be issued.

### 3.14 OPERATING INSTRUCTIONS

- A. The Contractor shall provide a Minimum of four full sets of operation manuals, operating instructions, descriptive brochures, and technical manuals for all subsystems in the contract.

### 3.15 AS-BUILT DRAWINGS

- A. The Contractor shall be required to provide a full set of as-built drawings depicting wiring and schematic diagrams. As-built drawings must be provided in hard copy as well as AutoCAD format.

### 3.16 TRAINING

- A. A formal training program must be provided by the Contractor for system users and administrators. A course syllabus must be provided prior to the training for review by END-USER staff. Handouts, for future reference, must be provided for all participants. A total of 20 hours of training should be included in the contract in at least 4 sessions of not less than 4 hours each.

### 3.17 PROGRAMMING

- A. The Contractor must provide a full list of all programming activities, including device names, descriptions, timing, and sequence of operations for review by END-USER prior to performing those tasks.

Includes main system and any subsystems.

3.18 UPGRADES

- A. The Contractor shall be required to provide and install all software upgrades that become available during the warranty period at no cost to the purchaser.

END OF SECTION

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VIDEO SURVEILLANCE REMOTE DEVICES AND SENSORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division I Specification Sections of the Contract, apply to this Section.

1.2 RELATED SECTIONS

- A. Division 28 Security
- B. Division 26 Electrical
- C. Division 27 Telecommunications

1.3 QUALIFICATIONS

- A. Provide manufacturer's certificate with bid response proving that the contractors have successfully attended factory sponsored Digital Products and Network training program and they are authorized and certified to purchase, install, program and service the Digital networked video surveillance equipment is to be installed.

1.4 SUMMARY

- A. This Section includes furnishing of equipment and installation of a video surveillance system for the project. The system shall view any camera from any location full screen on any selected monitor through the virtual matrix. Starting or using a new browser window on the system or sub-system is not acceptable. Security monitoring locations will have full control over all cameras functions.
- B. Digital Network Video Recorders, cameras, monitors, mounts housings (both environmental and Indoor/outdoor) servers, analytics, software, interconnections, cabling, pathways and any other equipment that provides a complete and functional systems are to be furnished and installed under this contract.
- C. This contract is for the installation of all cameras, mounts, housings, communications/control wiring and other equipment installed and the necessary conduit and cable from the camera mounting locations to the security equipment room.
- D. All cameras' power supplies are to be mounted within the Security/Telecom Equipment room. The video from the cameras shall be home-run to the

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associated head-end components not to exceed the maximum distance of 90m (300 feet including all patch cables). If the cable distance exceeds the maximum allowable cable distance, amplifiers signal extenders shall be installed to boost the signal to meet the quality standards.

- E. The cable from each camera will terminate on a cabinet mounted in the security equipment room. The security contractor will provide cabinets as described within these specifications and the video/data Modules, rack mount, power supplies and associated equipment.
- F. There shall be a demark location determined by the City of New York where security contractor's conduit ends and others begins. Regardless of where the conduit demark is located it is the security contractors responsibility to complete the connections without cable splices.
- G. The security contractor shall coordinate the communication protocols between the systems and insure the communications between the installed head-end systems and the cameras.
- H. In no case shall any systems be installed that is not pre-approved by the Commissioner, or any systems that are incompatible with new or existing equipment.
- I. The security contractor shall provide all systems parts, pieces, mounts, power supplies, conduit, cable, wire, modules, cabinets, patch panels, servers, switches and other systems components necessary to provide a complete system as called for in these specifications, directions and drawings. All equipment shall be commercial grade and intended for the purpose to be used or installed.

1.5 CAMERA HOUSING COLORS

- A. All colors shall be selected and approved by Commissioner.
- B. Camera mounted to the exterior of the building shall be color matched to the concrete color of the building.
- C. Elevator cameras shall be AXIS M3113-VE or approve equal, color selected by Commissioner.
- D. Surface mounted cameras in cellar shall be black
- E. Trim rings of recessed/flush mount cameras shall be matched to the ceiling installed.
- F. In no case shall any camera be installed, at any location, without housing or trim rings color approved by the Commissioner.

1.6 DEFINITIONS

- A. Video Surveillance System (VSS) also known as Closed-Circuit Television

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(CCTV)

B. Network Video Recorder (NVR)

**1.7 SUBMITTALS**

A. **Product Data:** Include detailed manufacturer's specifications for each component specified. Include data sheets reflecting the model numbers, features, ratings, performance, power requirements, and dimensions.

B. **Shop Drawings:** For Video Surveillance equipment shall include plans, elevations, sections, details, and attachments to other Work.

1. Include dimensioned plan and elevation views of components and enclosures. Show access and workspace requirements. Shop drawings shall include mounting details for all racked equipment. Such details shall include all mounting brackets, hardware, and connections to the building.

2. **Wiring Diagrams:**

a. Power, signal, and control wiring point-to-point diagrams, differentiate between manufacturer-installed and field-installed wiring.

3. It is the contractor's responsibility to submit for approval the complete designed system configuration and layout showing all devices, wiring, conduit, and locations along with other required information as specified herein for the completely integrated system proposed for installation.

C. **Coordination drawings:** Plans drawn to scale and coordinating locations of video surveillance equipment. Shall show the following:

1. Location of items requiring installation coordination including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels, and other architectural features.

D. **Samples:**

1. Provide full size samples of each camera type; finish plate, for colors and textures required.

E. **Product Certificates:**

1. Signed by manufacturer of video surveillance equipment and components certifying that products furnished to the contractor comply with requirements

F. Installer Certificates:

1. Signed by manufacturer certifying that installers comply with manufacturers requirements

G. Field Test Reports:

1. Indicate and interpret test results for compliance with performance requirements of installed systems.

H. Maintenance Data:

1. Maintenance Data for Video Surveillance equipment and components shall be a part of the maintenance manuals specified in Division 1. In addition to requirements specified in Division 1 Section "Contract Closeout," include the following:
  - a. Detailed operating instructions covering operation under both normal and abnormal conditions
  - b. Routine maintenance requirements for system components
  - c. Lists of spare parts and replacement components recommended are to be stored at the site for ready access.

I. Warranties:

1. Special warranties specified in this section.

J. Calculations and Parameters;

1. Contractor shall submit for approval by City of New York's project manager/Commissioner, the calculations used and plans and diagrams for the Field of View calculations for the video surveillance system. Submission as a minimum shall include and address low level lighting. Backlight compensation, and Lens conformance with this specification.

1.8 QUALITY ASSURANCE

A. Installer Qualifications:

1. This project requires an experienced installer with a minimum of five (5) years' experience installing video surveillance equipment and possesses manufacturer's certification, for both installation and maintenance of equipment required for this Project; to supervise installation of the system.

B. Product:

1. Drawings shall indicate size, profiles, and dimensional requirements



of surveillance equipment and are based on the specific system indicated. Other manufacturers' products complying with requirements may be considered. Refer to Division I Section "Substitutions."

C. Electrical Components

1. Devices, and accessories; listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
2. Comply with NFPA 70.
3. Comply with 47 CFR 15, 17, and 76.

1.9 PROJECT CONDITIONS

A. Environmental Limitations:

1. System components shall be equipped and rated for the environments where installed
2. Service conditions for outdoor equipment: Rate equipment for continuous operation under the following environmental conditions, unless otherwise indicated:
  - a. Temperature: Minus 50 deg F to plus 122 deg F.
  - b. Relative Humidity: 5 to 100 percent.
  - c. Weather:
    - (1) Enclosure housings to prevent entry of moisture due to melting ice build-up or driven rain or snow.
3. Service Conditions for Indoor Equipment:
  - a. Rate equipment for continuous operation under the following environmental conditions, unless otherwise indicated:
  - b. Temperature: 32 deg F to 122 deg F.
  - c. Relative Humidity: 0 to 95 percent.

1.10 SYSTEM DESIGN

- A. Scope of work is to install a complete video surveillance security system as described.
- B. The monitoring location will control the camera. Monitoring locations will

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change the viewing screen from a multiplexed view to a single image, if more detail is required. This will be accomplished using a controller.

1.11 COORDINATION

- A. Coordinate layout and installation of video surveillance equipment and suspension system components with hardware installed and in place, including light fixtures, HVAC equipment, fire-suppression-system components, and partition assemblies.
- B. Coordinate all systems head-end equipment prior to installation to insure compatibility. All systems must be pre-approved by Commissioner and City of New York.

1.12 INTELLECTUAL PROPERTY

- A. Patents: Should patented articles, methods, materials apparatus, etc., be used in this work, the contractor shall acquire the right to use same. The contractor shall hold City of New York and its agents harmless for any delay, action, suit, or cost growing out of the patent rights for any device on this project.
- B. Copyrights: Should copyrighted software be used in this work, the contractor shall acquire the right to use same. The contractor shall hold the City of New York and its agents harmless for any delay, action, suit, or cost growing out of the copyrights for any software on this project.
- C. License to use: All software required for the complete operation of the system as specified herein shall be delivered with either full Ownership transferred to the City of New York or a license to use at this site, including the right to make backup copies.

1.13 WARRANTY

- A. Special warranty specified in this article shall not deprive City of New York of other rights City of New York may have under other provisions of the contract documents and shall be in addition to and run concurrent with, other warranties made by contractor under requirements of the contract documents.
  - 1. Special warranty for surveillance system and components: Written warranty, provided by manufacturer and installer agreeing to correct system deficiencies and replace components that fail in materials or workmanship within specified warranty period when installed and used according to manufacturer's written instructions. This warranty shall be in addition to, and not limiting, other rights City of New York may have under other provisions of the contract documents.
  - 2. Special Warranty Period:
    - a. Fixed cameras shall have a two year warranty

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- b. Pan/tilt/zoom units shall have a two year warranty under constant operation
  - c. All other video surveillance equipment shall have a minimum of two year warranty from date of substantial completion or acceptance by the City of New York.
  - d. This section is not to deprive the City of New York of product warranties that extend beyond the periods listed, as in the case with lifetime warranties for some products.
3. Technical Assistance: Video surveillance equipment manufacturer shall provide a 24-hour technical telephone assistance program, including a live person answering the phone and connection to a technical support person specializing in the product.
4. Repairs: Manufacturer shall provide 24-hour repair turn around service on all video equipment.

**PART 2 - PRODUCTS**

2.1 **THIN FILE TRANSISTOR (TFT) LCD MONITOR**

- A. The TFT LCD monitor shall offer the following features: RGB and digital visual interface (DVI) input, looping BNC output, and high definition resolution.
- B. The TFT LCD monitor shall provide a front panel that allows the user to adjust image quality, brightness, size, position, and geometry for optimal viewing.
- C. The TFT LCD monitor shall be constructed of a lightweight aluminum frame composition for desktop or wall-mount installations. Articulating arm wall mounts shall be provided. The monitors shall provide built-in hand holds in the rear cover for easy installation and handling.
- D. The TFT LCD monitor shall be of 1280 x 1024 SXGA native resolutions. The monitor shall be rated and approved for 24/7/365 continuous operation.
- E. The TFT LCD monitor shall meet or exceed the following design and performance specifications.
  - 1. Electrical Specifications
    - a. Input Voltage 100 to 240 VAC, 50/60 Hz
    - b. Power Consumption <50 W
    - c. Video Input Interfaces 2 BNC, looping; 1 S-Video,

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**Bellevue Men's Shelter Elevator Rehabilitation**  
**FMS# HH112BLEL**

- looping; 1 RGB; 1 DVI
- d. Audio Input Interfaces 2 (L/R) RCA, looping; 1 PC
- e. Horizontal Frequency 31 to 80 kHz
- f. Vertical Frequency 56 to 75 Hz
- g. Sync Format NTSC/PAL
- 2. Environmental Specifications
  - a. Operating Temperature 0° to 40°C (32° to 104°F)
  - b. Operating Humidity 20% to 80%, noncondensing
- 3. Mechanical Specifications
  - a. Native Resolution 1280 x 1024 SXGA
  - b. Panel Aspect Ratio 5:4
  - c. Brightness 450 cd/m<sup>2</sup>
  - d. Contrast Ratio 1000:1
  - e. Backlight Type 4 CCFL
  - f. Panel Life 50,000 hours
  - g. Viewing Angle (H/V) 160°/160°
  - h. Displayable Colors 16.7 million
  - i. Tilt 0° to 30°
  - j. Speakers Integrated, 2 x 2 W
  - k. Front Panel Controls Power, source/enter, menu/exit, iup/down, vol ±
  - l. Indicators LED (power off/on)
- 4. Certifications
  - a. FCC, Class B
  - b. UL/cUL Listed
  - c. C-Tick

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- d. S-Mark
- e. CCC
- f. GOST-R

F. Warranty

- 1. 36 months, parts and labor

2.2 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with, requirements, manufacturers offering products that may be incorporated into the work include, but are not limited to, those described below.

2.3 VIDEO SURVEILLANCE SYSTEM

- A. Components: Modular plug-in, heavy-duty, industrial, or commercial-grade units.
- B. Equipment; Silicon-based, solid-state, integrated circuit devices
- C. Power Supply Characteristics: Devices shall be within specified parameters for supply voltages within the range of 105 to 130 VAC.
- D. Protect signal cables and connected components against transient-voltage surges by suppressors and absorbers designed specifically for the purpose.
- E. RF and Video Impedance Matching: Signal-handling components, including connecting cable, shall have end-to-end impedance-matched signal paths. Match and balance devices used at connections where it is impossible to avoid impedance mismatch or mismatch of balanced circuits to unbalanced circuits.

2.4 VIDEO SURVEILLANCE EQUIPMENT

- A. Description: Video cameras, camera outlets, camera controls, signal-processing equipment, distribution components, and accessories to generate video images, process them, and distribute them. System shall display images on monitors, record/store them, recall, filter, search and provide for remote control of video-camera equipment.
- B. It is the contractor's responsibility to submit for approval the complete designed system configuration and layout showing all devices, wiring, conduct, and locations along with other required information as specified herein for the completely integrated system proposed for installation.

2.5 VIDEO SURVEILLANCE COMPONENTS

- A. Color high resolution integrated cameras shall provide for video coverage of areas shown on the drawings. The cameras shall mount in an exterior or interior environment and shall meet or exceed the following specifications:

2.6 FIXED NETWORK CAMERA SPECIFICATIONS

2.7 WV-SW115 Super Dynamic HD vandal resistant wall mounted camera

- A. The camera shall:
1. 720p HD images up to 30 fps.
  2. 1.3 Megapixel high sensitivity MOS Sensor.
  3. Multiple H.264 (High profile) streams and JPEG streams ensure simultaneous real time monitoring and high resolution recording by "UniPhier", Panasonic's proprietary System LSI platform.
  4. Full frame (Up to 30 fps) transmission at 1,280 x 960 image size.
  5. Super Dynamic and ABS (Adaptive Black Stretch) technologies deliver 128x wider dynamic range compared to conventional cameras.
  6. Face Super Dynamic technology ensures clear face image.
  7. High sensitivity with Day & Night (Electrical) function:
    - a. 0.8 lx (Color), 0.6 lx (BIW) at F2.2
  8. VIQS (Variable Image Quality on Specified area) technology allows the designated area to retain higher image quality while the excluded area will have a decreased image quality, which enables to use lower image file size and bit rate.
  9. Digital Noise Reduction: 3D-DNR ensures noise reduction in various conditions.
  10. Progressive scan ensures clear images with less motion blur and no tearing even when the subject is moving.
  11. Electronic sensitivity enhancement: Auto (Up to 16x)/OFF.
  12. Selectable light control modes: Indoor scene (50 Hz) / Indoor scene (60 Hz) / ELC (maximum exposure time). Indoor scene (50 HZ/60Hz): Flicker caused by fluorescent lightning will be automatically compensated. ELC (maximum exposure time): The lightning control will be automatically performed by adjusting shutter speed in the range of ELC.

13. 2x extra zoom at VGA resolution.
14. 2x, 4x digital zoom controlled by browser.
15. VMD (Video Motion Detection) with 4 programmable detection areas, 15 steps sensitivity level and 10 steps detection size
16. Privacy Zone can mask up to 2 private areas, such as house windows and entrances/exits.
17. Camera title display: Up to 20 alphanumeric characters on the browser.
18. Alarm sources including VMD and Panasonic alarm command can trigger actions such as FTP image transfer, E-mail notification, Indication on browser, and Panasonic alarm protocol output.
19. JPEG Image compression ratio can be changed by alarm so that higher quality image can be provided.
20. Prioritized stream control: One of the video streams can be prioritized when multiple recorders or client PCs are accessing the camera so that the recorder or the client PC can maintain the frame rate.
21. SDHC/SD Memory card slot for manual recording (H.264 / JPEG), alarm recording (H.264 / JPEG) and backup upon network failure (JPEG).
22. H.264 max. bit rate/client and Total bit rate control allows flexible network traffic management. Frame rate priority mode controls bit rate and compression ratio to provide the specified frame rate.
23. Internet mode: H.264 images can be transmitted over HTTP protocol.
24. Multi-language: English / Italian / French / German / Spanish / Russian / Chinese / Japanese.
25. IPv4/IPv6 protocol supported.
26. Supports SSL, DDNS (viewnetcam, RFC2136).
27. Still images (JPEG) can be viewed on mobile phones via Internet.
28. Onvif compliant model.
29. Low profile design for discrete installation.
30. "Railway applications - Electronics equipment used on rolling stock" compatible with EN50155.

31. Wide coverage (Horizontal: 104°, Vertical: 85 0).
32. IP66 rated water and dust resistant. Compatible with IEC60529 measurement standard.
33. Vandal resistant mechanism for high reliability.

2.8 IP OVER COAX TRANCEIVER SPECIFICATIONS

2.9 ALTRONIX EBRIDGE 1PCTX

A. The IP over coax transceiver specifications:

1. Input
  - a. Powered by eBridge receiver.
2. Power Consumption (under maximum load)
  - a. Powered by eBridge receiver.
3. Ethernet
  - a. Connectivity: RJ45, auto-crossover.
  - b. Wire type: 4-pair CAT5 or better structured cable.
  - c. Distance: up to 100m.
  - d. • Speed: 10/100BaseT, half/full duplex, auto negotiation. PoE compliant to IEEE 802.3af (15W) and PoE+ compliant to IEEE 802.3at (30W) delivered to camera by eBridge1PCTX. Power provided by eBridge Plus receivers to eBridge1PCTX by PoE protocol.
  - e. Throughput is rated to pass 25mbps of data at distances up to 457m with proper headend equipment which supports Megapixel, HD720, HD1080.
4. Coax
  - a. Distance: up to 457m for power delivery of coax.
  - b. Connectivity: BNC, RG-59/U or similar.
5. LED Indicators
  - a. Blue LED - Coax link connection.
  - b. Green LED - PoE from eBridge1PCRX.



6. Environmental
  - a. Operating Temperature:
    - (1)  $-4^{\circ}\text{F}$  to  $120.2^{\circ}\text{F}$  ( $-20^{\circ}\text{C}$  to  $+49^{\circ}\text{C}$ ).
  - b. Storage Temperature:
    - (1)  $-22^{\circ}$  to  $158^{\circ}\text{F}$  ( $-30^{\circ}$  to  $+70^{\circ}\text{C}$ ).
  - c. Humidity: 20 to 85%, non-condensing.
7. Electrical
  - a. BTU/Hr.:
    - (1) - 24VDC: 12.28 BTU/Hr.
    - (2) - 24VAC: 11.1 BTU/Hr.
8. Functions
  - a. Auto detection and protection of legacy non-PoE cameras/devices.
9. Applications
  - a. Retrofit digital IP cameras in an analog CCTV installation.
  - b. Works with Megapixel, HD720, HD1080 and VGA (SD) cameras.
  - c. Extend Network link distance in an industrial environment over 61 Om.
  - d. Upgrade deployed CCTV Coax to a digital network in Retail, Hospitality, Arenas, Casinos, Airports, Schools, Hospitals, Transportation, etc.
10. Mechanical
  - a. Dimensions (W x L x H approx.):
    - (1) 2.5" x 4.375" x 1" (63.5mm x 111.125mm x 25.4mm).
  - b. Product Weight: 0.211bs (0.09 kg).
    - (1) Shipping Weight: 1 lbs (0.45 kg).

2.10 IP OVER COAX RECEIVER SPECIFICATIONS

2.11 ALTRONIX EBRIDGE 1PCR

- A. The IP over coax transceiver specifications:
1. Input
    - a. 24VDC to 56VDC Class 2 power supply (polarity observed).
  2. Power Consumption (under maximum load)
    - a. 24VDC/1,500mA, 56VDC/900mA.
  3. Ethernet
    - a. Connectivity: RJ45, auto-crossover.
    - b. Wire type: 4-pair CAT5 or better structured cable.
    - c. Distance: up to 100m.
    - d. Speed: 10/100BaseT, half/full duplex, auto negotiation.
      - (1) PoE compliant to IEEE 802.3af (15W) and PoE+ compliant to IEEE 802.3at (30W) delivered to camera by eBridge transceiver.
    - e. Throughput is rated to pass 25mbps of data at distances up to 457m with proper headend equipment which supports Megapixel, HD720, HD1080.
  4. Coax
    - a. Distance: up to 457m for power delivery of coax.
    - b. Connectivity: BNC, RG-59/U or similar.
  5. LED Indicators
    - a. Blue - Coax link connection.
    - b. Green - PoE ON. Green - Power ON.
    - c. Yellow and Green - (RJ45) IP Link status, 10/100Base-T/active.
  6. Environmental
    - a. Operating Temperature:
      - (1) 15W: -4°F to 113°F (-20°C to +45°C).

(2) 30W for 24VDC: -4°F to 98.6°F (-20°C to +37°C).

(3) 30W for 48VDC: -4°F to 113°F (-20°C to +45°C).

7. Electrical

a. BTU/Hr.:

(1) - 24VDC: 18.43 BTU/Hr.

(2) - 56VDC: 25.8 BTU/Hr.

8. Functions

a. Auto detection and protection of legacy non-PoE cameras/devices.

9. Applications

a. Retrofit digital IP cameras in an analog CCTV installation.

b. Works with Megapixel, HD720, HD1080 and VGA (SD) cameras.

c. Extend Network link distance in an industrial environment.

d. Upgrade deployed CCTV Coax to a digital network in Retail, Hospitality, Arenas, Casinos, Airports, Schools, Hospitals, Transportation, etc.

10. Accessories

a. Input (Power):

(1) NetWayID: 56VDC Power Supply provides Class 2 power-limited output rated @ 56VDC/60W.

(2) Transceivers:

(a) eBridgelPCT: Single port ethernet/PoE transceiver.

(b) eBridgelPCTX: Single port ethernet/PoE or PoE+ transceiver.

11. Mechanical

a. Dimensions (W x L x H approx.):

(1) 3.5" x 4.375" x 1" (88.89mm x 111.125mm x 25.4mm)

- b. Product Weight: 0.275 lbs (0.125 kg).
- c. Shipping Weight: 1 lbs (0.45 kg).

**2.12 EQUIPMENT CABINETS/SHELVES**

**A. Equipment Cabinets**

1. Cabinet shall be constructed of high strength anodized aluminum extrusion and sheet aluminum. They shall have 84" height (without leveling feet or casters), 27.32" overall width and 33.62" overall depth. Cabinets shall have all assembly hardware, multi-bay attachment hardware kit, set of four leveling feet, floor anchor clamps and 12-24 mounting screws or multi-mount kit with 12-24 and M-6 screws and cage nuts (as appropriate) included in the packaging. Cabinet shall be UL-Listed for Standard 1863 – Telecommunications Circuit Accessory.
2. Cabinet rails shall be included and shall be made of aluminum channel extrusion (1.265" x 1.5") (32.1mm x 38.1mm) and shall have 12-24 rolled-formed mounting holes in a 5/8"-5/8"-1/2" (15.9mm-15.9mm-12.7mm) EIA-310-D universal hole spacing providing 45 rack spaces. Multi-mount rail option shall be made of steel with square punched holes for cage nuts in a 5/8"-5/8"-1/2" (15.9mm-15.9mm-12.7mm) EIA-310-D universal hole spacing providing 25 rack spaces. Rails shall be spaced to allow 19" (482.6mm) EIA rack mounting width and shall be full adjustable front to rear using pre-installed bolts. Cabinets shall allow 3" of clearance outside of the rail mounting area for cable management; one pair of vertical cabling ring sections shall be included.
3. Side panels shall be made of strong, lightweight aluminum and shall be removable.
4. Front door shall be of Plexiglas and rear door shall be of aluminum; both doors shall be removable and reversible.
5. Top panel shall have ceiling vents and six edge-protected cable access ports with removable covers.
6. MegaFrame Fan Kit shall consist of two fans in a housing designed for internal mounting to the MegaFrame Cabinet to exhaust warm air out the top. Each fan shall be rated at 105 CFM and 38SIL db in free air at 60Hz, 115V, 15W and 0.20A (115VAC). Fan Kit shall provide 400 CFM. Housing shall be black.
7. Kit shall include 15" long power cord with North American standard 3-prong 15 Amp plug and mounting hardware into the top. Design Make: Chatsworth Products, Inc. (CPI), MegaFrame Cooling Fan Kit (115 VAC)

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8. Design Make: Chatsworth Products, Inc. (CPI), MegaFrame Top Panel (Black) or approved equal.
9. Finish shall be epoxy-polyester hybrid powder coat in the color as specified below.
  - a. Cabinet shall be either fully assembled or in a partially assembled (knocked down) version, as specified below.
  - b. Load bearing shall be rated at 1600 pounds (free standing) or 1000 pounds (with casters installed).

**B. MANUFACTURER**

1. EIA compliant 19" gangable equipment rack shall be Middle Atlantic Products model MRK-4436-NVR, Hubbel model H2N8436Z4 or approved equal.

**C. ENCLOSURES**

1. Useable height shall be 44 rackspaces, useable depth shall be 36".
2. Fully welded construction shall provide a static capacity of 10,000 lbs. and a UL Listed load capacity of 2,500 lbs.
3. Overall dimensions of rack shall be 83-1/8" H x 22" W x 36" D
4. Useable height shall be 44 rack spaces, useable depth shall be 33.60".
5. Fully welded construction shall provide a static capacity of 10,000 lbs. and a UL Listed load capacity of 2,500 lbs.
6. Rack shall be constructed of the following materials:
  - a. Top and bottom shall be 14-gauge steel, horizontal braces shall be 16-gauge steel, perforated vented front door shall be 18-gauge steel and all structural elements shall be finished in a durable black powder coat.
  - b. Rack shall include a locking, latching rear door.
  - c. Rack shall come equipped with two pairs of 11-gauge steel rackrail with tapped mounting holes in universal EIA spacing, black e-coat finish and numbered rackspaces.
  - d. Rack shall include 100 qty. 10-32 mounting screws
  - e. Rack shall be equipped with one vertical lacer strip. The LACE-44-OP is 3-1/4" wide and the useable height is 44 rackspaces.

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- f. Rack shall also include four 'L' shaped straight and two 4" offset horizontal lacer bars and twelve, 8" Velcro® straps for cable management.
- g. Models intended for ganging shall include ganging hardware for multi-bay installations.
- h. Rack shall have removable split rear knockout panels with 1/2", 3/4", 1" and 1-1/2" electrical knockouts and top BNC knockouts for UHF/VHF antennae.
- i. Grounding and bonding stud shall be 1/4-20 threaded, installed in base of enclosure.
- j. MRK Series enclosures shall satisfy the 2007 & 2010 CBC; 2006, 2009 & 2012 IBC; ASCE 7-05 (2005 Edition) & ASCE 7-10 (2010 Edition) and the 2006 & 2009 editions of NFPA 5000 for use in areas of high seismicity, Seismic Use Group III, Zone 4 or Seismic Design Category (SDC) "D" with lateral force requirements for protecting 1,050 lbs. of essential equipment in locations with the highest level of seismicity and top floor or rooftop installations with an Importance factor (Ip) of 1.5 when used with MRK-Z4 seismic floor anchor bracket.
- k. Rack shall include a high-density thin power distribution and shall be with 20 outlets and 20 amps.
- l. Thin power distribution shall be 72-3/4" long x 1" deep x 1.9" wide. J-Box shall be 2" deep x 2" wide. Thin power distribution shall feature 20 NEMA 5-20R outlets.
- m. Corded power strip includes 20 amp protection and mounting hardware. Corded model shall be terminated with 10 foot power cord and NEMA 5-20P plug. PDT Series shall feature a black anodized finish.
- n. MRK Series shall be UL Listed in the US and Canada.
- o. The unit shall be GREENGUARD Indoor Air Quality Certified for Children and Schools. It shall be RoHS EU Directive 2002/95/EC compliant.
- p. Shall be manufactured by an ISO 9001 and ISO 14001 registered company.
- q. MRK enclosure shall be warrantied to be free from defects in material or workmanship under normal use and conditions for the lifetime of the rack.

7. Features

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- a. Front doors shall be reinforced 16-gauge steel, VFD-x (vented, 25% open area)
- b. Vented rear doors shall be 16-gauge steel
- c. Removable keylocked side panels
- d. Top panels shall be 16-gauge steel, including four 4-1/2" fans
- e. Rail bracket adapters shall allow for mounting of panels vertically between rackrail brackets.

**2.13 19" RACKMOUNT LCD MONITOR, KEYBOARD WITH INTEGRATED TOUCHPAD**

- A. EIA compliant 19" rack mount LCD monitor, keyboard with integrated touchpad shall be Middle Atlantic
- B. Products part # RM-KB-LCD17 and shall occupy 1 rackspace. Overall dimensions shall be 1.75" H x 19" W x 22" D. RM-KB-LCD17 shall have a rail to rail mounting range of 18.25" to 27.75".
- C. The chassis shall be constructed of 16-gauge and 18-gauge steel.
- D. Keyboard shall have a standard 105 key PS/2 keyboard with integrated touchpad. LCD display size shall be 17" diagonal with a resolution of 1280 x 1024. Screen shall have a typical contrast ratio of 350:1.
- E. Power source shall be 50/60 Hz, 120 - 240V AC with a power consumption of 25 watts. Included power cord shall be provided with a NEMA 5-15P plug.
- F. Keyboard with LCD display shall have an operating range of 32°F - 122°F. RM-KB-RM-KB-LCD17X8KVM shall include KVM switch with 4 ports.
- G. Keyboard with LCD display shall comply with part 15 of the FCC rules and comply with CE regulation EN 55 022: Class B.
- H. Finished in a black powder coat
- I. Rack mount LCD monitor and keyboard with integrated touchpad shall be GREENGUARD Indoor Air Quality Certified for Children and Schools.
- J. Rack mount LCD monitor and keyboard with integrated touchpad shall be RoHS EU Directive 2002/95/EC compliant.
- K. Rack mount LCD monitor and keyboard with integrated touchpad shall be manufactured by an ISO 9001 registered company.
- L. Rack mount LCD monitor and keyboard with integrated touchpad shall be

warrantied to be free from defects in parts or materials under normal use and conditions for a period of 1 year.

**2.14 RACKMOUNT UNINTERRUPTIBLE POWER SUPPLY (UPS)**

- A. Rackmount Uninterruptible Power Supply (UPS) shall be Middle Atlantic Products model number determined by contractor.
- B. UPS shall be line interactive with AVR.
- C. Unit shall measure 19.00" W x 3.50" H x 19.00" D and occupy 2 rackspaces.
- D. UPS shall have a rear mounting range of 19" to 32" and not require more than one person to mount.
- E. Unit shall operate on 120 VAC/60Hz current. Unit shall have a nominal output of 120V.
- F. Unit shall have a capacity to support all security system active electronics for a minimum of 60 minutes at 50% of load, until emergency generators start. Units shall protect the systems from any surges or voltage drops. Units shall prevent the electronics from re-booting.
- G. Unit shall have a minimum of (8) NEMA receptacles on the rear of the unit.
- H. Unit shall have a priority outlet bank consisting of 4 outlets dedicated to ensure maximum run time of critical components. Unit shall have a non-critical outlet bank consisting of 4 outlets dedicated to load shedding, and individual outlet control.
- I. Unit shall be IP enabled, when used with IP Expansion card UPS-IPCARD.
- J. Rack mount UPS shall include a 9' SignalSafe™ power cord with NEMA plug.
- K. UPS shall have surge suppression that utilizes a clean line-to-neutral design that does not pass noise contamination to ground.
- L. Rack mount UPS shall have a hot swappable battery that allows for a 15 minute run time at half load and a 15 minute run time at full load.
- M. Rear of unit shall have inputs that allow for the installation of up to 10 additional hot swappable batteries.
- N. Rack mount UPS shall be RoHS EU Directive 2002/95/EC compliant.
- O. Rack mount UPS shall utilize Middle Atlantic Power Manager™ software.
- P. Rack mount UPS shall be warrantied to be free from defects in materials and workmanship under normal use and conditions for a period of 3 years;

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battery shall be warranted for a period of 2 years.

Q. Rack mount UPS shall be UL listed in US and Canada.

R. UPS-IPCARD

1. Web based control shall be enabled on non-internet enabled Middle Atlantic Products UPS by UPS-IPCARD, which shall be installed into the Expansion Port on the rear of the UPS. This shall be compatible with UPS firmware v1.65 or greater, and provide full functionality when used on models with firmware v1.75 or greater.

S. Expansion Battery

1. Rack mount expansion battery pack shall be Middle Atlantic Products.
2. Expansion battery pack shall be with the UPS system.
3. UPS shall measure 19.00" W x 3.50" H x 19.29" D and occupy 2 rack spaces.
4. UPS-EBPR shall require 22.66" useable depth. With hot swappable batteries connected to the unit, there is a 30-minute run time at half load and a 15 minute run time at full load.
5. Rack mount expansion battery pack shall be warranted for a period of 2 years.

T. Replacement Battery

1. Replacement Battery Pack for the UPS. Replacement battery pack shall be suitable for use with the UPS system.
2. Replacement battery shall be warranted to be free from defects in materials and workmanship under normal use and conditions for a period of 2 years.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine pathway elements intended for cable. Check raceways, cables trays, and other elements for compliance with space allocations, installation tolerances, hazards to cable installation, and other conditions affecting installation.
- B. Examine walls and locations for suitably conditions where video surveillance equipment is to be installed.

- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. The Contractor shall carefully follow instructions in documentation provided by the manufacturer to insure all steps have been taken to provide a reliable, easy-to-operate system.
- B. All equipment shall be tested and configured in accordance with instructions provided by the manufacturer prior to installation.
- C. All firmware found in products shall be the latest and most up-to-date provided by the manufacturer, or of a version as specified by the provider of the Video Management Application (VMA) or Network Video Recorder (NVR).
- D. All equipment requiring users to log on using a password shall be configured with user/site-specific password/passwords. No system/product default passwords shall be allowed.
- E. It is the intent of the City of New York to utilize the cabling and wiring installed for this project, testing is required prior to the installation of any equipment for proper cable structure and functionality. All testing must be recorded and provided to the City of New York's project manager for approval of wire usage.
- F. Outdoor Installation: Comply with ANSI C2, "National Electrical Safety Code."
- G. Install surge suppressors where integral surge suppressors specified in UL 1449 do not protect ac-power-operated devices against voltage transients. Install surge suppressors at the devices' power-line terminals.
- H. No product shall be installed, provided, submitted, or designed into the system that is nearing its end of life (EOL). Only the most current products shall be provided, installed or submitted at time of installation that meets the specifications, regardless of the specified products.
- I. Wiring Method:
  - 1. Install all wiring in conduit as otherwise indicated. No Cable splices will be permitted.
- J. Wiring within Enclosures:
  - 1. Bundle, lace, and train conductors to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Provide and use lacing bars and distribution spools.
- K. Pulling Cable:

1. Do not exceed manufacturers recommended pulling tensions. Do not install bruised, kinked, scored, deformed, or abraded cable.
2. Do not splice cable between termination, tap, or junction points.
3. Remove and discard cable if damaged during installation and replace it with new cable.

**L. Exposed Cable:**

1. Install parallel to building lines, follow surface contours, and support the cable according to manufacturer's written instructions.
2. Do not run adjacent and parallel to power or data cables.
3. All Cable is to be protected in Raceway, cabinets and boxes exposed cabling is not allowed.

**M. Equalizing Video Signals:**

1. Where system performance may be degraded in certain operating modes, revise component connections and install video distribution amplifiers and attenuators as required providing a balanced signal across the system.

**N. Splices, Taps, and Attenuations:**

1. For power and control wiring, use numbered terminal strips in junction, pull, and outlet boxes; terminal cabinets; and equipment enclosures.
2. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

**O. Grounding: Provide independent signal circuit grounding recommended by manufacturer.**

**3.3 VIDEO SURVEILLANCE SYSTEM INSTALLATION**

- A. Install cameras at locations and heights as indicated on the drawing. Change type of mounting to achieve required clearance.
- B. Install power supplies and other auxiliary components in rooms as shown on drawings. Do not install such items near the devices they serve, unless otherwise indicated.
- C. Contractor shall determine in the field exact cable requirements needed to meet cable length and voltage drop requirements. Voltage drop shall not exceed manufacturer's recommendations.

3.4 CABLING REQUIREMENTS

- A. Requirements shall meet the printed documentation of the manufacturer for power and video distribution.

3.5 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminal; according to Division 26.

3.6 FIELD QUALITY CONTROL

A. Manufacturer's Field Service:

1. Engage a factory-authorized service representative to inspect field-assembled components and equipment installation and supervise pre-testing, testing, and adjusting of television equipment.

B. Inspection:

1. Verify that units and controls are properly installed, connected, and labeled and that interconnecting wires and terminals are identified.

C. Pre-testing:

1. Align and adjust system and pretest components, wiring, and functions to verify that they comply with specified requirements. Replace malfunctioning or damaged items. Retest until satisfactory performance and conditions are achieved. Prepare television equipment for acceptance and operational testing as follows:

- a. Video Sources: Connect the receiver to the output of each video signal source, or the distribution amplifier associated with it.

D. Test Schedule:

1. Schedule tests after pre-testing has successfully been completed and system has been in normal functional operation for at least 14 days. Provide a minimum of (11) days' notice of test schedule.

E. Operational Tests:

1. Perform operational system tests to verify that system complies with Specifications. Include all modes of system operation. Test equipment for proper operation in all functional modes.

F. Video Surveillance Camera Location Test:

1. Temporarily support each camera at the indicated location and connect to monitor. Adjust camera location and mounting and

substitute fixed lenses to provide required performance at monitor.  
Adjust locations within 15 feet of those indicated.

- G. Record test results.
- H. Retest; Correct deficiencies identified by tests and observations and retest until specified requirements are met.

**3.7 CLEANING**

- A. Clean installed items using methods and materials recommended by manufacturer.
- B. Clean video surveillance system components, including camera-housing windows, lenses, and monitor screens.

**3.8 DEMONSTRATION**

- A. Engage a factory-authorized service representative to train City of New York's maintenance personnel to adjust, operate, and maintain television equipment.
  - 1. Train City of New York's maintenance personnel on procedures and schedules for troubleshooting, servicing, and maintaining equipment.
  - 2. Demonstrate methods of determining optimum alignment and adjustment of components and settings for system controls.
  - 3. Review data in maintenance manuals. Refer to Division 1 Section 'Contract Closeout.'
  - 4. Scheduled training with City of New York, through Commissioner, with at least seven days advance notice. Contractor shall provide a minimum of 8 hours of in-service training with this system. These sessions shall be broken into segments, which will facilitate the training of individuals in the operation of this system. Operators' Manual and Users Guides shall be provided at the time of this training.

**3.9 ON-SITE ASSISTANCE**

- A. Occupancy Adjustments: When requested by City of New York within one year of date of Substantial Completion, provide on-site assistance in tuning and adjusting the system to suit actual occupied conditions and to optimize performance. Provide up to two adjustments at Project site for this purpose, without additional cost.

END OF SECTION

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SECTION 28 51 00

SECURITY COMMUNICATION SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

- A. It is the intent of these specifications to provide a complete workable electronic security communication system ready for the City of New York's use. Any item not specifically shown on the drawings or called for in the specifications, but normally required to conform to the intent, are to be considered as part of the contract.
- B. Any given item of equipment or material shall be the product of one manufacturer throughout the facility. Multiple manufacturers of any one item shall not be permitted, unless specifically noted otherwise.
- C. These specifications are equipment and performance specifications. Actual installation shall be as indicated on the manufacturers drawings. Any discrepancies found between the Specification and the drawing shall be immediately brought to the attention of the City of New York. Installation and details, indicated on the drawings, shall govern if they differ from the specifications.

1.2 Applicable Sections

- A. Some paragraphs of this specification have been relocated to section 13700 General Conditions, all sections of the security specifications shall apply as though they were contained herein.
- B. Work Provided By Contractor:
  - 1. The scope of work provided by contractor includes but not limited to: furnishing and installation of conduits, back boxes, cabling and all miscellaneous hardware (whether specified or not) (e.g. nuts, bolts, tie wraps, fasteners, etc.) for all security communication devices in locations shown on Commissioner drawings and/or called for whether in specifications, or contract, or Request For Proposal (RFP), or other documents specifying the scope of work.
  - 2. Contractor shall provide dedicated power outlets or J-boxes at locations shown on the Commissioner drawings. Engineering drawings this is to include but not limited to, security, electrical and architectural documentation.
  - 3. Contractor shall provide conduits, conduit stub-ups and boxes for all

security communication device locations in accordance with drawings and specifications.

4. Contractor shall provide power connections from the power outlets to the security communication equipment panels.
5. The scope of work provided by contractor includes grounding. Electrical contractor shall connect security communication panels to the grounding system in accordance with applicable codes and regulations.
6. Contractor shall coordinate locations of electrical boxes and conduit routes with Commissioner and other trades.

C. **Work Provided By Other Trades:**

1. Operating temperature and humidity shall be provided in accordance with environmental requirements of each product's specifications as call out by the manufacture.
2. All other systems such as Access Control, video surveillance etc. shall provide all necessary cabling and equipment (relay modules, dry contacts etc.) for interface with security communication system as called for in Commissioner drawings and specifications.

1.3 **SUBMITTALS**

- A. Submit shop drawings, wire markings, all manufacturer's data, samples and test procedure and reports as called for hereinafter. All submissions to be in English Language. All submittals require the approval of City of New York/Commissioner.
- B. Submit a single guarantee stating that all parts of the work are in accordance with contract requirements. Guarantee work against faulty and improper material and workmanship for a period of one (1) year from date of final acceptance by the City of New York, except that where guarantees or warranties for longer terms are specified herein, such longer term to apply. Within 24 hours after notification, correct any deficiencies, which occur during the guarantee period at no additional cost to the City of New York, to the satisfaction of the City of New York and Commissioner. Obtain similar guarantees from contractors, manufacturers, suppliers and sub-trade specialists, if any.
- C. Indemnify the City of New York and the Commissioner against loss, liability, damage or expense, including attorneys' fees, in connection with any claim resulting from damage, which may be asserted by any third party.



1.4 CITY OF NEW YORK'S MANUALS

A. General

1. Submit 2 draft copies of City of New York's manuals for review. After review by authorized representative, the contractor shall incorporate review comments and submit 6 final copies.
2. Update manuals with modifications made to system during guarantee period. Provide replacement pages or supplements in quantity stated above.
3. Assemble City of New York's manuals into multi-volume sets as necessary and required by the City of New York.
4. Protect each volume with a heavy-duty vinyl plastic binder. Volumes to have plastic printed dividers between major sections and have oversized binders to accommodate up to 2 inch thick set of additional information.
5. Each binder to be silk-screened with project name and volume title on front cover and binder.
6. On the first page of each manual identify with project name, manual title, City of New York's name, engineer's name, contractor's name, address and service phone number, and person who prepared manual.

B. Operating manual to serve as training and reference manual for all aspects of day-to-day operation of the system. As a minimum include the following:

1. Sequence of operation for on-line and off-line operating modes. The sequences shall cross-reference the system point names.
2. System manufacturers complete operating manuals.

C. Provide maintenance manual to serve as training and reference manual for all aspects of day-to-day maintenance and major system repairs. As a minimum include the following:

1. Complete as-built installation drawings for each system.
2. Overall system electrical power supply scheme indicating source of electrical power for each system component. Indicate which components are on emergency power and indicate all battery backup provisions.
3. Overall system shielding and grounding scheme indicating all major components and ground paths.

4. Photographs and drawings showing installation details and locations of equipment.
  5. Routine preventive maintenance procedures, corrective diagnostic troubleshooting procedures, and calibration procedures.
  6. Parts list with manufacturer's catalog numbers and ordering information.
  7. Lists of ordinary and special tools, operating materials supplies and test equipment recommended for operation and servicing.
  8. Manufacturer's operating set up, maintenance and catalog literature for each piece of equipment.
  9. Maintenance and repair instructions.
  10. Recommended spare parts.
  11. Field test reports.
- D. Provide Programming Manual to serve as training and reference manual for all aspects of system programming. As a minimum include the following:
1. Complete programming/troubleshooting manuals, and reference guides.
  2. Point schedule.
  3. Software troubleshooting procedures.

1.5 WORK PERFORMANCE SCHEDULE

- A. A time-phased schedule for delivery, installation, and acceptance of components for the complete system shall be prepared. Submit this schedule to the City of New York within thirty (30) days after award of contract. Submit updates and changes to this schedule promptly to the City of New York.
- B. Approval of the City of New York/Commissioner is required.

1.6 MAINTENANCE

- A. Submit an alternate price to perform complete preventative and emergency maintenance of the electronic security communication system in accordance with the contractor's recommended standards and schedule. This price shall be itemized to show material costs and labor costs. This price shall be based upon work being executed during normal working

hours but shall include separate emergency call out provisions. Labor, project management, engineering categories must be broken out separately with hourly rates shown. Prices submitted should be based upon current price lists and labor rates, details of which shall be included with the bid.

- B. The maintenance agreement shall indicate one two-year term with three possible one-year extensions, shall state that the response time shall be 24 hours from call by customer. The annual price shall be negotiated 3 months in advance of annual contract expiry and shall be at the mutual agreement of both parties. Variation in annual prices shall reflect only changes in material and labor costs as substantiated by Federal Guideline Consumer Price Indexes.
- C. Notice to terminate the contract will be given by City of New York in 30 days prior to termination. Selling of the contract to new maintenance company must be approved by City of New York.

1.7 QUALITY ASSURANCE

- A. Comply with current governing codes, ordinances and regulations and all other applicable codes.
- B. Comply with the requirements of agencies or authorities having jurisdiction over any part of the work and secure all necessary permits.
- C. The products shall be compliant with test reports, such as ISO-9001, ISO-9014, UL1950 or CE conforming to the rigid EMC requirements for electromagnetic emissions, immunity and harmonics where applicable.
- D. Where codes or standards are listed herein, the applicable portions apply.
- E. Plans, specifications, codes and standards are minimum requirements. Where requirements differ, apply the more stringent.
- F. Should any change in plans or specifications be required to comply with governing regulations, notify the Commissioner at the time of submitting the bid.
- G. Execute work in strict accordance with the best practices of the trades in a thorough, substantial, workmanlike manner by competent workmen. Provide a competent, experienced full-time Superintendent who is authorized to make decisions on behalf of the contractor.
- H. **Manufacturer Qualifications:** The Manufacturer or Supplier fabricating the material or equipment described in this Section must, within the last five (5) consecutive years, have successfully completed in a timely fashion at least two (2) projects similar in scope and type to the required work for this Section.

- I. **Installer Qualifications:** The contractor performing the work of this Section must, within the last five (5) consecutive years, have successfully completed in a timely fashion at least three (3) projects similar in scope and type to the required work for this Section.
- J. The contractor performing the work of this Section may demonstrate compliance with the above qualification requirements by demonstrating that it is certified or authorized as an installer by a manufacturer designated as acceptable in these Specifications. A copy of such manufacturer certification or authorizations must be submitted, or verified in writing by the manufacturer.
- K. **Equipment and materials** supplied shall be complete, model numbers accurate, and the performance shall conform to manufacturer's specifications.
- L. All equipment and materials shall be new and shall conform to applicable codes.
- M. Repair or replace any items damaged during installation.
- N. Procure and pay for all necessary permits, licenses, inspections, and observe any requirements stipulated therein.
- O. The installation shall conform to the latest safety codes and regulations. Where conflicts exist, the most stringent code or regulation shall apply.
- P. Adhere to all Quality Assurance items in the Sub-contract agreement issued by the construction manager.

**PART 2 - PRODUCTS**

**2.1 ACCEPTABLE MANUFACTURERS**

- A. **Base Bid Specifications**
  - 1. The system described herein, is based on the 2-Wire Bus-system designed by SSS Siedle, LLC 750 Parkway Broomall, PA 19008. The 2-Wire Bus system specifications shall be considered as the acceptable Base Bid Specifications.
- B. **The System Substitutions**
  - 1. Must meet requirements of prior approval by Commissioner, as outlined in the contract documents. Substitutions that meet prior approval requirements must be considered as base bid manufacturers, and shall be shown separately in the list of approved manufacturers included in construction documents.

Consideration will be based upon the ability to comply with all the specifications, the desired functional operation, quality, reliability, design, size, and appearance of the equipment, and the support capabilities of the manufacturer.

C. The Part Numbers.

1. Provided part numbers are accurate at the time of writing. They are, however, subject to change by the manufacturers at any time. If a specific part number is invalid, inaccurate, incomplete, etc. contact the manufacturer for replacement meeting the component specification.

2.2 SYSTEM DESCRIPTION

A. General

1. The communication system provider shall furnish and install a state-of-the-art, electronic Security Communication System (SCS). The SCS specified herein shall enable the security department personnel flexibly and cost effectively control access to, monitor and protect all pertinent areas of the residential facilities'.
2. The SCS shall be a modular architecture system that enables security personal easily upgrade and make changes to the system over time.
3. SCS shall be configured as a part of the Building Security Management System (SMS) in order to provide interface between all SMS components: access control, intrusion detection, emergency notification, audio and/or video intercom and video surveillance system
4. The scope of the system shall include all features and functions described herein and the equipment shown in the plans. System shall provide optional features and functions listed in the specifications, even if not included or shown on the plans.
5. A complete operational system shall be provided. The system functions in public areas such as elevators, lobbies and parking areas shall comply with ADA requirements.

B. The System Architecture

1. The system major components are:
  - a. Door-/Entry Stations – the intercom station installed at the pedestrian entrance to the building, or floor level. The Door-/Entry Station is configured to communicate with selected

Master Station, Master Substations, concierge and/or apartment station(s).

- b. Master Station – the intercom master station usually located at Security Control Console or on the concierge desk and able to administer, control and communicate with Master Substations, Apartment Station and all Door Stations.
- c. Master Substations – the intercom station located on security desks or concierge stations in various places of the building. The Master Substation could be configured to communicate to the selected doors and Master Station.
- d. Apartment Stations – the intercom stations installed in apartments for direct communication with visitor and/or with Master and/or Master Substation.
- e. Control Cabinet – the enclosure contained power/switching equipment and modules enabling various systems' features. The system could be configured to include one control cabinet that contains all modules and parts or more control cabinets located throughout the facility.

**C. The System Operation**

- 1. The security communication system shall provide full "duplex" (hands-free operation at Door-/Entry Station, privacy receiver operation at Master Station and/or Apartment Stations) communications between major system components using high fidelity electret microphones and stereo quality amplified 45 ohm mylar speaker, thus providing instant inter-communications for employees and visitors with superior system efficiency and maintenance function(s).
- 2. The SCS shall provide full "duplex" communication between Door- / Entry Station and Master Station, Door Station and Apartment Stations and Master Station and Apartment Stations.
- 3. The system shall include the following features:
  - a. Card access control by adding the card reader module that contains recessed proximity providing interface with building access control system via standard Wiegand 26 bit, proximity and smart card protocol.
  - b. The push buttons for each apartment, concierge desk and super's office shall be provided enables communications to Apartment Stations.

- c. Video Intercom camera module at the Door Stations and monitor module to the Master Station and Apartment Stations.
- d. The video signal loop through enabling video recording of all video images form the Door Station Camera.
- e. The Door- / Entry Station camera swivel/tilt operation to Master Stations and Apartment Stations.
- f. Video Surveillance camera monitoring modules to the control cabinet that enables to tie video cameras to the master station and apartment stations thus allowing security or residents to view video images emerging from video surveillance cameras installed in various locations of the building (i.e. laundry room, concierge desk, children's area etc.).

**2.3 MODEL**

- A. ButterflyMX mODEL: blueocean GSB12
  - 1. Recessed Mount configuration
  - 2. Dimensions:  
367.6mm x 346.3mm x 70.5 mm (14.4724" x 13.634" x 2.775")
  - 3. System Details
    - a. Ethernet connectivity
    - b. Dry contact relay connection to access control system
    - c. Optional HDMI connection for video
    - d. Outdoors ready (waterproof/weatherproof enclosure)
    - e. Automatic door unlock system
    - f. Onboard sensor package
    - g. Key-slot locking bracket allows for easy installation and removal in surface mount applications
    - h. Designed for standard power socket or waterproof junction box installation
    - i. Waterproof power/communications junction box

- j. Outdoors ready (waterproof/weatherproof enclosure)
- 4. TOUCHSCREEN SPECIFICATIONS:
  - a. Brightness: 1000 Nits
  - b. Diagonal length: 12.1"
  - c. Resolution: 1024x768
  - d. Contrast Ratio: 700:1
  - e. Vandal Resistant, 3H hardness
  - f. Capacitive Touch
  - g. Waterproof
  - h. Chemical Resistant/Anti-Glare coated
- 5. Wide Area Network Requirements: Ethernet 2/2 MBPs internet connection.
- 6. Electrical Details:
  - a. Power Consumption: 160 W – 180 W
  - b. Power Requirements: NEMA 5–15R 110 VAC Input voltage.

### **PART 3 - EXECUTION**

#### **3.1 LOCATION OF EQUIPMENT**

- A. The locations of equipment, power outlets, boxes, etc. indicated on the drawings are approximate and are understood to be subject to such revision as may be found necessary or desirable at the time the work is executed. Coordinate exact location of all devices including mounting dimensions with architectural drawings. If not located on architectural drawings, coordinate with construction manager and all other related trades.
- B. Verify all locations and mounting dimensions in the field.
- C. Locate equipment and accessories so as to provide easy access for proper service and maintenance.



3.2 INSTALLATION OF CABLING

- A. Run all wiring in compliance with the requirements of the electrical specification and in accordance with authorities and codes having jurisdiction. Provide separate conduit for control wiring under this Section.
- B. Cabling run above the ceiling shall be bundled separately from other system cabling. Each cable bundle shall be tie wrapped and supported by J - hooks every five feet when not installed within conduit.
- C. The cables shall not have any splices. If splices are required, the wire shall be joined with solder, then insulated using heat shrink tubing in an approved manner as to provide electrical and mechanical integrity. Wire nuts are NOT allowed.
- D. Cables running parallel to electrical cables/conduits shall be separated by a minimum of 12". Maintain at least 18" separation from all lighting ballasts and fixtures.
- E. Cables, which must cross-electrical cables/conduits, shall do so only at 90-degree angles.
- F. Subsequent to installation, test all cables and demonstrate that they are free from opens, shorts, and ground faults. Supply test results to the Commissioner for all cable installed as part of this work.

3.3 INSTALLATION OF SECURITY EQUIPMENT PANELS

- A. Panels shall not be located directly underneath valves or other areas where they may be subject to water or heat damage. In addition, panels shall be mounted with the bottom no lower than 3 feet and the top no higher than 7 feet above the floor, with a minimum of 3 foot clearance at the front.
- B. Follow manufacturers' instructions for installing, connecting, and adjusting all equipment and cabling.
- C. Submit three (3) copies of such instructions to City of New York before installing any equipment. Provide a copy of such instructions at the equipment during any work on the equipment. Where no instructions are included with the equipment, follow accepted industry practices.
- D. The locations of equipment, power outlets, boxes, etc. indicated on the drawings are approximately correct and are understood to be subject to such revision as may be found necessary or desirable at the time the work is installed.
- E. Exercise particular caution with reference to the location of all field devices they have precise and definite locations accepted by the City of New York/Commissioner before proceeding with the installation.

- F. The contractor shall maintain a current copy of this bid specification at the job site at all times.
- G. The contractor shall maintain a complete file of shop drawings and other submissions at the job site at all times. These shop drawings and submissions shall be made available to the City of New York at his request.
- H. Keep all items protected before and after installation, with dust and moisture proof barrier materials. It shall be the contractor's responsibility to ensure the integrity of these protective measures throughout the life of the project.
- I. Ensure that safe ingress and egress from all work sites is maintained during movement and installation of materials.
- J. Clean up all debris generated by installation activities. Keep all work areas free of debris at all times.
- K. Perform all tests required by local authorities in addition to tests specified herein.
- L. At all times during the construction, the contractor shall protect all equipment from damage and theft. Equipment in the equipment room shall not be installed until such time as other trades have completed their work in that area so that the equipment will not be moved or damaged.
- M. Upon project completion, provide as-built drawings and documentation as defined herein.

**3.4 IDENTIFICATION**

- A. Furnish a nameplate for each security equipment panel, NEMA and power supply enclosures provided under this work. Plates shall be 2 1/4" lemuroid or aluminum with a black enamel background with etched or engraved upper case 1/4" white letters, or black and white laminated bakelite plate with beveled edges. Coordinate labeling and nameplate requirements with the City of New York/Commissioner prior to installation. Nameplates shall be screwed on with countersunk screws.
- B. All cables and terminal strips shall be labeled with machine generated black uppercase lettering on a permanent adhesive label stock, covered with a permanent water resistant sealer. Labels shall be placed on both ends of the cable and no more than 6" from the point at which the cable is broken out into individual copper pairs or from the connector or terminal block. All labels shall be readily visible. Coordinate labeling requirements with Commissioner/City of New York.
- C. Hand lettered label stock shall not be accepted for final installation. Hand lettered stock is only acceptable for use with temporary labeling required

during construction phases.

- D. If at any time during the project, the cable label becomes illegible or removed, the contractor shall immediately replace it with a duplicate pre-printed cable label.
- E. All cable IDs shall be both physically and visually accessible upon completion of the project.

### 3.5 FIRE STOP PENETRATION SEALANT

- A. Provide fire-resistant materials of a type and composition necessary to restore fire ratings to all wall or floor or ceiling penetrations. Material must be properly classified and meet national and local codes.
- B. All penetrations through fire rated floors and walls shall be sealed to prevent the passage of cold smoke, fire, toxic gas or water through the penetration; either before, during or after a fire. The fire rating of the penetration seal shall be at least that of the floor or wall into which it is installed, so that the original fire rating of the floor or wall is maintained as required by Article 300-21 of the National Electrical Code.
- C. No flammable material may be used to line the chase or hole in which the firestop material is to be installed.
- D. When damming materials are to be left in place after the seal is complete, and then all such materials shall be non-flammable.
- E. The sealant shall remain resilient and pliable to allow the removal and/or addition of cable without the necessity of drilling holes. It shall adhere to itself perfectly to allow any and all repairs to be made with the same material. It shall allow for vibration, expansion and/or contraction of anything passing through the penetration without affecting the seal, or cracking, crumbling and spalling.
- F. When sealant is injected into a penetration, the material shall expand to surround all the items within the penetration and maintain pressure against the walls of the penetration as well as the pass-through items. The material shall cure within five minutes. No heat shall be required to further expand the material to prevent the passage of fire and smoke or water.
- G. The materials shall have been subjected to fire exposure in accordance with standard time-temperature curve in the Standard, UL, ASTM E 119 and NFPA 251. The fire stop material shall have also been subjected to the hose stream test in accordance with UL 10B.

### 3.6 STAFFING

- A. The contractor shall keep a qualified foreman in charge of the work at all

times. The foreman shall be present in the field at all times during the performance of the work. Such foreman shall be replaced if deemed to be unsatisfactory by the City of New York.

- B. The contractor shall designate in writing to the City of New York that the full time foreman shall serve as a contact for resolution of problems, job coordination, additions, changes, etc. The contractor's foreman shall have full authority to represent the contractor in making decisions and executing the work in an acceptable manner.
- C. The contractor shall provide a supervisory work force sufficient to efficiently execute the contractor's responsibilities.
- D. The contractor shall provide the level of staffing necessary to meet all construction schedules.
- E. The contractor shall use only skilled, experienced and reliable workers and shall discontinue the services of anyone employed on this project upon written request of the City of New York.
- F. The contractor shall be qualified to perform the work activities and be knowledgeable of the following:
  - 1. Installation of security communication systems.
  - 2. Shall be familiar with access control systems and video surveillance.
  - 3. Testing of cables and conductors for electrical continuity.
  - 4. Testing conductor insulation.
  - 5. Termination, connectorization, and testing of specified twisted pair cables.
- G. Manufacturers printed installation instructions will be used for in-process quality control and final acceptance of the work installation.
- H. The contractor personnel will be required to provide and use the proper tools and test equipment in the performance of each activity. Tools must be in good working order and test equipment must be properly calibrated. Contractor is responsible for safe storage of tools, and is responsible for their security.

**3.7 TRAINING**

- A. The contractor shall furnish the services of competent instructors who will give instruction in the adjustment, operation and maintenance, including pertinent safety requirements, of the equipment and system specified. The

training shall be oriented toward the system installed rather than being a general training course. Each instructor shall be thoroughly familiar with all aspects of the subject matter they are to teach. The contractor shall provide all equipment and material required for classroom training.

- B. The training program shall be accomplished in two phases for the time interval specified for each phase.
1. The first phase shall be given prior to the acceptance test period at a time mutually agreeable between the contractor and the City of New York, and shall be at least one (1) day (8 hours/day) in length. Operating personnel to be trained in the functional operations of the security communication system installed and the procedures that the operators will employ for system operation. The training shall include but not be limited to:
    - a. General security communication systems configuration
    - b. System components
    - c. The system functionality
    - d. General equipment layout
    - e. Programming
  2. The second phase shall be conducted after system acceptance testing for a period of one (1) day. The training shall include but not be limited to:
    - a. Programming
    - b. Troubleshooting procedures
    - c. Preventive Maintenance procedures
    - d. Topics requested by City of New York.

3.8 COMMISSIONING

- A. Perform a three-phase commissioning procedure consisting of field I/O calibration and commissioning, system commissioning and integrated system program commissioning. Document all commissioning information on commissioning data sheets, which shall be submitted prior to acceptance testing. Notify the City of New York in writing of the testing schedule so that operating personnel may observe calibration and commissioning.
1. System Program Commissioning

2. Integrated System Commissioning

3.9 INSPECTIONS AND CABLE TESTING

- A. After the installation is complete, in addition to any other required testing as described herein, and at such times as the City of New York directs, the contractor shall be present while the City of New York conducts an operating test for approval. The installation shall be demonstrated to be in accordance with the requirements of this specification. Any defects revealed shall be corrected promptly at the contractor's expense and the tests performed again.
- B. As a minimum, the contractor shall test, as described below, all cables installed under these specifications.
- C. Post installation testing
  - 1. Conduct cable testing as described below upon completion of installation. Test fully completed systems only.
  - 2. Multi-conductor metallic cables: End-to-end testing of each cable pair/conductor for continuity, ground fault, proper termination, shorts and crossed pairs.
- D. If a bad conductor is found, replace the entire cable. Remove any cables that contain a defective conductor from ceiling and/or floor duct. Do not abandon defective cables in place.
- E. The City of New York reserves the right to observe of any or all portions of the testing process.
- F. The City of New York further reserves the right to conduct, using contractor equipment and labor, a random re-test of 10% of the cables to confirm documented test results. Such retests may be observed and reported on by a third party contractor retained by the City of New York.
- G. All test results and corrective procedures are to be documented and submitted to the City of New York within five (5) working days of test completion.

3.10 ACCEPTANCE TESTING

- A. Submit a detailed acceptance test procedure designed to demonstrate compliance with contract requirements at least 4 weeks before the start of testing. This procedure to be approved prior to the start of the testing.
- B. During acceptance testing provide services of a fully qualified security communication systems technician who is knowledgeable of the project.

- C. Using the commissioning test data the City of New York and/or his representative shall select, at random, functions to be demonstrated. The contractor in accordance with the acceptance test procedure shall demonstrate these functions. At least 15 percent of the systems functions shall be demonstrated. At least 95% of the functions demonstrated must perform as specified and documented on commissioning data sheets or the system must be retested.
- D. Furnish instruments required for testing. Submit catalog data on all instruments for approval prior to performance of tests.
- E. After the acceptance tests are complete and the system is demonstrated to be functioning as specified, a thirty-day endurance test period shall begin. If the system functions as specified throughout the endurance test period requiring only routine maintenance and adjustment, the system shall be accepted. If during the endurance test period the system fails to perform as specified and cannot be corrected within eight hours, the City of New York may request that the endurance tests be repeated after problems have been corrected.

3.11 RECORD DRAWINGS

- A. During construction, the contractor shall keep an accurate record of all deviations between the work as shown on the drawings and that, which is accurately installed.
- B. Provide City of New York with two (2) sets of operation and maintenance manuals including wiring diagrams, parts list, shop drawings and manufacturers' information on all equipment and cables provided by the contractor. Manuals shall be provided in a high quality, 3-ring binder and completely indexed. Submit manuals to the City of New York not more than 1 week after project completion.
- C. Upon completion of work and acceptance by City of New York, provide reproducible As-Built drawings of the complete system including, but not limited to, floor plans showing the exact location and type of each security device, equipment room details (elevation of all walls), showing the exact placement of all cabinets, racks, blocks, etc., and a riser diagram showing all security communication devices, panels, and cabling. Include details showing the exact type, quantity and route of all security system cables. The size and location of all security conduit, conduit sleeves, junction boxes and cabling splices. The as-built drawings shall show door elevations indicating the exact placement of all security devices.
- D. As-built drawings shall include a point to point wiring diagram including the terminal connections and cross connections for all security communication devices, panels, power supplies, cameras monitored by the system, locking devices and other equipment interfacing with the system. The diagram shall indicate the number of conductors, color code and wiring labels. All

wiring splices and equipment grounding shall be shown on the point-to-point wiring diagram.

3.12 UNIT PRICING

- A. Provide a guaranteed lump sum price for the work shown on the drawings and detailed in the technical specifications. Price to include all materials, labor, testing, supervision, preparation of shop drawings and as-built documentation, etc., necessary to complete the work.
- B. Provide a complete list of unit prices for all components with: total quantities, total installed cost (including labor) and add/deduct unit prices.

END OF SECTION



SECTION 28 72 00VIDEO MANAGEMENTPART 1 - GENERAL1.1 GENERAL PRODUCT REQUIREMENTS

- A. The software shall be of the video management system provider's official product line and designed for commercial use 24/7/365.
- B. The software shall be based upon standard components and proven technology using open and published protocols.
- C. The video management system provider shall be defined as the manufacturer of the video management software, and the party responsible for rigorous self-testing of the software prior to the release of the software.

1.2 QUALITY ASSURANCE

- A. The video management system provider shall offer thorough training to contractors in the service and installation of the provided software.
- B. All installation, configuration and setup of software as well as related work hereto shall be carried out by qualified technicians thoroughly trained by the video management system provider in the installation and service of the provided software.

1.3 GENERAL SYSTEM DESCRIPTION

- A. The system shall be a fully distributed solution, designed for multiple server installations requiring 24/7 surveillance with support for devices from different vendors.
- B. The video management system shall support Windows 7 Professional/Enterprise/Ultimate and Windows Server 2012. All as 64-bit applications and with the latest patches and service packs installed. The system shall use DirectX and .NET.
- C. The following eight major components shall be included in the system:
  - 1. Surveillance system server, which shall consist of the following add-on applications/solutions/or services:
    - a. Recording server (a service).
    - b. Management application.
    - c. Image server (a service).
    - d. Event server (a service).
    - e. Download manager.

- f. Mobile viewing client server.
  2. Viewing client.
  3. Web viewing client.
  4. Standalone viewing client (for exported video recordings).
  5. Video-sharing application.
  6. Transactional data application.
  7. Graphical alarm management solution.
  8. Mobile viewing client.
- D. The system shall incorporate a fully integrated video-sharing functionality that shall enable distributed viewing of any camera in the system, from any computer with the viewing client or video-sharing application installed.
- E. The system shall include support for a graphical alarm management solution. This solution shall support continuous monitoring of the operational status and event-triggered alarms from system servers, cameras and other external devices. The solution shall visualize the status of cameras and other inputs with graphical and interactive icons.
- F. The system shall include a software development kit (SDK) which shall integrate the system with third-party software. The SDK shall enable the user to:
1. Retrieve live and recorded video in different ways:
    - a. In raw data format, either encoded or decoded, or
    - b. As a window to be resized and shown embedded in another application.
  2. Create plug-in components for the viewing client.
  3. Control the operation of video-sharing functionality.
  4. Retrieve alarm/event information.
  5. Integrate data sources for the transactional data application.
- G. The system shall provide connectivity with third-party systems and devices using the OPC (Object-Linking and Embedding Process Control) Data Access set of communication standards. The supported third-party systems must include industrial automation and SCADA (Supervisory Control and Data Acquisition) systems. The system shall support the following commands and interfaces:
1. Get configuration.

2. Get server CPU load.
  3. Get camera status and frame rate.
  4. Get camera and global events.
  5. Set events.
  6. Set the video-sharing application's live view and playback.
- H. The system shall include a standalone viewing client that shall show video exported from the viewing client. The standalone viewing client shall enable recipients of the video to browse and play back exported video without installing separate software on their computers.
- I. The system shall be designed to support each component on the same computer for efficiency in smaller systems or in a distributed architecture for large system deployments. Video management system core components must be installed on the same server.
- J. It shall install and run the system on virtualized Windows servers.

## **PART 2 - PRODUCTS**

### **2.1 UNIFIED SECURITY PLATFORM (USP)**

- A. The USP shall support the seamless unification of IP access control system (ACS), IP video surveillance system and Managed Video Services (MVS) system.
- B. The Unified Security Platform (USP) shall be an enterprise class IP-enabled security software solution.
- C. The ACS and MVS systems shall be seamlessly unified within the USP.
- D. The ACS shall support both fixed applications.
- E. The USP surveillance user interface (UI) shall be a unified security interface for monitoring access control, video surveillance, or any combination thereof.
- F. USP functions shall include:
1. ACS and MVS live and real-time event monitoring.
  2. Live MVS video monitoring
  3. MVS video archive playback.
  4. ACS and MVS reporting, including custom reports and report templates.
  5. ACS and MVS alarm management.
  6. ACS and MVS system partitioning (e.g. for use with multi-tenant

applications).

7. ACS and MVS dynamic graphical map viewing.
  8. Microsoft Active Directory integration for synchronizing USP users (ACS, MVS) and ACS cardholders.
  9. Federation for global monitoring, reporting, and alarm management of multiple remote and independent ACS and/or MVS systems spread across multiple facilities and geographic areas.
  10. ACS and MVS incident reports.
  11. ACS visitor management to check-in and check-out visitors.
  12. ACS people counting or mustering to dynamically track people located in specific areas.
- G. Through the appropriate licensing the ACS and MVS shall be enabled as sub-systems within the USP.

## 2.2 SYSTEM ARCHITECTURE

- A. The USP is based on a client/server model. The USP shall consist of Server Software Modules (SSM) and Client Software Applications (CSA).
- B. The USP shall be both a multi-user and a multi-tasking environment.
- C. The USP shall install SSM and CSA on the same machine. Conversely, the USP shall support a distributed environment where one or more SSM and CSA modules can be installed across several servers/PCs over an IP network.
- D. The USP shall be an IP enabled solution. All communication between the SSM and CSA shall be based on standard TCP/IP protocol and shall use encryption when enabled by the administrator.
- E. The USP shall support multi-tenant installations and environments by segmenting its database(s) using the security partitions.
- F. The USP shall protect against potential database server failure through standard off-the-shelf solutions, e.g. Microsoft Windows Clustering.
- G. The USP shall support the concept of Federation whereby multiple independent ACS and MVS installations can be merged into a single large virtual system. Federation shall seamlessly facilitate the centralization of the following activities across multiple remote sites: global monitoring of access control and video events, live video viewing, video playback, as well as centralized report generation and alarm management.

## 2.3 SYSTEM DESIGN GUIDELINES

- A. The USP shall be installed as one or more of the following types of installations:
  - 1. Unified access and video platform, and any combination thereof.
  - 2. Standalone access control or video platform.
  - 3. Standalone video platform that federates one or more MVS. Refer to the section **Error! Reference source not found.** for more information on Federation.
- B. The USP shall be designed to run on a standard PC-based platform running a Microsoft Windows operating system.
- C. The USP interface shall be easy-to-use and minimize the number of external applications required to configure and monitor the system. The user interface shall consist of a single configuration client interface and a single live monitoring/reporting client interface.
- D. The USP server modules shall be compatible with multiple 64-bit operating systems including Windows 7, Windows 8, Windows Server 2003, and Windows Server 2008.
- E. The USP client modules shall run on Windows
- F. The USP shall be designed using the latest and most advanced design tools.
  - 1. The core client/server software shall be built in its entirety using the Microsoft .NET software framework and the C# (C-Sharp) programming language.
  - 2. The USP database server(s) shall be built on Microsoft's SQL Server 2005, SQL Server 2008, including SQL Server 2005/2008 Express Editions. All versions and packages of the USP can run on SQL 2005/2008 Express editions.
  - 3. The USP shall use the latest user interface (UI) development and programming technologies such as Microsoft WPF (Windows Presentation Foundation), the XAML markup language, Direct3D, and .NET software framework.

## 2.4 SYSTEM SECURITY AND ENCRYPTION

- A. Communication between the SSM and CSA (server-to-server and client-to-server) shall be encryption enabled. The encryption method shall use a 128-bit AES encryption algorithm, at a minimum.
- B. The USP client applications (CSA) shall be password protected. Passwords shall be stored in the Configuration Server database in an encrypted manner.
- C. When integrated with Microsoft's Active Directory, the USP shall

authenticate users using their Windows credentials. As such, the USP will benefit from Active Directory's password authentication and strong security features.

- D. The USP shall limit what users can view in the configuration database via security partitions.
  - 1. The administrator, who has all rights and privileges, shall segment a database into multiple security partitions.
  - 2. A user who is given access to a specific partition shall only view entities that are members of the partition assigned.
  - 3. Additional security features shall be provided via a large number of user privileges.
  - 4. In addition to system-wide privileges, administrators shall assign privileges on a per partition basis.

## 2.5 SERVER SOFTWARE MODULES (SSM)

- A. The USP core architecture shall provide a variety of SSMs whose roles include storing the configuration database, communicating with client applications, unifying the ACS, and MVS systems, as well as the integration to third party applications and systems.
- B. The SSM shall be Windows services configured to start when the operating system is booted and run in the background. The SSM shall automatically launch at computer startup, irrespective of whether a user is logged onto the machine or not. It shall start and stop the SSM manually when required.
- C. The SSM shall receive, process and respond to requests from the CSA. The SSM shall consist of a Configuration Server, an Access Server and an Integration Server. Multiple Access Server and Integration Server modules shall be supported by Configuration Server.
- D. A dedicated SSM module (Access Server) shall permit the USP to perform all access control related functionality, including synchronizing IP-enabled door controllers and IO modules.
- E. A dedicated SSM module, the Integration Server, shall permit the USP to connect to multiple external systems such as a Microsoft Active Directory server, an external video surveillance system, among many more.
- F. The SSM shall be installed on either the same server, on several servers to enable distributed operation in a LAN or WAN environment. The SSM shall not limit the number of servers which can be networked together to form a distributed server system.

## 2.6 CONFIGURATION MODULE

- A. The Configuration Module shall be the central database that contains all the system information and component configuration of the USP. The

Configuration Server shall also manage alarms and communications with the USPs client applications (CSA).

B. The Configuration Server shall configure/manage of the following components common to the ACS and MVS sub-systems:

1. Security Partitions
2. Areas
3. Alarms
4. Users and user groups
5. Schedules
6. Scheduled tasks
7. Macros
8. Dynamic Graphical Maps
9. Events/Actions
10. Custom events

C. The Configuration Server shall support the configuration/management of the following components specific to the ACS:

1. Door Controllers (hardware units)
2. Doors
3. Elevators
4. Zones
5. Input and Output (IO) modules (hardware units)
6. Input – Output (IO) linking rules
7. Custom output behavior
8. Access rules
9. Cardholders and cardholder groups
10. Credentials
11. Badge Templates
12. Custom fields

D. The Configuration server shall import cameras directly from the MVS. The unified platform for ACS and MVS is required; the Configuration Server shall permit the assignment of cameras to doors, zones,

elevators and more. It shall not require reconfiguring the settings of imported cameras.

- E. The Configuration Server shall authenticate users and give access to the USP based on predefined user access rights or privileges, and security partition settings.

## 2.7 ACCESS MODULE

- A. The Access Server shall be the server that synchronizes all access control hardware units under its control, such as door controllers and IO modules. The Access Server shall validate and log all access activities and events when the door controllers and IO modules are online.
- B. The Access Server shall maintain the communication link with the hardware controllers under its control. It shall continuously monitor whether the controllers are online or offline.
- C. Synchronization of hardware units shall be automated and transparent to users and shall occur in the background. It shall manually synchronize units or on a schedule.
- D. The Access Server shall support doors and controllers located within the facilities. The Access Server shall support a minimum of 250 readers per machine, depending on the installed hardware units.
- E. At system startup, the Access Server shall load all the configuration information that is applicable to the units.
- F. The Access Server shall store all access events associated with the doors, areas, zones (input points), elevators, and controllers.

## 2.8 INTEGRATION MODULE

- A. The Integration Server shall enable the connection of the USP to the following types of external systems:
  1. A single MVS to embed video within the USP.
  2. Multiple USP to form an access control Federation (virtual system consisting of multiple remote independent ACS).
  3. Microsoft Active Directory.
- B. The following features shall ensure the USP is highly scalable over an IP network:
  1. A single Integration Server shall support connections of remote entities (cameras, doors, cardholders, Active Directory users etc.)
  2. A single Integration Server shall connect to multiple remote ACS and MVS systems.
  3. Multiple Integration Servers can be installed on the same



machine or PC.

4. Multiple Integration Servers can be distributed across several machines to increase the number of connections supported.

## 2.9 SERVER MONITORING SERVICE

- A. The USP shall include a Server Monitoring Service. The Server Monitoring Service shall continuously monitor the state of all SSM services. It shall be installed on all PCs/servers running SSM. The Server Monitoring Service shall be a Windows service that automatically launches at system startup, irrespective of whether a user is logged into his account or not.
- B. In the event of a malfunction or failure, the Server Monitoring Service shall restart the failed service. As a last resort, the Server Monitoring Service shall reboot the server/PC should it be unable to restart the service. It shall also offer manual start and/or stop one or more of the SSM.
- C. The Server Monitoring Service user interface (UI) shall be accessible from the system tray. The Server Monitoring Service UI shall provide the user with the functionality listed below, among many more.
  1. A real-time list of SSM running on a PC or server
  2. The status of the SSM (started or stopped)
  3. A log of status-related events and associated timestamps.
  4. Telnet console to log onto an SSM.
  5. Configuration for the SSM databases, including backup and restore.
  6. SMTP configuration for email notifications.
  7. License configuration.

## 2.10 CLIENT SOFTWARE APPLICATIONS (CSA) (SECURITY DESK)

- A. The Client Software Applications (CSA) shall provide the user interface for USP configuration and monitoring. The CSA shall consist of the Configuration UI for system configuration and the Surveillance UI for monitoring. The Server Administrator shall configure the server database(s). The CSA shall be Windows based and provide an easy-to-use graphical user interface (UI).
- B. The CSA shall seamlessly merge access control and video functions.
- C. The USP shall use the latest user interface (UI) development and programming technologies such as Microsoft WPF (Windows Presentation Foundation), the XAML markup language, Direct3D, and the .NET software framework.

- D. The CSA shall perform functions listed in the sections CONFIGURATION USER INTERFACE (UI) and SURVEILLANCE USER INTERFACE (UI) without interfering with any of the SSM operations (for example, responding to access control or video system requests, logging USP events, etc.).
- E. The CSA shall support multiple forms of IP network connectivity, including LAN, WAN, VPN, and Internet technologies. The CSA shall log into the USP from a remote site.
- F. All applications shall provide an authentication mechanism, which verifies the validity of the user. As such, the administrator can define specific access rights and privileges for each user in the system.
- G. Logging on to a CSA shall be done either through locally stored USP user accounts and passwords or using the operators Windows credentials when Active Directory integration is enabled.
- H. When integrated with Microsoft's Active Directory, the CSA and USP shall authenticate users using their Windows credentials. As such, the USP will benefit from Active Directory password authentication and strong security features.
- I. The CSA shall support multiple languages, including but not limited to, the English, the French, the Dutch, the German, the Spanish, and the Japanese languages.

#### 2.11 CONFIGURATION USER INTERFACE (UI)

- A. The Configuration UI application shall allow the administrator or users with appropriate privileges to change the system configuration.
- B. The Configuration UI shall provide decentralized configuration and administration of the USP system from anywhere on the IP network.
- C. The Configuration UI shall provide decentralized configuration and administration of the embedded ACS system from anywhere on the IP network.
- D. The USP Configuration UI application shall be the same Configuration UI application for the ACS. It shall configure the ACS entities and all their settings.
- E. The Configuration UI shall configure the USP entities. An entity shall be defined as a system component used to create an access control system, video system.
- F. The user shall easily navigate between this application and the other CSA by single point and click function.
- G. USP entities such as cameras, doors, zones, elevators and more shall be accessible from the Logical View, a tree-like display that groups entities by area (grouping of doors, cameras, elevators, and zones) or by integrated systems such as an MVS.

- H. The operator shall have tools to quickly find any entity (cameras, doors, cardholders and groups, zones, elevators) based on partial name or description.
- I. The Configuration UI shall include a variety of troubleshooting utilities.
- J. The Configuration UI shall provide a static reporting interface to:
  - 1. View historical events based on entity activity. This reporting interface shall be in addition to the monitoring and reporting interface provided by the Surveillance UI. The user shall perform actions such as printing a report and troubleshooting a specific access event from the reporting view.
  - 2. View audit trails that show a history of user / administrator changes to an entity.

## 2.12 SURVEILLANCE USER INTERFACE (UI)

- A. The Surveillance UI shall provide a graphical user interface to control and monitor the USP.
- B. The Surveillance UI shall perform the role of a Unified Security Interface to monitor video and access control events and alarms, video live and recorded video.
- C. The Surveillance UI shall provide decentralized monitoring of the entire system from anywhere on the IP network.
- D. The Surveillance UI shall require a graphics card that supports Direct3D due to its use of advanced user interface software tools.
- E. The Surveillance UI shall provide the latest UI concepts to enhance usability and operator efficiency such as
  - 1. An OS-like (operating system) Start Menu.
  - 2. Real-estate maximization, both within a tile and the entire UI.
  - 3. Dynamically adaptive interface that adjusts in real-time to what the operator is doing.
  - 4. Task-oriented approach to operator activities where each type of activity (surveillance, visitor management, individual reports, and more) is an operator task.
  - 5. A taskbar that groups all individual tasks.
  - 6. A dynamic dashboard loaded with entity-specific widgets, e.g. door and camera widget.
  - 7. Use of transparent overlays that can display multiple data in a seamless fashion.
  - 8. Display tile menus and quick commands.

9. Consolidated and consistent workflows.
10. Tile menus and quick commands easily accessible within every display tile of the user workspace.
11. Single click functionality for reporting and tracking. The Surveillance UI shall support single-click reporting for access control and video, as well as single-click tracking of areas, cameras, doors, zones, cardholders, elevators and more. Single-click reporting or tracking shall create a new task with the selected entities to report on or to track.

#### 2.13 SURVEILLANCE UI START MENU AND TASKS

- A. The Surveillance UI shall be task-oriented.
- B. A task shall be user interface design patterns whose goal is to simplify the user interface by grouping related features from different systems such as video and access in the same display window. Features are grouped together in a task based on their common relevance to help the user perform a specific task.
- C. Tasks shall be accessible via the Surveillance CSA's Start Menu and sub-menus.
- D. Newly created tasks shall be accessible via the Surveillance UI taskbar.
- E. Similar tasks shall be grouped into the following categories:
  1. Operation: Access control/video surveillance, visitor management, access control and video alarm monitoring and more.
  2. Investigation: Video bookmark/motion/archive reports, access control activity reports, visitor activity reports, alarm reports and more.
  3. Maintenance: Access control and video configuration reports, troubleshooters, audit trails, and more.
  4. Administration: Various configuration tools.
  5. Tasks shall facilitate the number of concepts a casual user needs to learn leading to increased simplicity of operation.
  6. An operator shall launch a specific task only if he has the appropriate privileges.
  7. The Start Menu content shall be customized, through the use of privileges, to hide tasks an operator should not have access to. Editing a USP XML file to add new tasks on the fly shall be possible.

**2.14 DYNAMICALLY ADAPTIVE UI, DASHBOARD, AND WIDGETS**

- A. The Surveillance UI shall dynamically adapt to what the operator is doing. This shall be accomplished through the concept of widgets that are grouped in the Surveillance UI dashboard.
- B. Dynamically adapting the UI for the operator activities at a specific time shall de-clutter the UI and make it more intuitive.
- C. Widgets are mini-applications or mini-groupings in the Surveillance UI dashboard that let you perform common tasks and provide you with fast access to information and actions.
- D. With a single click on an entity (e.g. door or camera) the specific widgets associated to that entity appear and other non-relevant widgets disappear dynamically (instantly). Widgets shall bring the operator information such as door status and camera stream information, as well as user actions such, door unlock, PTZ controls, and more.
- E. Specific widgets include those for a door, camera, alarm, zone, display tile, video stream (statistics), PTZ camera, and more.

**2.15 OPERATOR WORKFLOWS**

- A. A workflow shall be a sequence of operations an operator or administrator shall execute to complete an activity. The "flow" relates to a clearly defined timeline or sequence for executing the activity.
- B. The Surveillance UI shall be equipped with consistent workflows for video and access control systems.
- C. Generating or printing a report, setting up or acknowledging an alarm, or creating an incident report shall follow the same process (workflow) whether the operator is working with video, or access control, or both.

**2.16 LOGICAL VIEW AND ENTITY SEARCH**

- A. USP entities such as cameras, doors, zones, elevators and more shall be accessible from the Logical View, a tree-like display that groups entities by area (grouping of doors, cameras, elevators, and zones) or by integrated systems such as an MVS.
- B. The operator shall have tools to quickly find any entity (cameras, doors, cardholders and groups, zones, elevators) based on a partial name or description search.

**2.17 Each task within the surveillance UI shall consist of one or more of the following items:**

- A. Event list.
- B. Logical tree. Doors, cameras, zones and elevators shall be grouped under Areas in a hierarchical fashion.
- C. Tracking list.

- D. Display tiles with various patterns (1 x 1, 2 x 2, and more).
  - E. Display tile menu with various commands related to cameras, doors, PTZ, and tile controls.
  - F. Dashboard with widgets.
- 2.18 The Surveillance UI shall have a multiple event lists and display tile patterns, including:
- A. Event/alarm list layout only
  - B. Display tile layout only
  - C. Display tile and alarm/event list combination
  - D. The visitor management, alarm management and people counting tasks shall be optimized for their specific use cases.

2.19 USER WORKSPACE CUSTOMIZATION

- A. The user shall have full control over the user workspace through a variety of user-selectable customizations.
- B. Once customized, the user shall save his workspace.
- C. The user workspace shall be accessible by a specific user from any client application on the network.
- D. Display tile patterns shall be customizable.
- E. A user shall add new display tile patterns through the editing of a standard XML file.
- F. Event or alarm lists shall span anywhere from a portion of the screen up to the entire screen, and shall be resizable by the user. The length of event or alarm lists shall be user-defined. Scroll bars shall enable the user to navigate through lengthy lists of events and alarms.
- G. The Surveillance UI shall provide multiple display tile patterns, e.g. 1 display tile (1x1 matrix), or 16 tiles (4x4 matrix), and multiple additional variations.
- H. The Surveillance UI shall enable live monitoring of up to 16 video streams simultaneously on a single monitor. It shall support as many monitors as the PC video adapters and Windows Operating System accept. Each monitor shall display from 1 to 16 video streams.
- I. Additional customization include
  - 1. Show/hide window panes.
  - 2. Show/hide menus/toolbars.
  - 3. Show/hide overlaid information on video.

4. Resize different window panes.
  5. Choice of tile display pattern on a per task basis.
- 2.20 The Surveillance UI shall provide an interface for the following tasks and activities common to access control and video:
- A. Monitoring the events from a live security system (ACS and/or MVS).
  - B. Generating reports, including custom reports.
  - C. Monitoring and acknowledging alarms.
  - D. Creating and editing incidents and generating incident reports.
  - E. Displaying dynamic graphical maps and floor plans. Execute actions from a dynamic graphical map and floor plan.
  - F. Manage and execute hot actions and macros.
- 2.21 The Surveillance UI shall monitor the following entities in real-time through the surveillance task, among others:
- A. Doors
  - B. Cameras
  - C. Cardholders
  - D. Cardholder groups
  - E. Elevators
  - F. Zones (input points)
  - G. Areas
- 2.22 The Surveillance UI shall provide an interface for the following access control tasks:
- A. Monitoring and management of access events and alarms.
  - B. Viewing of cardholder picture or badge IDs.
  - C. Verification of cardholder picture IDs against live video.
  - D. Zone monitoring (input points).
  - E. Visitor management.
  - F. People counting or mustering, including resetting the people count in an area
  - G. Door control (remotely unlocking doors, overriding a door's unlocking schedules, enabling door maintenance mode).

- H. Forgiven antipassback.
- I. Generation of ACS configuration and activity reports.
- J. Viewing of HTML files including alarm instructions

2.23 The Surveillance UI shall include advanced video functions:

- A. Advanced live video viewing functionality.
- B. Advanced archive playing and video playback functionality.
- C. Monitoring and management of video system events and alarms.
- D. Intercom and/or duplex audio.
- E. Generation of video reports.
- F. Control of PTZ cameras.

2.24 The Surveillance UI's video live viewing shall include:

- A. Display of all cameras attached to the USP and all cameras attached.
- B. Shall support live video monitoring on each and every display tile within a task in the user's workspace.
- C. The operator shall drag and drop a camera into a display tile for live viewing.
- D. The operator shall drag and drop a camera from a map into a display tile for live viewing.
- E. Shall provide digital zoom on live camera video streams.
- F. Shall provide for audio communication with video units with audio input and output.
- G. The operator shall control pan-tilt-zoom, iris, focus, and presets.
- H. Shall bookmark important events for later retrieval on any archiving camera. Operators to uniquely name each bookmark in order to facilitate future searches.
- I. The operator shall start/stop recording on any camera in the system, which is configured to allow manual recording, by clicking on a single button.
- J. The operator shall activate or de-activate viewing of all system events as they occur.
- K. Shall allow switching to instant replay of the video for any archiving camera with the simple click of button.
- L. Users shall take snapshots of live video and save or print the snapshots.



- M. The user shall view the same camera view multiple times in different tiles.
- 2.25 The Surveillance UI's video playback (archive playing) shall include:
- A. Shall support audio and video playback of any time span.
  - B. Shall support video playback on each and every display tile.
  - C. Operators shall switch to instant replay of the video for any archiving camera with the simple click of button.
  - D. Operators shall select between instant synch of all video streams in playback mode allowing operators to view events from multiple angles, across several camera fields, or non-synchronous playback.
  - E. Operators shall simultaneously view the same camera in multiple tiles at different time intervals.
  - F. Operators shall to control the playback with:
    - 1. Pause
    - 2. Lock Speed
    - 3. Forward Playback at: 1x, 2x, 4x, 10x, 20x, 50x, 100x.
    - 4. Reverse Playback I-frame by I-frame.
    - 5. Fast rewind at: -10x, -20x, -50x, -100x.
    - 6. Slow Forward Playback at: Frame by frame, 1/8x, 1/4x, 1/3x, 1/2x, 1x.
    - 7. Loop playback between two time markers
  - G. Shall display a single timeline, or one timeline for each selected video stream, with which the operator can navigate through the video sequence by simply clicking on any point in the timeline.
  - H. Shall display the level of motion at any point on a timeline.
  - I. Shall clearly display bookmarks events on the timeline(s).
  - J. Shall query archived video using various search criteria, including but not limited to, time, date, camera, and area, among others.
  - K. Shall provide the tool to search video and associated audio on user-defined events or motion parameters.
  - L. Operators shall define an area of the video field in which to search for motion as well as define the amount of motion that will trigger search results. The Surveillance UI then retrieves all archived video streams which contain motion which meets the search parameters. There shall be a graphical timeline where the time of each search hit shall be

indicated.

- M. Operators shall browse through a list of all bookmarks created on the system and select any bookmarked event for viewing.
- N. Shall add bookmarks to previously archived video for easier searching and retrieval.
- O. Shall digital zoom on playback video streams.
- P. Shall provide still image export to PNG, JPEG, GIF, and BMP format with Date and Time stamp, and Camera Name on the image (snapshot).
- Q. Shall provide tools to export video on various media such as a CD-ROM.
- R. Operators shall load previously exported video files from their computer or network.
- S. Shall save a query upon closing the Archive Player Application and reappear when the application is reopened.

#### 2.26 TRACKING

- A. The USP shall select multiple entities to monitor from the Surveillance UI by adding the entities one by one to the tracking list.
- B. The Surveillance UI shall filter events displayed in the display tile layout and/or event list layout.
- C. It shall lock a Surveillance UI display tile so it only tracks the activity of a specific entity, e.g. specific door or camera.
- D. The user shall drag and drop an event from an event list (or an alarm from an alarm list) onto a display tile to view a cardholder's picture ID, badge ID, and/or live/archived video, among other features.
- E. Event, alarm, monitoring/tracking, and report lists shall contain cardholder pictures.
- F. The user shall start or pause the viewing of events within each display tile.

#### 2.27 DISPLAY TILE PACKING AND UNPACKING

- A. The Surveillance UI shall single-click unpack and pack for doors, zones, and alarms.
- B. Packing and unpacking of entities shall quickly obtain additional information and camera views of a specific entity.
- C. Unpacking of an entity shall display associated entities. For example, unpacking a door with multiple associated cameras shall display all cameras associated to the door. Unpacking shall reconfigure the display tiles to display all associated entities. For example, unpacking a

door (or zone , or alarm) that is currently in a 1 x 1 tile configuration and that has 3 cameras tied to it will create a 1 x 3 display tile arrangement to view all associated entities.

- D. Packing will return the display to the original tile pattern.

#### 2.28 VISUAL TRACKING

- A. The Surveillance UI shall manually track a moving target with the single click of a button.
- B. Switch from one camera view to an adjacent camera shall be done within a single display tile.
- C. Switching between camera streams shall be accomplished by simply clicking on a semi-transparent shape or overlay.
- D. Visual tracking shall be available with both live and recorded video.

#### 2.29 The following additional tools and utilities shall be from the Surveillance UI:

- A. Create credentials
- B. Create cardholders
- C. Troubleshooter

#### 2.30 ACS WEB CLIENT

- A. The Web Client users and operators shall perform configuration, management, and reporting activities.
- B. The Web Client shall be accessible through Microsoft Internet Explorer.
- C. The Web Client shall be a thin client. It shall not require the download of any USP-specific files or executable on the client workstation.
- D. Functionality available through the web client shall include:
  - 1. Configuration and management of cardholders and cardholder groups
  - 2. Configuration and management of credentials
  - 3. Configuration and management of access rules
  - 4. Badge printing over the network
  - 5. Assignment of access rules to doors and areas
  - 6. Visitor management including visitor check-in and check-out and reporting
  - 7. Advanced reporting

### 2.31 SERVER ADMINISTRATOR

- A. The Server Administrator shall configure all the SSM (Configuration Server, Integration Server, Access Server, and Server Monitoring Service), associated licenses, as well as the services available on each local machine. The Server Administrator shall be accessible through a graphical user interface (UI) and shall be installed on all machines that run one or more SSM.
- B. The Server Administrator shall allow the administrator (user) to perform the following functions:
  - 1. Configure the databases and database servers.
  - 2. Start/Stop a database server.
  - 3. Define the client-to-server communications security settings.
  - 4. Configure the network communications hardware, including connection addresses and ports.
  - 5. Add and configure hardware extensions and discovery options.
  - 6. Configure system SMTP settings (mail server and port)
  - 7. Configure the Server Monitoring Service automatic email settings.
  - 8. Configure event and alarm history storage options.
  - 9. Manually back up databases and/or restore the server databases, as well as configure scheduled backups of the databases.

### 2.32 SYSTEM FUNCTIONALITY

- A. Unification of Video surveillance and Access Control
  - 1. The Surveillance UI shall present a true Unified Security Interface for access control and video surveillance. Advanced live video viewing and playback of archived video shall be available through the Surveillance UI. Refer to the section SURVEILLANCE USER INTERFACE (UI) for more information on the video functionality from the Surveillance UI.
  - 2. User shall associate one or more video cameras to the following entity types, among others:
    - a. Door
    - b. Area
    - c. Elevator
    - d. Zone (input points)

- e. Alarm
  - f. Dynamic graphical map
3. It shall view video associated to access control events when viewing a report.
  4. The USP shall connect to multiple external video systems, MVS through Federation.

### 2.33 ALARM MANAGEMENT

- A. The USP shall support the following Alarm Management functions:
1. Create and modify user-defined alarms. An unrestricted number of alarms shall be supported.
  2. Assign a time schedule or a coverage period to an alarm. An alarm shall be triggered only if it is a valid alarm for the current time period.
  3. Set the priority level of an alarm and its reactivation threshold.
  4. Define the time period after which the alarm is automatically acknowledged.
  5. Define the recipients of an alarm. Alarm notifications shall be routed to one or more recipients. Recipients shall be assigned a priority level which prioritizes the order of reception of an alarm.
  6. Define the alarm broadcast mode. Alarm notifications shall be sent using either a sequential or an all-at-once broadcast mode.
  7. Define whether to display the source of the alarm, one or more entities, an HTML page.
  8. Specify whether an incident report is mandatory during acknowledgment.
  9. Associate an action to an alarm event.
  10. The workflows to create, modify, add instructions and procedures, and acknowledge an alarm shall be consistent for access control and video alarms.
  11. Alarms shall be federated allowing global alarm management across multiple independent USP, ACS, and MVS systems.
  12. The USP shall also support alarm notification to an email address or any device using the SMTP protocol.
  13. Create alarm-related instructions shall display of one or more HTML pages following an alarm event. The HTML pages shall be user-defined and can be interlinked.

14. Alarm unpacking and packing shall be where all the entities associated to an alarm can be display in the Surveillance UI with the single click of button.
15. User shall acknowledge alarms, create an incident upon alarm acknowledgement and put an alarm to snooze.
16. The user shall spontaneously trigger alarms based on something he or she sees in the system.

#### 2.34 REPORT GENERATION

- A. The USP shall support report generation (database reporting) for access control and video.
- B. Each and every report in the system shall be a USP task, each associate with its own privilege. A user shall access specific report task with privileges.
- C. All reporting tasks shall be accessible within the Surveillance UI.
- D. The workflows to create, modify, and run a report shall be consistent for access control and video reports.
- E. Reports shall be federated allowing global consolidated reporting across multiple independent USP, ACS, and MVS systems.
- F. Access control and shall support cardholder pictures.
- G. Report generation shall not result in any degradation of system performance.
- H. The USP shall provide the following types of reports:
  1. Alarm report
  2. Video-specific reports (archive, bookmark, motion, and more)
  3. Configuration reports (cardholders, credentials, units, access rules, readers/inputs/outputs, and more)
  4. Activity reports (Cardholder, cardholder group, visitor, credential, door, unit, area, zone, elevator, and more)
  5. Visitors report
  6. Audit trail reports
  7. Incident reports
  8. Time and attendance reports

#### 2.35 GENERIC REPORTS, CUSTOM REPORTS AND REPORTS TEMPLATES

- A. A user shall generate generic reports from an existing list, generating

reports from a list of user-defined templates, or creating a new report or report template.

- B. The user shall customize the predefined reports and save them as new report templates. There shall be no need for an external reporting tool to create custom reports and report templates.
- C. All report templates shall be created with the Surveillance UI.
- D. These templates can be used to generate reports on a schedule in PDF or Excel formats.
- E. Customization options shall include setting filters, report lengths, and timeout period. The user shall also set which columns shall be visible in a report.
- F. The sorting of reported data shall be by clicking on the appropriate column and selecting a sort order (ascending or descending).
- G. An unrestricted number of custom reports and templates shall be supported.
- H. A reporting task layout shall consist of panes with settings (report length, filters, go and reset commands, etc.), the actual report data in column format and a pane with display tiles. The user shall drag and drop individual records in a report onto one or more display tiles to view a cardholder's picture ID, playback a video sequence, or both.
- I. The USP shall support comprehensive data filtering for most reports based on entity type, event type, event timestamp, custom fields, and more.
- J. The user shall click on an entity within an existing report to generate additional reports from the Surveillance UI.
- K. The USP shall support the following actions on a report:
  - 1. Print report
  - 2. Export report to a PDF file
  - 3. Export report to a Microsoft Excel file
  - 4. Export a report to a CSV file
  - 5. Automatically email a report based on a schedule and a list of one or more recipients

## 2.36 ACCESS CONTROL SYSTEM (ACS)

- A. The USP shall have a variety of access control functions.
  - 1. Controller (Unit) Management.
  - 2. Cardholder and Cardholder Group Management.

3. Credential Management.
4. Badge Designer.
5. Door Management.
6. Elevator management.
7. Area Management.
8. Zone Management.
9. Input/Output Linking.
10. Access Rule Management.
11. Visitor Management.
12. People Counting, Area Presence Tracking, and Mustering.
13. Custom Fields.
14. Import Tool (Cardholders and Cards).

2.37 USER AND USER GROUP, SECURITY PARTITIONS AND PRIVILEGES MANAGEMENT

- A. The USP shall configure and manage users and user groups. A user shall add, delete, or modify a user or user group if he has the appropriate privileges.
- B. Common access rights and privileges shared by multiple users shall be defined as User Groups. Individual group members shall inherit the rights and privileges from their parent user groups. User group nesting shall be allowed.
- C. User privileges shall be extensive in the USP. All configurable entities for the USP, including access control/video/video, shall have associated privileges.
- D. Specific entities such as cardholders, cardholder groups and credentials shall include a more granular set of privileges such as the right to access custom fields and change the activation or profile status of an entity.
- E. USP privilege templates shall quickly and efficiently assign templates to users and user groups. Available USP privilege templates shall include those for a user who is provisioning, supervisor, investigator, operator, and reporting privilege templates.
- F. The USP shall limit what users view in the configuration database via security partitions (database segments). The administrator, who has all rights and privileges, shall segment a system into multiple security partitions.



- G. All entities that are part of the USP can be assigned to one or more partitions.
- H. A user who is given access to a specific partition shall only view entities (components) within the partition assigned. Access to a user is given by assigning the user as an accepted user to view the entities that are members of a particular partition.
- I. A user or user group can be assigned administrator rights over the partition.
- J. It shall specify user and user group privileges on a per partition basis.

#### 2.38 EVENT/ACTION MANAGEMENT

- A. The USP shall configure and manage events for access control and video.
- B. A user shall add, delete, or modify an action to an event with appropriate privileges.
- C. The USP shall receive all incoming events ACS and/or MVS. The USP shall take the appropriate actions based on user-define event/action relationships.
- D. The USP shall view events from multiple access control systems (ACS) and video systems (MVS).
- E. The USP shall support event-to-actions in the form of IO linking; one or more inputs shall trigger one or more outputs.
- F. The USP shall receive and log the following events:
  - 1. System-wide events
  - 2. Application events (clients and servers)
  - 3. Area events
  - 4. Camera events
  - 5. Cardholder events
  - 6. Credential events
  - 7. Unit events
  - 8. Door events
  - 9. Elevator events
  - 10. Zone events
  - 11. Alarm events

12. First Person In and Last Person Out events
  13. Entity about to expire events
  14. Macro events
  15. User events
  16. Antipassback events
  17. Hardware tamper events
- G. The USP shall allow the creation of custom events.
- H. The USP shall execute an action in response to an event for both access control and video. Possible actions include, but are not limited to the following:
1. Display an entity in the Surveillance UI: cardholder, cardholder group, area, camera, door, elevator, map, or zone
  2. Send an email
  3. Email a report
  4. Send a message
  5. Trigger an alarm
  6. Trigger a macro
  7. Sound or silence a buzzer
  8. Play a sound
- I. Access control related actions shall include the following:
1. Forgive antipassback violation.
  2. Reset area people count.
  3. Trigger an output.
- J. Video and camera-related actions shall include the following:
1. Add bookmark.
  2. Go to preset.
  3. Run a pattern.
  4. Start recording.
  5. Stop recording.
  6. Trigger video system macro.

- K. The USP shall allow a schedule to be associated with an action. The action shall be executed only if it is an appropriate action for the current time period.
- L. Scheduled Tasks
  - 1. The USP shall schedule tasks for access control and video.
  - 2. Scheduled tasks shall be executed on a user-defined schedule at a specific day and time. Recurring or periodic scheduled tasks shall be supported.
  - 3. Scheduled tasks shall support all standard actions available within the USP such as sending an email or emailing a report. Refer to the section EVENT/ACTION MANAGEMENT for more information on the Event/Action mechanism.

### 2.39 SOFTWARE DEVELOPMENT KIT (SDK)

- A. Integration with external applications and databases shall be through the use of an SDK. The SDK shall enable end-users to develop new functionality (standalone applications, services) to link the USP to third party business systems and applications such as Badging Systems, Human Resources Management Systems (HRMS) and Enterprise Resource Planning (ERP) systems.
- B. The SDK shall have the following at a minimum:
  - 1. Shall be based on a .NET framework
  - 2. Shall dynamic or transactional update USP configuration
  - 3. Shall change notification of USP entity configuration
- C. The SDK shall provide an extensive list of programming functions to view and configure most USP entity configuration information.
  - 1. Cardholders (create, modify, and delete)
  - 2. Cardholder groups (modify and delete)
  - 3. Credentials (create, modify, and delete)
  - 4. Access Rules (modify)
  - 5. Users (modify)
  - 6. User groups (modify)
  - 7. Visitors (check-in, check-out, modify, and delete)
  - 8. Custom Fields (create, modify, and delete)
  - 9. Custom Events (create, modify, and delete)

10. Alarm (create, modify and delete)
- D. The SDK shall receive real time events from the USP entities:
1. Door Controllers (units)
  2. Input and Output (IO) modules (units)
  3. Doors
  4. Elevators
  5. Areas
  6. Zones
  7. Cameras
  8. Cardholders
  9. Cardholder groups
  10. Credentials
  11. Users
  12. User Groups
- E. The SDK shall query the history of events for:
1. Cardholders
  2. Doors
  3. Areas
  4. Credentials
  5. Zones
  6. Alarms
  7. Visitors
- F. The SDK shall have the following alarm functions:
1. View alarms in real time
  2. Acknowledge alarms
  3. Change priority
  4. Change recipient
- G. IO linking: Receive the state of inputs, and control outputs.

#### 2.40 MACROS OR CUSTOM SCRIPTS

- A. The USP shall enable users to automate and extend the functionalities of the system through the use of macros or custom scripts for access control and video.
- B. Macros shall be programmed with the Software Development Kit (SDK) to create sophisticated system behavior. Refer to the section SOFTWARE DEVELOPMENT KIT (SDK)
- C. A macro shall be executed either automatically or manually. In automatic mode, it shall be loaded in a background process and shall execute when a set of conditions are met. Macros shall be loaded into the USP without requiring a system upgrade or re-installation.
- D. In the Surveillance UI, a macro shall be launched through hot actions.

#### 2.41 DYNAMIC GRAPHICAL MAPS

- A. The USP shall have Mapping functionality for both access control and video. Digital maps shall be used to represent the physical location of:
  - 1. Cameras
  - 2. Doors
  - 3. Alarms
  - 4. Zones (monitored inputs)
  - 5. Output Groups.
- B. It shall add advanced functionality to dynamic maps using the USP SDK. Any functionality available through the SDK shall be within maps.
- C. Various actions shall be within maps for execution through simple and intuitive double-click, right-click, or drag-and-drop functionality. Examples of actions through maps shall include unlocking a door and acknowledging an alarm.
- D. Mapping shall support the following drag-and-drop user actions
  - 1. Drag-and-drop a door from a map into a display tile for viewing
  - 2. Drag-and-drop a camera from a map into a display tile for viewing
- E. Graphical maps shall be mouse-based contextual pop-ups and associated actions:
  - 1. Over an area, the map shall display number of people in an area (People Counting)
  - 2. Over a door, the map shall unlock the door and override a door's unlocking schedules.

3. Over an output group, the map shall activate/deactivate (trigger) an output
4. Over a zone, the map shall view the status of the associated input(s).

#### 2.42 INCIDENT REPORTS

- A. Incident reports shall allow the security operator to create reports of incidents that occurred during a shift.
- B. Both video-related and access control-related incident reports shall be supported.
- C. The operator shall create standalone incident reports or incident reports tied to alarms.
- D. Incident reports shall allow entities, events and alarms to be added to support the report's conclusions.

### PART 3 - EXECUTION

- 3.1 The contractor shall carefully follow the instructions in the documentation provided by the video management system provider to ensure that all steps have been taken to provide a reliable, easy-to-operate system.
- 3.2 All equipment shall be tested and configured in accordance with instructions provided by the video management system provider prior to installation.
- 3.3 It is the responsibility of the Contractor to provide a system that is fully functional and that meets the intent of the specifications as described herein.

#### 3.4 GENERAL REQUIREMENTS

- A. Installation shall include the delivery, storage, setting in place, fastening to the building structure, interconnection of the system components, adjustment and all other Work, whether or not expressly specified which is necessary to result in a tested and operational system.
- B. All installation practices shall be in accordance with, but not limited to, the plans and specifications. Installation shall be performed in accordance with the applicable standards, requirements and recommendations of the National Electrical Code and any authorities having jurisdiction.
- C. During the installation and up to the date of final acceptance, the Contractor shall protect his finished and unfinished work against damage or loss. In case of such damage or loss, he shall replace or repair such work at no cost to the City of New York.
- D. All equipment shall be firmly secured in place unless requirements of portability dictate otherwise. Fasteners and supports shall be adequate to support their loads with a safety factor of at least three.
- E. All boxes, equipment, etc., shall be plumb and square. The Contractor

must take such precautions that are necessary to prevent and guard against electromagnetic and electrostatic hum, to supply adequate ventilation and to install the equipment to provide reasonable safety for the operator.

- F. In the installation of equipment and cables, considerations shall be given not only to operational efficiency, but also to overall aesthetic factors.
- G. Supply and install all fittings and accessories, whether or not they are specified, required for proper, safe and reliable operation of the system.
- H. No exposed equipment shall be installed without approval of design, finish and mounting details.
- I. All cabling in racks, cabinets and junction boxes shall be neatly strapped, dressed and adequately supported. Cable installation shall conform to good engineering practices and to the standards of the most current National Electrical Code.
- J. Cables shall be terminated with the proper connector required for the associated operation of the equipment to which it is connected. Screw terminal blocks shall be furnished for all cables that interface with racks, cabinets, consoles or equipment modules. Wire shall be interfaced with screw terminal blocks through the use of spade lugs installed on the cable with an installation tool specifically recommended by the manufacturer of the lug. Evidence of the installation of cables without the appropriate connectors, spade lugs and tools shall be sufficient cause for rejection of the work and reinstallation of the cables or wires.
- K. Every cable or wire shall be labeled or coded at each end.

### 3.5 PREPARATION OF SITE

- A. The END-USER is to be a newly constructed facility located within the city limits.

### 3.6 INSTALLATION AND QUALITY CONTROL STANDARDS

- A. A statement of how inspections and quality control procedures will be conducted and records will be kept.

### 3.7 WIRING

- A. All necessary and incidental wiring associated with the installation of the specified system shall be the responsibility of the Contractor.
- B. All 120 VAC sources and connections are the responsibility of the Contractor.
- C. All wiring must conform to the requirements of the latest edition of the National Electrical Code.
- D. Transformers and power supplies shall be identified, along with their cable, at both transformer and load fed end of the cable.

- E. All cabling must be clearly and permanently identified.
- F. Any BNC connectors required must be "crimp-on" style connectors, "screw-on" connectors will not be permitted.

### 3.8 TRADE COORDINATION

- A. Coordination with contractor is required.
- B. Coordination with Network Manager
- C. Coordination with appropriate local authorities (e.g. ain Police and Fire Departments, and utilities).

### 3.9 CONTRACTING

- A. Any contractor use must be reviewed by and accepted by the customer. Contractor use must be specified in the bid response by the Contractor. END-USER will retain the right to refuse any contractor.

### 3.10 SPECIAL EQUIPMENT

- A. The Contractor is responsible for providing all special equipment required to safely install equipment (bucket trucks, lifts, etc.).

### 3.11 HEALTH AND SAFETY

- A. The Contractor must comply with all health and safety requirements of the customer and of the authority having jurisdiction (AHJ).

### 3.12 PROJECT MEETINGS

- A. The contractor must agree to attend Project Meetings on a periodic basic as determined by END-USER the contractor must provide project scheduling with updates throughout the project in a pre-approved scheduling format. Accurate meeting minutes must be kept by the contractor.

### 3.13 PREASSEMBLY AND TESTING

- A. All equipment should be pre-built and tested at the contractor's premises before being delivered to the jobsite. Head-end equipment including control and recording equipment should be programmed, tested and demonstrated to the customer prior to delivery to the site.
- B. Testing and Commissioning
  - 1. Factory Acceptance Testing. Prior to installation, the contractor shall provide a factory acceptance test which includes, at a minimum, the set-up and demonstration of:
    - a. The system server and software.
    - b. Access Control System IP Interface and full complement of door associated equipment including but not limited to:



- (1) All cameras and integration
- (2) Card Reader
- (3) Magnetic Door Contact Switch
- (4) Request-to-Exit Device
- (5) Electromechanical Door Locking Hardware
- (6) The test must be conducted with the actual equipment purchased for this project.

2. Site Acceptance Testing. It will be the responsibility of the Contractor to verify that all provided and installed systems; software and equipment are installed and are functioning to manufacturer's published specifications and instructions.
3. Before conducting the site acceptance test, the contractor must provide a report to END-USER describing functional tests, diagnostics and calibrations, including written certification that the installed system has been calibrated and tested and is ready to begin the site acceptance test. The contractor must then submit the acceptance test procedures in writing to END-USER for approval prior to conducting the test.

- C. When the system is considered by both the purchaser and the Contractor to be complete, a certificate of completion shall be issued.

### 3.14 OPERATING INSTRUCTIONS

- A. The Contractor shall provide a Minimum of four full sets of operation manuals, operating instructions, descriptive brochures, and technical manuals for all subsystems in the contract.

### 3.15 AS-BUILT DRAWINGS

- A. The Contractor shall be required to provide a full set of as-built drawings depicting wiring and schematic diagrams. As-built drawings must be provided in hard copy as well as AutoCAD format.

### 3.16 TRAINING

- A. A formal training program must be provided by the Contractor for system users and administrators. A course syllabus must be provided prior to the training for review by END-USER staff. Handouts, for future reference, must be provided for all participants. A total of 20 hours of training should be included in the contract in at least 4 sessions of not less than 4 hours each.

### 3.17 PROGRAMMING

- A. The Contractor must provide a full list of all programming activities, including device names, descriptions, timing, and sequence of operations for review by END-USER prior to performing those tasks.

Includes main system and any subsystems.

3.18 UPGRADES

- A. The Contractor shall be required to provide and install all software upgrades that become available during the warranty period at no cost to the purchaser.

END OF SECTION





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THE CITY OF NEW YORK  
DEPARTMENT OF DESIGN AND CONSTRUCTION  
DIVISION OF PUBLIC BUILDINGS

June 1, 2015

**ADDENDUM No. # 1**

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

**HH112BLEL**

**Bellevue Men's Shelter Elevator Modernization**

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This addendum is issued for the purpose of amending the requirements of the Bid and Contract Documents and is hereby made a part of said Bid and Contract Documents to the same extent as though it were originally included therein.

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The bidder is advised that the items listed below apply to the project:

**1. Revised Bid Opening Date:**

The Bid Opening for the Contract described below scheduled for April 20th, 2015 at 2:00pm is rescheduled to June 8th, 2015 at 2:00pm.

Contract #1 – General Construction Work


**2. Revisions to Volume 2:**

See Attachment A

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**THIS ADDENDUM MUST BE SIGNED BY ALL BIDDERS AND ATTACHED TO THEIR BIDS.**

If additional information is required, please contact the Department of Design and Construction, Contract Section at (718) 391-3170, (718) 391-1016, or by fax at (718) 391-2615.

  
Rebecca Clough  
Assistant Commissioner  
Courts/ Correctional Institutions/  
Health Facilities

\_\_\_\_\_  
Name of Bidder

By: \_\_\_\_\_



11-11-11

**DDC PROJECT #: HH112BLEL**

**PROJECT NAME: Bellevue Men's Shelter Elevator Modernization**

**ATTACHMENT A – REVISIONS TO VOLUME 2**

Reference PROJECT LABOR AGREEMENT:

Delete Volume 2 document *PROJECT LABOR AGREEMENT COVERING SPECIFIED RENOVATION & REHABILITATION OF CITY OWNED BUILDINGS AND STRUCTURES* and replace with revised document *PROJECT LABOR AGREEMENT COVERING SPECIFIED RENOVATION & REHABILITATION OF CITY OWNED BUILDINGS AND STRUCTURES 2015-2018*, Included with this addendum.





## 2015 Project Labor Agreement

### NOTICE: THIS CONTRACT IS SUBJECT TO A NEW PROJECT LABOR AGREEMENT EXECUTED IN 2015

This contract is subject to the attached Project Labor Agreement ("PLA") entered into between the City and the Building and Construction Trades Council of Greater New York ("BCTC") affiliated Local Unions. By submitting a bid, the Contractor agrees that if awarded the Contract the PLA is binding on the Contractor and all subcontractors of all tiers. The bidder to be awarded the contract will be required to execute the attached Letter of Assent prior to award. Contractor shall include in any subcontract a requirement that the subcontractor, and sub-subcontractors of all tiers, become signatory to and bound to the PLA with respect to the subcontracted work. Contractor will also be required to have all subcontractors of all tiers execute the attached Letter of Assent prior to such subcontractors performing any work on the Project. Bidders are advised that the City of New York and City agencies have entered into multiple PLAs. The terms of each PLA, while similar, are not identical. All bidders should carefully read the entire PLA that governs this Contract.

In addition, please note that there are significant revisions between the 2015 PLA attached to this bid and the prior Citywide Renovation PLA. The Contractor is urged to review the entire PLA. Significant changes include:

- **Micro Work Orders:** For JOCS and Requirements contracts, Task Orders or Work Orders that do not exceed \$10,000 are not subject to the PLA. See PLA Article 3, Section 1.
- **On Call Contracts:** Provisions have been added regarding the referral of workers for on call contracts where Contractors are required to respond on an expedited basis. See PLA Article 4, Section 8.
- **Grievances:** The grievance procedure governing disputes under the PLA has been clarified. See PLA Article 9, Section 1.
- **Delinquent Contractors:** Contractors and Subcontractors who do not make required payments to union funds on a timely basis are subject to requirements to submit cancelled checks or another form of proof of payment in addition to certified payroll reports when requesting payment. See PLA Article 11, Section 2.
- **Payment to Union Funds for Non-Union Workers:** Non-union Contractors with bona fide private benefit plans that satisfy the requirements of Labor Law 220 will not be required to pay into union benefit funds for "core" non-union employees (working pursuant to Article 4, Section 2 of the PLA) who are already covered under such bona fide private benefit plans. See PLA Article 11, Section 2.
- **Veterans Day:** Veterans Day has been added to the list of standard holidays. See Article 12, Section 4.
- **Reporting Pay for Weather Events:** The usual reporting pay requirement of two hours for employees who report to their work location pursuant to their regular schedule does not apply when the National Weather Service issues a Weather Advisory and the Contractor speaks to the employee at least four hours before their shift starting time. See Article 12, Section 6.

To the extent that the terms of the PLA conflict with any other terms of the invitation for bids, including the Standard Construction Contract, the terms of the PLA shall govern. For example, the PLA section that authorizes the scheduling of a four-day week, ten hours per day on straight time at the commencement of the job, PLA Article 12, section 1, overrides the Standard Construction Contract's provision concerning a five-day work week with a maximum of eight hours in a day, Standard Construction Contract Article 37.2.1. Where, however, the invitation for bids, including the Standard Construction Contract, requires the approval of the City/Department, the PLA does not supersede or eliminate that requirement.

In addition to the various provisions regarding work rules, Contractors should take special note of the requirement that Contractors and Subcontractors make payments to designated employee benefit funds. See PLA Article 11, Section 2. The PLA also contains provisions for what occurs when a Contractor or a subcontractor fails to make required payments into the benefit funds, including potentially the direct payment by the City to the benefit fund of monies owed and corresponding withholding of payments to the Contractor. See PLA Article 11, Section 2. The City strongly advises Contractors to read these provisions carefully and to include appropriate provisions in subcontracts addressing these possibilities.

This Contract is subject to the apprenticeship requirements of Labor Law §222 and to apprenticeship requirements established by the Department pursuant to Labor Law §816-b. Please be advised that the involved trades have apprenticeship programs that meet the statutory requirements of Labor Law 222(e) and the requirements set by the Department pursuant to Labor Law §816-b, Contractors and subcontractors who agree to perform the Work pursuant to the PLA are participating in such apprenticeship programs within the meaning of Labor Law §222(e) and the Department's directive.

If this Contract is subject to the Minority-Owned and Women-Owned Business Enterprise ("M/WBE") program implemented pursuant to New York City Administrative Code §6-129, the specific requirements of M/WBE participation for this Contract are set forth in Schedule B entitled the "Subcontractor Utilization Plan," and are detailed in a separate Notice to Prospective Contractors included with this bid package. If such requirements are included with this Contract, the City strongly advises Contractors to read those provisions, as well as PLA Article 4, Section 2(C), carefully. A list of certified M/WBE firms may be obtained from the Department of Small Business Services (DSBS) website at [www.nyc.gov/getcertified](http://www.nyc.gov/getcertified), by emailing DSBS at [MWBE@sbs.nyc.gov](mailto:MWBE@sbs.nyc.gov), by calling the DSBS certification hotline at (212) 513-6311, or by visiting or writing DSBS at 110 William St., 7<sup>th</sup> floor, New York, New York, 10038.

The local collective bargaining agreements (CBAs) that are incorporated into the PLA as PLA Schedule A Agreements are available on computer disk from the Department's Contract Officer upon the request of any prospective bidder. Please note that the "PLA Schedule A" is distinct from the Department's Schedule A that is a part of this invitation for bids.

A contact list for the participating unions is set forth after the FAQs.

Below are answers to frequently asked questions (FAQs) about this PLA:

1. **Q.** Does a Contractor need to be signatory with the unions in the NYC Building and Construction Trades Council in order to bid on projects under the PLA?  
**A.** No, any contractor may bid by signing and agreeing to the terms of the PLA. The contractor need not be signatory with these unions by any other labor agreement or for any other project.
2. **Q.** Does a Contractor agreeing to the PLA and signing the Letter of Assent create a labor agreement with these unions outside of the project covered by the PLA?  
**A.** No, the PLA applies only to those projects that the Contractor agrees to perform under the PLA and makes no labor agreement beyond those projects.
3. **Q.** Do the provisions of the PLA apply equally to subcontractors as well as contractors and how does the PLA affect the subcontractors that a bidder may utilize on the project?  
**A.** Yes, the PLA applies to subcontractors and all subcontractors must agree to become party to the PLA. See PLA Art. 2, Sec. 8. Subject to the Department's approval of subcontractors pursuant to Article 17 of the Standard Construction Contract, a Contractor may use any subcontractor, union or non-union, as long as the subcontractor signs and agrees to the terms of the PLA.
4. **Q.** Are bidders required to submit Letters of Assent signed by proposed subcontractors with their bid in order to be found responsive?  
**A.** No, bidders do not have to submit signed Letters of Assent from their subcontractors with their bid. Subcontractors, however, will be required to sign the Letter of Assent prior to being approved by the Department.
5. **Q.** May a Contractor or subcontractor use any of its existing employees to perform this work?  
**A.** Generally labor will be referred to the Contractor from the respective signatory local unions. See PLA Article 4. However, Contractors and subcontractors may continue to use up to 12% of their existing, qualifying labor force for this work, in accordance with the terms of PLA Article 4, Section 2B. Certified M/WBEs for which participation goals are set pursuant to NYC Administrative Code §6-129 that are not signatory to any Schedule A CBAs may use their existing employees for the 2nd, 4th, 6th and 8th employee needed on the job if their contracts are valued at or under \$500,000. For contracts valued at above \$500,000 but under \$1,000,000, such certified M/WBEs may use their own employees for the 2nd, 5th and 8th employees needed on the job in accordance with the provisions of PLA Article 4, Section 2C. If additional workers are needed by these M/WBEs, the additional workers will be referred to the Contractor from the signatory local unions subject to the Contractor's right to meet 12% of the additional needs with its existing, qualifying employees.
6. **Q.** Must the City set M/WBE participation goals for the particular project or contract in order for a certified M/WBE to utilize the provisions of PLA Article 4, Section 2C?  
**A.** No. PLA Article 4, Section 2(C) specifies what categories of M/WBEs are eligible to take advantage of this provision (i.e., those M/WBEs for which the City is

authorized to set participation goals under §6-129). For purposes of section 2(C), it is not necessary for the project to be subject to §6-129 or for the City to have actually set participation goals for the particular contract or project. The result is the same where a projects receives State funding and therefore is subject to the requirements of Article 15-A of the Executive Law.

7. **Q.** May a Contractor bring in union members from locals that are not signatory unions?  
**A.** Referrals will be from the respective signatory locals and/or locals listed in Schedule A of the PLA. Contractors may utilize 'traveler provisions' contained in the local collective bargaining agreements (local CBAs) where such provisions exist and/or in accordance with the provisions of PLA Article 4, Section 2.
8. **Q.** Does a non-union employee working under the PLA automatically become a union member?  
**A.** No, the non-union employee does not automatically become a union member by working on a project covered by the PLA. Non-union employees working under the PLA are subject to the union security provisions (i.e., union dues/agency shop fees) of the local CBAs while on the project. These employees will be enrolled in the appropriate benefit plans and earn credit toward various union benefit programs except in certain circumstances as set forth in the PLA. See PLA Article 4, Section 6 and Article 11.
9. **Q.** When will the agency shop dues payer affiliate workers become eligible for union benefits?  
**A.** Union benefit plans have their own plan documents that determine eligibility and workers will become eligible for certain benefits at different points in time. Contractors who will have agency shop dues payer affiliate workers should speak with the respective union(s) as to benefit eligibility thresholds.
10. **Q.** Are all Contractors and subcontractors working under the PLA, including non-union Contractors and Contractors signatory to collective bargaining agreements with locals other than those that are signatories to the PLA, required to make contributions to designated employee benefit funds?  
**A.** Except in certain circumstances, as described in the following paragraph, Contractors and subcontractors working under the PLA will be required to contribute on behalf of all employees covered by the PLA to established jointly trustee employee benefit funds designated in the Schedule A CBAs and required to be paid on public works under any applicable prevailing wage law. See PLA Article 11, Section 2. The Agency may withhold from amounts due the Contractor any amounts required to be paid, but not actually paid into any such fund by the Contractor or a subcontractor. See PLA Article 11, Section 2 D.

Non-union Contractors with bona fide private benefit plans that satisfy the requirements of Labor Law 220 will not be required to pay into union benefit funds for their employees working pursuant to Article 4, Section 2 (B) and (C) ("core" employees) who are already covered under their bona fide private benefit plans. Supplemental benefit funds in excess

of the annualized value of the private benefit plans will be paid to workers as additional wages in compliance with Labor Law 220. At the time of contract award, the Contractor shall make available to the contracting Agency a complete set of plan documents for each private benefit plan into which contributions will be made and/or coverage provided. The Contractor shall also provide certification from a certified public accountant as to the annualized hourly value of such benefits consistent with the requirements of Section 220. See PLA Article 11, Section 2.

11. Q. What happens if a Contractor or subcontractor fails to make a required payment to a designated employee benefit fund?

A. The PLA sets forth a process for unions to address a contractor or a subcontractor's failure to make required payments. The process includes potentially the direct payment by the City to the benefit fund of monies owed and the corresponding withholding of payments to the Contractor. See PLA Article 11, Section 2.

Upon notification by a union or fringe benefit fund that a Contractor is delinquent in its payment of benefits and a determination by the Agency that the union or fund has submitted appropriate documentation of such delinquency, the Agency will thereafter require the Contractor to submit cancelled checks or other equivalent proof of payment of benefit contributions with certified payroll reports for work covered by this PLA on which the Contractor is engaged.

The City strongly advises Contractors to read these provisions carefully and to include appropriate provisions in subcontracts addressing these possibilities.

12. Q. Does signing on to the PLA satisfy the Apprenticeship Requirements established for this bid?

A. Yes. By agreeing to perform the Work subject to the PLA, the bidder demonstrates compliance with the apprenticeship requirements imposed by this Invitation for Bids.

13. Q. Who decides on the number of workers needed?

A. Except as expressly limited by a specific provision of the PLA, a Contractor retains full and exclusive authority for the management of their operations, including the determination as to the number of employees to be hired and the qualifications therefore and the promotion, transfer, and layoff of its employees. See PLA Article 6, Section 1.

14. Q. May a contractor discharge a union referral for lack of productivity?

A. Again, except as expressly limited by a specific provision of the PLA, a Contractor retains full and exclusive authority for the management of their operations, including the right to discipline or discharge for just cause its employees. See PLA Article 6, Section 1.

15. Q. May a contractor assign a management person to site?

- A. Yes. Managers are not subject to the provisions of the PLA, so there is no restriction on management and/or other non-trade personnel, as long as such personnel do not perform trade functions. See Article 3, Section 1.
16. Q. Does the PLA provide a standard work day across all the signatory trades?  
A. Yes, all signatory trades will work an eight (8) hour day, Monday through Friday with a day shift at straight time as the standard work week. The PLA also permits a Contractor to schedule a four day (within Monday through Friday) work week, ten (10) hours per day at straight time if announced at the commencement of the project. See PLA Article 12, Section 1. This is an example where the terms of the PLA override provisions of the Standard Construction Contract (compare with section 37.2 of the Standard Construction Contract). The standard work week may be reduced to 35 or 37 ½ hours of work in those limited circumstances where the City states in the bid documents that the Contractor will not be given access to the site to accommodate an 8 hour day. The 8 hour, 7 ½ hour or 7 hour work day must be established at the commencement of the project and may not be altered by the Contractor.
17. Q. Does the PLA create a common holiday schedule for all the signatory trades?  
A. Yes, the PLA recognizes nine (9) common holidays, including Veterans Day. See PLA Article 12, Section 4.
18. Q. Does the PLA provide for a standard policy for 'shift work' across all signatory trades?  
A. Yes, second and third shifts may be worked with a standard 5% premium pay. In addition, a day shift does not have to be scheduled in order to work the second and third shifts at the 1.05 hourly pay rate. See PLA Article 12, Section 3.
19. Q. May the Contractor schedule overtime work, including work on a weekend?  
A. Yes, the PLA permits the Contractor to schedule overtime work, including work on weekends. See PLA Article 12, Sections 2, 3, and 5. To the extent that the Agency's approval is required before a Contractor may schedule or be paid for overtime, that approval is still required notwithstanding the PLA language.
20. Q. Are overtime payments affected by the PLA?  
A. Yes, all overtime pay incurred Monday through Saturday will be at time and one half (1 ½). There will be no stacking or pyramiding of overtime pay under any circumstances. See PLA Article 12, Section 2. Sunday and holiday overtime will be paid according to each trade's CBA.
21. Q. Are there special provisions for Saturday work when a day is 'lost' during the week due to weather, power failure or other emergency?  
A. Yes, when this occurs the Contractor may schedule Saturday work at weekday rates. See PLA Article 12, Section 5.
22. Q. Does the PLA contain special provisions for the manning of Temporary Services?

- A. Yes. Where temporary services are required by specific request of the Agency or construction manager, they shall be provided by the Contractor's existing employees during working hours in which a shift is scheduled for employees of the Contractor. The need for temporary services during non-working hours will be determined by the Agency or construction manager. There will be no stacking of trades on temporary services. See PLA Article 15.
23. Q. What do the workers get paid when work is terminated early in a day due to inclement weather or otherwise cut short of 8 hours?  
A. The PLA provides that employees who report to work pursuant to regular schedule and not given work will be paid two hours of straight time. Work terminated early for severe weather or emergency conditions will be paid only for time actually worked. In other instances where work is terminated early, the worker will be paid for a full day. See PLA Article 12, Sections 6 and 8. The usual reporting pay requirement of two hours for employees who report to their work location pursuant to their regular schedule does not apply when the National Weather Service issues a Weather Advisory and the Contractor speaks to the employee at least four hours before their shift starting time. See PLA Article 12, Section 6.
24. Q. Should a local collective bargaining agreement of a signatory union expire during the project will a work stoppage occur on a project subject to the PLA?  
A. No. All the signatory unions are bound by the 'no strike' agreement as to the PLA work. Work will continue under the PLA and the otherwise expired local CBA(s) until the new local CBA(s) are negotiated and in effect. See PLA Articles 7 and 19.
25. Q. May a Contractor working under the PLA be subject to a strike or other boycott activity by a signatory union at another site while the Contractor is a signatory to the PLA?  
A. Yes. The PLA applies ONLY to work under the PLA and does not regulate labor relations at other sites even if those sites are in close proximity to PLA work.
26. Q. If a Contractor has worked under other PLAs in the New York City area, are the provisions in this PLA generally the same as the others?  
A. While Project Labor Agreements often look similar to each other, and particular clauses are often used in multiple agreements, each PLA is a unique document and should be examined accordingly.
27. Q. What happens if a dispute occurs between the Contractor and an employee during the project?  
A. The PLA contains a grievance and arbitration process to resolve disputes between the Contractor and the employees. See PLA Article 9.
28. Q. What happens if there is a dispute between locals as to which local gets to provide employees for a particular project or a particular aspect of a project?  
A. The PLA provides for jurisdictional disputes to be resolved in accordance with the NY Plan. See PLA Article 10. A copy of the NY Plan is available upon request from the



Department. The PLA provides that work is not to be disrupted or interrupted pending the resolution of any jurisdictional dispute. The work proceeds as assigned by the Contractor until the dispute is resolved. See PLA Article 10, Section 3.

29. Q. Does the 2015 Renovation PLA contain special provisions for JOCS or task order based Contracts?

A. The PLA does not apply to Task Orders or Work Orders that do not exceed \$10,000 issued under JOCS or Requirements Contracts otherwise subject to the PLA. See PLA Article 3, Section 1.

# **NYC Project Labor Agreements**

## **CONTACT INFORMATION FOR LOCAL UNIONS**

### **BOILER MAKERS LOCAL NO. 5**

24 Van Siclen Avenue  
Floral Park, NY 11001  
Phone: (516) 326-2500  
Fax: (516) 326-3435  
Business Manager: Steve Ludwigson

### **BLASTERS & DRILLERS LOCAL NO. 29**

43-12 Ditmars Blvd.  
Astoria, NY, 11105  
Phone: (718) 278-5800  
Business Manager: Thomas Russo

### **BRICKLAYERS LOCAL NO. 1**

4 Court Square #1  
Long Island City, NY 11101  
Phone: (718) 392-0525  
Business Manager: Jeramiah Sullivan

### **CARPENTERS DISTRICT COUNCIL**

395 Hudson Street, 9<sup>th</sup> Fl  
New York, New York 10014  
Phone: (212) 366-7500  
Fax: (212) 675-3140  
Business Manager: Joe Geiger  
John Sheehy, D.C. Rep.

### **CEMENT MASONS NO. 780**

150-50 14th Rd Suite 4  
Whitestone, NY 11357  
Phone: (718) 357-3750  
Fax: (718) 357-2057  
Business Manager: Gino Castingnoli

### **CONCRETE WORKERS DISTRICT COUNCIL NO. 16**

29-18 35<sup>th</sup> Avenue  
Long Island City, NY 11106  
Phone: (718) 392-5077  
Fax: (718) 392-5087  
Business Manager: Alex Castaldi

**DERRICKMEN AND RIGGERS LOCAL 197**

35-53 24th Street

Long Island City, NY 11101

Phone: (718) 361-6534

Fax: (718) 361-6584

William Hayes Bus. Manager

Billhayes197@yahoo.com

**DRYWALL TAPERS 1974**

265 West 14th Street

New York, NY 10011

Phone: (212) 242-8500

Fax: (212) 242-2356

Business Manager: Sal Marsala

**ELECTRICAL LOCAL NO. 3**

158-11 Harry Van Arsdale, Jr. Avenue

Flushing, NY 11365

Phone: (718) 591-4000

Fax: (718) 380-8998

Business Manager: Chris Erickson

Raymond Melville, Asst. Bus. Mgr.

Construction

**ELEVATOR CONSTRUCTORS NO. 1**

47-24 27th Avenue

Long Island City, NY 11101

Phone: (718) 767-7004

Fax: (718) 767-6730

Business Manager: Lenny Legotte

llegotte@localoneiuec.com

**ENGINEERS LOCAL UNION NO. 14**

141-57 Northern Boulevard

Flushing, NY 11354

Phone: (718) 939-0600

Fax: (718) 939-3131

Business Manager: Edwin Christian

**ENGINEERS NO. 15, 15A, 15B, 15C, 15D**

265 West 14th Street

New York, NY 10011

Phone: (212) 929-5327-8-9

Fax: (718) 729-3070

Business Manager: Tom Callahan

**ENGINEERS NO. 30**

115-06 Myrtle Avenue  
Richmond Hill, NY 11418  
Phone: (718) 847-8484  
Fax: (718) 850-0524  
Business Manager: William Lynn

**ENGINEERS No. 94**

331-337 West 44<sup>th</sup> Street  
New York, NY 10036  
Phone: (212) 245-7040  
Fax: (212) 245-7886  
Business Manager: Kuba Brown  
kubabrown@local94.com

**GLAZIERS NO. 1087**

45 West 14<sup>th</sup> Street  
New York, NY 10011  
Phone: (212) 924-5200  
Fax: (212) 255-1151  
Business Manager: Joseph Azzopardi

**HEAT & FROST INSULATORS  
AND ALLIED WORKERS  
LOCAL UNION NO. 12**

35-53 24<sup>th</sup> Street  
Long Island City, NY 11101  
Phone: (718) 784-3456  
Fax: (718) 784-8357  
Business Manager: Matty Aracich  
matty@insulatorslocal12.com

**HEAT & FROST INSULATORS  
LOCAL UNION NO. 12A**

1536 127<sup>th</sup> Street  
College Point, NY 11356  
Phone: (718) 886-7226  
Business Manager: Jaime Soto

**IRON WORKERS DISTRICT**

505 White Plains Road, Suite 200  
Tarrytown, NY 10591  
Phone: (914) 332-4430  
Fax: (914) 332-4431  
Business Manager: Edward Walsh  
iwnys@verizon.net

**IRON WORKERS NO. 40 (Manhattan, The Bronx & Staten Island)**

451 Park Avenue South

New York, NY 10016

Phone: (212) 889-1320

Fax: (212) 779-3267

Business Manager: Bob Walsh

**IRON WORKERS NO. 361 (Brooklyn & Queens)**

89-19 97<sup>TH</sup> Avenue

Ozone Park, NY 11416

Phone: (718) 322-1016-17

Fax: (718) 322-1053

Business Manager: Matthew Chartrand

**LABORERS LOCAL NO. 78**

**ASBESTOS & LEAD ABATEMENT**

30 Cliff Street

New York, New York 10038-2825

Phone: (212) 227-4803

Fax: (212) 406-1800

Business Manager: Edison Severino

**LABORERS, CONSTRUCTION AND  
GENERAL BUILDING NO. 79**

520 8<sup>th</sup> Avenue

New York, NY 10018

Phone: (212) 465-7900

Fax: (212) 465-7903

Business Manager: Michael Prohaska

**LABORERS NO. 731**

34-11 35<sup>th</sup> Avenue

Astoria, NY 11106

(718) 706-0720

Business Manager: Joseph D'Amato

**LATHERS METAL**

**LOCAL NO. 46**

1322 Third Avenue

New York, NY 10021

Phone: (212) 737-0500

Fax: (212) 249-1226

Business Manager: Terrance Moore

**MASON TENDERS DIST. COUNCIL**

520 8th Avenue  
New York, NY 10018  
Phone: (212) 452-9400  
Fax: (212) 452-9499  
Business Manager: Robert Bonanza

**METAL POLISHERS  
LOCAL UNION NO. 8A**

36-18 33rd Street 2nd Fl.  
Long Island City, 11106  
Phone: (718) 361-1770  
Fax: (718) 361-1934  
Business Manager: Hector Lopez

**MILLWRIGHT AND MACHINERY  
ERECTORS LOCAL NO. 740**

89-07 Atlantic Avenue  
Woodhaven, NY 11412  
Phone: (718) 849-3636  
Fax: (718) 849-0070  
Business Manager: Joseph Geiger

**ORNAMENTAL IRON WORKERS  
NO. 580**

501 West 42nd Street  
New York, NY 10036  
Phone: (212) 594-1662  
Fax: (212) 564-2748  
Business Manager: Pete Myers

**PAINTERS DISTRICT  
COUNCIL NO. 9**

45 West 14th Street  
New York, NY 10011  
Phone: (212) 255-2950  
Fax: (212) 255-1151  
Business Manager: Joseph Ramaglia

**PAINTERS STRUCTURAL STEEL  
NO. 806**

40 West 27th Street  
New York, New York 10001  
Phone: (212) 447-1838/0149  
Fax: (212) 545-8386  
Business Manager: Angelo Serse

**PAVERS & ROAD BUILDERS  
DISTRICT COUNCIL NO. 1**

136-25 37<sup>TH</sup> Avenue, Suite 502  
Flushing, NY 11354  
Phone: (718) 779-8850  
Fax: (718) 779-8857  
Business Manager: Keith Lozcalzo

**PLASTERS LOCAL UNION NO. 262**

2241 Conner Street  
Bronx, NY 10466  
Phone: (718) 547-5440  
Fax: (718) 547-5435  
Business Manager: Michael Hubler

**PLUMBERS NO. 1**

158-29 Cross Bay Boulevard  
Howard Beach, NY 11414  
Phone: (718) 738-7500  
Fax: (718) 835-0896  
Business Manager: John Murphy

**PRIVATE SANITATION  
LOCAL NO. 813**

45-18 Court Sq., Suite 600  
Long Island City, NY 11101  
Phone: (718) 937-7010  
Fax: (718) 937-7003  
Business Manager: Sean Campbell

**ROOFERS & WATERPROOFERS NO. 8**

12-11 43<sup>RD</sup> Avenue  
Long Island City, NY 11101  
Phone: (718) 361-1169  
Fax (718) 361-8330  
Business Manager: Nick Siciliano

**SHEET METAL WORKERS  
LOCAL NO. 28**

MANHATTAN OFFICE  
500 Greenwich Street  
New York, NY 10013  
Phone: (212) 941-7700  
Fax: (212) 226-0304  
Business Manager: Robert D'Orio

**SHEET METAL WORKERS**

**LOCAL 137**

21-42 44<sup>th</sup> Drive

Long Island City, NY 11101

Phone: (718) 937-4514

Fax: (718) 937-4113

Business Manager: Dante Dano

**STEAMFITTERS LOCAL UNION**

**NO. 638**

32-32 48<sup>th</sup> Avenue

Long Island City, NY 11101

Phone: (718) 392-3420

Fax: (718) 784-7285

Business Manager: Richard Roberts

**TEAMSTERS LOCAL UNION 282**

2500 Marcus Avenue

Lake Success, NY 11042

Phone: (516) 488-2822

Fax: (516) 488-4895

Business Manager: Tom Gesauldi

**TEAMSTERS LOCAL UNION 814**

21-42 44<sup>th</sup> Drive

Long Island City, NY 11101

Phone: (718) 609-6407

Fax: (718) 361-9610

Business Manager: Jason Ide

**TILE, MARBLE & TERRAZO B.A.C.**

**LOCAL UNION 7**

45-34 Court Square

Long Island City, NY 11101

Phone: (718) 786-7648

Fax: (718) 472-2370

Business Manager: Tom Lane

**TIMBERMEN LOCAL 1556**

395 Hudson Street

New York, NY 10014

Phone: (212) 242-1320

Business Manager: Joseph Geiger



NYC AGENCY RENOVATION & REHAB OF CITY OWNED BUILDINGS/STRUCTURES  
PLA

**PROJECT LABOR AGREEMENT**

**COVERING SPECIFIED**

**RENOVATION & REHABILITATION  
OF CITY OWNED BUILDINGS AND STRUCTURES**

**2015 - 2018**

NYC AGENCY RENOVATION & REHAB OF CITY OWNED BUILDINGS/STRUCTURES  
PLA

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**PROJECT LABOR AGREEMENT COVERING SPECIFIED  
RENOVATION & REHABILITATION OF NEW YORK CITY OWNED  
FACILITIES & STRUCTURES**

**ARTICLE 1 - PREAMBLE**

WHEREAS, the City of New York desires to provide for the cost efficient, safe, quality, and timely completion of certain rehabilitation and renovation work ("Program Work," as defined in Article 3) in a manner designed to afford the lowest costs to the Agencies covered by this Agreement, and the Public it represents, and the advancement of permissible statutory objectives;

WHEREAS, this Project Labor Agreement will foster the achievement of these goals, inter alia, by:

(1) providing a mechanism for responding to the unique construction needs associated with this Program Work and achieving the most cost effective means of construction, including direct labor cost savings, by the Building and Construction Trades Council of Greater New York and Vicinity and the signatory Local Unions and their members waiving various shift and other hourly premiums and other work and pay practices which would otherwise apply to Program Work;

(2) expediting the construction process and otherwise minimizing the disruption to the covered Agencies' ongoing operations at the facilities that are the subject of the Agreement;

(3) avoiding the costly delays of potential strikes, slowdowns, walkouts, picketing and other disruptions arising from work disputes, reducing jobsite friction on common situs worksites, and promoting labor harmony and peace for the duration of the Program Work;

(4) standardizing the terms and conditions governing the employment of labor on Program Work;

(5) permitting wide flexibility in work scheduling and shift hours and times to allow maximum work to be done during off hours yet at affordable pay rates;

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- (6) permitting adjustments to work rules and staffing requirements from those which otherwise might obtain;
- (7) providing comprehensive and standardized mechanisms for the settlement of work disputes, including those relating to jurisdiction;
- (8) ensuring a reliable source of skilled and experienced labor; and
- (9) securing applicable New York State Labor Law exemptions.

WHEREAS, the Building and Construction Trades Council of Greater New York and Vicinity, its participating affiliated Local Unions and their members, desire to assist the City in meeting these operational needs and objectives as well as to provide for stability, security and work opportunities which are afforded by this Project Labor Agreement; and

WHEREAS, the Parties desire to maximize Program Work safety conditions for both workers and the community in the project area.

NOW, THEREFORE, the Parties enter into this Agreement:

**SECTION 1. PARTIES TO THE AGREEMENT**

This is a Project Labor Agreement ("Agreement") entered into by the City of New York, on behalf of itself and the Agencies covered herein, including in their capacity as construction manager of covered projects and/or on behalf of any third party construction manager which may be utilized, and the Building and Construction Trades Council of Greater New York and Vicinity ("Council") (on behalf of itself) and the signatory affiliated Local Union's ("Unions" or "Local Unions"). The Council and each signatory Local Union hereby warrants and represents that it has been duly authorized to enter into this Agreement.



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**ARTICLE 2 - GENERAL CONDITIONS**

**SECTION 1. DEFINITIONS**

Throughout this Agreement, the various Union parties including the Building and Construction Trades Council of Greater New York and Vicinity and its participating affiliated Local Unions, are referred to singularly and collectively as "Union(s)" or "Local Unions"; the term "Contractor(s)" shall include any Construction Manager, General Contractor and all other contractors, and subcontractors of all tiers engaged in Program Work within the scope of this Agreement as defined in Article 3; "Agency" means the following New York City agencies: the Department for the Aging (DFTA), Administration for Children's Services (ACS), Department of Citywide Administrative Services (DCAS), Department of Correction (DOC), Department of Design and Construction (DDC), Fire Department (FDNY), Department of Homeless Services (DHS), Human Resources Administration (HRA), Department of Health and Mental Hygiene (DOHMH), Department of Parks and Recreation (DPR), Police Department (NYPD); Department of Sanitation (DSNY); the New York City Agency that awards a particular contract subject to this Agreement may be referred to hereafter as the "Agency"; when an Agency acts as Construction Manager, unless otherwise provided, it has the rights and obligations of a "Construction Manager" in addition to the rights and obligations of an Agency; the Building and Construction Trades Council of Greater New York and Vicinity is referred to as the ["BCTC" or "Council"]; and the work covered by this Agreement (as defined in Article 3) is referred to as "Program Work."

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**SECTION 2. CONDITIONS FOR AGREEMENT TO BECOME EFFECTIVE**

This Agreement shall not become effective unless each of the following conditions are met: the Agreement is executed by (1) the Council, on behalf of itself, (2) the participating affiliated Local Unions; and (3) the mayor of the City of New York or his designee.

**SECTION 3. ENTITIES BOUND & ADMINISTRATION OF AGREEMENT**

This Agreement shall be binding on all participating Unions and their affiliates, the Construction Manager (in its capacity as such) and all Contractors of all tiers performing Program Work, as defined in Article 3. The Contractors shall include in any subcontract that they let for performance during the term of this Agreement a requirement that their subcontractors, of all tiers, become signatory and bound by this Agreement with respect to that subcontracted work falling within the scope of Article 3 and all Contractors (including subcontractors) performing Program Work shall be required to sign a "Letter of Assent" in the form annexed hereto as Exhibit "A". This Agreement shall be administered by the applicable Agency or a Construction Manager or such other designee as may be named by the Agency or Construction Manager, on behalf of all Contractors.

**SECTION 4. SUPREMACY CLAUSE**

This Agreement, together with the local Collective Bargaining Agreements appended hereto as Schedule A, represents the complete understanding of all signatories and supersedes any national agreement, local agreement or other collective bargaining agreement of any type which would otherwise apply to this Program Work, in whole or in part, except that Program Work which falls within the jurisdiction of the Operating

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Engineers Locals 14 and 15 will be performed under the terms and conditions set out in the Schedule A agreements of Operating Engineers Locals 14 and 15. The Collective Bargaining Agreements of the affiliated local unions that cover the particular type of construction work to be performed by the contractor, and as set forth in the Schedule A list of Agreements, shall be deemed the Schedule A Collective Bargaining Agreements ("Schedule A CBA") under this Agreement. Where association and independent Collective Bargaining Agreements for a particular type of construction work are both set forth in Schedule A, association members shall treat the applicable association agreement as the Schedule A CBA and independent contractors shall treat the applicable independent agreement as the Schedule A CBA. Subject to the foregoing, where a subject covered by the provisions of this Agreement is also covered by a Schedule A Collective Bargaining Agreement, the provisions of this Agreement shall prevail. It is further understood that no Contractor shall be required to sign any other agreement as a condition of performing Program Work. No practice, understanding or agreement between a Contractor and a Local Union which is not set forth in this Agreement shall be binding on this Program Work unless endorsed in writing by the Construction Manager or such other designee as may be designated by the Agency.

**SECTION 5. LIABILITY**

The liability of any Contractor and the liability of any Union under this Agreement shall be several and not joint. The Construction Manager and any Contractor shall not be liable for any violations of this Agreement by any other Contractor; and the

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Council and Local Unions shall not be liable for any violations of this Agreement by any other Union.

**SECTION 6. THE AGENCY**

The Agency (or Construction Manager where applicable) shall require in its bid specifications for all Program Work within the scope of Article 3 that all successful bidders, and their subcontractors of all tiers, become bound by, and signatory to, this Agreement. The Agency (or Construction Manager) shall not be liable for any violation of this Agreement by any Contractor. It is understood that nothing in this Agreement shall be construed as limiting the sole discretion of the Agency or Construction Manager in determining which Contractors shall be awarded contracts for Program Work. It is further understood that the Agency or Construction Manager has sole discretion at any time to terminate, delay or suspend the Program Work, in whole or part, on any Program.

**SECTION 7. AVAILABILITY AND APPLICABILITY  
TO ALL SUCCESSFUL BIDDERS**

The Unions agree that this Agreement will be made available to, and will fully apply to, any successful bidder for (or subcontractor of) Program Work who becomes signatory thereto, without regard to whether that successful bidder (or subcontractor) performs work at other sites on either a union or non-union basis and without regard to whether employees of such successful bidder (or subcontractor) are, or are not, members of any unions. This Agreement shall not apply to the work of any Contractor which is performed at any location other than the site of Program Work.

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**SECTION 8. SUBCONTRACTING**

Contractors will subcontract Program Work only to a person, firm or corporation who is or agrees to become party to this Agreement.

**ARTICLE 3-SCOPE OF THE AGREEMENT**

**SECTION 1. WORK COVERED**

Program Work shall be limited to designated rehabilitation and renovation construction contracts bid and let by an Agency (or its Construction Manager where applicable) after the effective date of this Agreement with respect to rehabilitation and renovation work performed for an Agency on City-owned property under contracts let prior to December 31, 2018. Subject to the foregoing, and the exclusions below, such Program Work shall mean any and all contracts that predominantly involve the renovation, repair, alteration, rehabilitation or expansion of an existing City-owned building or structure within the five boroughs of New York City. Examples of Program Work include, but are not limited to, the renovation, repair, alteration and rehabilitation of an existing temporary or permanent structure, or an expansion of above ground structures located in the City on a City-owned building. This Program Work shall also include JOCS contracts, demolition work, site work, asbestos and lead abatement, painting services, carpentry services, and carpet removal and installation, to the extent incidental to such building rehabilitation of City-owned buildings or structures.

It is understood that, except where the City specifically applies this Project Labor Agreement to such work in its bid documents, Program Work does not include, and this Project Labor Agreement shall not apply to, any other work, including:

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1. Contracts let and work performed in connection with projects carried over, recycled from, or performed under bids or rebids relating to work that were bid prior to the effective date of this Agreement or after December 31, 2018;
2. Contracts procured on an emergency basis;
3. Contracts that do not exceed \$250,000;
4. Contracts for work on streets and bridges and for the closing or environmental remediation of landfills;
5. Contracts with not-for-profit corporations where the City is not awarding or performing the work performed for that entity;
6. Contracts with governmental entities where the City is not awarding or performing the work performed for that entity;
7. Contracts with electric utilities, gas utilities, telephone companies, and railroads, except that it is understood and agreed that these entities may only install their work to a demarcation point, e.g. a telephone closet or utility vault, the location of which is determined prior to construction and employees of such entities shall not be used to replace employees performing Program Work pursuant to this agreement;
8. Contracts for installation of information technology that are not otherwise Program Work;
9. Task Orders or Work Orders issued under JOCS or Requirements Contracts that do not exceed \$10,000, and JOCS or Requirements Contracts where the monetary value of such contracts predominantly involves such Task Orders or Work

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Orders; and

10. Contracts that do not exceed \$1 Million that are awarded pursuant to prequalified lists (PQLs) established by City agencies where entry on to the PQL is restricted to MWBEs, or a combination of MWBEs together with joint ventures which include at least one MWBE, or contractors who agree to subcontract at least 50% of the contract to MWBEs.

**SECTION 2. TIME LIMITATIONS**

In addition to falling within the scope of Article 3, Section 1, to be covered by this Agreement Program Work must be (1) advertised and let for bid after the effective date of this Agreement, and (2) let for bid prior to December 31, 2018, the expiration date of this Agreement. It is understood that this Agreement, together with all of its provisions, shall remain in effect for all such Program Work until completion, even if not completed by the expiration date of the Agreement. If Program Work otherwise falling within the scope of Article 3, Section 1 is not let for bid by the expiration date of this Agreement, this Agreement may be extended to that work by mutual agreement of the parties.

**SECTION 3. EXCLUDED EMPLOYEES**

The following persons are not subject to the provisions of this Agreement, even though performing Program Work:

A. Superintendents, supervisors (excluding general and forepersons specifically covered by a craft's Schedule A), engineers, professional engineers and/or licensed architects engaged in inspection and testing, quality control/assurance personnel, timekeepers, mail carriers, clerks, office workers, messengers, guards, technicians,

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non-manual employees, and all professional, engineering, administrative and management persons;

B. Employees of the Agency, New York City, or any other municipal or State agency, authority or entity, or employees of any other public employer, even though working on the Program site while covered Program Work is underway;

C. Employees and entities engaged in off-site manufacture, modifications, repair, maintenance, assembly, painting, handling or fabrication of project components, materials, equipment or machinery or involved in deliveries to and from the Program site, except to the extent they are lawfully included in the bargaining unit of a Schedule A agreement;

D. Employees of the Construction Manager (except that in the event the Agency engages a Contractor to serve as Construction Manager, then those employees of the Construction Manager performing manual, on site construction labor will be covered by this Agreement);

E. Employees engaged in on-site equipment warranty work unless employees are already working on the site and are certified to perform warranty work;

F. Employees engaged in geophysical testing other than boring for core samples;

G. Employees engaged in laboratory, specialty testing, or inspections, pursuant to a professional services agreement between the Agency, or any of the Agency's



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other professional consultants, and such laboratory, testing, inspection or surveying firm;  
and

H. Employees engaged in on-site maintenance of installed equipment or systems which maintenance is awarded as part of a contract that includes Program Work but which maintenance occurs after installation of such equipment or system and is not directly related to construction services.

**SECTION 4. NON-APPLICATION TO CERTAIN ENTITIES**

This Agreement shall not apply to those parents, affiliates, subsidiaries, or other joint or sole ventures of any Contractor which do not perform Program Work. It is agreed that this Agreement does not have the effect of creating any joint employment, single employer or alter ego status among the Agency (including in its capacity as Construction Manager) or any Contractor. The Agreement shall further not apply to any New York City or other municipal or State agency, authority, or entity other than a listed Agency and nothing contained herein shall be construed to prohibit or restrict the Agency or its employees, or any State, New York City or other municipal or State authority, agency or entity and its employees, from performing on or off-site work related to Program Work.

As the contracts involving Program Work are completed and accepted, the Agreement shall not have further force or effect on such items or areas except where inspections, additions, repairs, modifications, check-out and/or warranty work are assigned in writing (copy to Local Union involved) by the Agency (or Construction Manager) for performance under the terms of this Agreement.

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**ARTICLE 4- UNION RECOGNITION AND EMPLOYMENT**

**SECTION 1. PRE-HIRE RECOGNITION**

The Contractors recognize the signatory Unions as the sole and exclusive bargaining representatives of all employees who are performing on-site Program Work, with respect to that work.

**SECTION 2. UNION REFERRAL**

A. The Contractors agree to employ and hire craft employees for Program Work covered by this Agreement through the job referral systems and hiring halls established in the Local Unions' area collective bargaining agreements. Notwithstanding this, Contractors shall have sole right to determine the competency of all referrals; to determine the number of employees required; to select employees for layoff (subject to Article 5, Section 3); and the sole right to reject any applicant referred by a Local Union, subject to the show-up payments. In the event that a Local Union is unable to fill any request for qualified employees within a 48 hour period after such requisition is made by a Contractor (Saturdays, Sundays and holidays excepted), a Contractor may employ qualified applicants from any other available source. In the event that the Local Union does not have a job referral system, the Contractor shall give the Local Union first preference to refer applicants, subject to the other provisions of this Article. The Contractor shall notify the Local Union of craft employees hired for Program Work within its jurisdiction from any source other than referral by the Union.

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B. A Contractor may request by name, and the Local will honor, referral of persons who have applied to the Local for Program Work and who meet the following qualifications:

- (1) possess any license required by New York State law for the Program Work to be performed;
- (2) have worked a total of at least 1000 hours in the Construction field during the prior 3 years; and
- (3) were on the Contractor's active payroll for at least 60 out of the 180 calendar days prior to the contract award.

No more than twelve per centum (12%) of the employees covered by this Agreement, per Contractor by craft, shall be hired through the special provisions above. Under this provision, name referrals begin with the eighth employee needed and continue on that same basis.

C. Notwithstanding Section 2(B), above, certified MWBE contractors for which participation goals are set forth in New York City Administrative Code §6-129, that are not signatory to any Schedule A CBAs, with contracts valued at or under five hundred thousand (\$500,000), may request by name, and the Local will honor, referral of the second (2<sup>nd</sup>), fourth (4<sup>th</sup>), sixth (6<sup>th</sup>), and eighth (8<sup>th</sup>) employee, who have applied to the Local for Program Work and who meet the following qualifications:

- (1) possess any license required by New York State law for the Program Work to be performed;
- (2) have worked a total of at least 1000 hours in the Construction field during the prior 3 years; and
- (3) were on the Contractor's active payroll for at least 60 out of the 180 work days prior to the contract award.

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For such contracts valued at above \$500,000 but less than \$1 million, the Local will honor referrals by name of the second (2<sup>nd</sup>), fifth (5<sup>th</sup>), and eighth (8<sup>th</sup>) employee subject to the foregoing requirements. In both cases, name referrals will thereafter be in accordance with Section 2(B), above.

D. Where a certified MWBE Contractor voluntarily enters into a Collective Bargaining Agreement ("CBA") with a BCTC Union, the employees of such Contractor at the time the CBA is executed shall be allowed to join the Union for the applicable trade subject to satisfying the Union's basic standards of proficiency for admission.

**SECTION 3. NON-DISCRIMINATION IN REFERRALS**

The Council represents that each Local Union hiring hall and referral system will be operated in a non-discriminatory manner and in full compliance with all applicable federal, state and local laws and regulations which require equal employment opportunities. Referrals shall not be affected in any way by the rules, regulations, bylaws, constitutional provisions or any other aspects or obligations of union membership, policies or requirements and shall be subject to such other conditions as are established in this Article. No employment applicant shall be discriminated against by any referral system or hiring hall because of the applicant's union membership, or lack thereof.

**SECTION 4: MINORITY, FEMALE, LOCAL AND SECTION 3 REFERRALS**

In the event a Local Union either fails, or is unable to refer qualified minority or female applicants in percentages equaling the workforce participation goals adopted by the City and set forth in the Agency's (or, if applicable, Construction Manager's) bid

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specifications, within 48 hours of the request for same, the Contractor may employ qualified minority or female applicants from any other available source.

In the event that the City or a City agency determines to adopt local workforce participation goals to be set forth in an Agency's (or, if applicable Construction Manager's) bid specifications, the City and BCTC will work together to seek agreement on appropriate goals to be set forth in applicable bid documents and to be subject to the provisions of this section.

For any Program Work that may become subject to requirements under Section 3 of the Housing and Urban Development Act of 1968, as amended by the Housing and Community Development Act of 1992, and any rules, including new or revised rules, that may be published thereunder, the Local Unions will acknowledge the Section 3 obligations of the Construction Manager or Contractor, as applicable, and agree to negotiate a method to implement this Article in a manner that would allow the Construction Manager or Contractor to meet its Section 3 obligations to the greatest extent feasible, and to post any required notices in the manner required by Section 3. The parties also acknowledge that the Construction Manager and Contractor may also fulfill its Section 3 requirements on Program Work by promoting opportunities for excluded employees, as defined by Article 3, Section 3 of this Agreement, on Program Work and, to the extent permitted by Section 3, by promoting opportunities for craft and other employees on non-Program Work.

**SECTION 5. CROSS AND QUALIFIED REFERRALS**

The Local Unions shall not knowingly refer to a Contractor an employee then employed by another Contractor working under this Agreement. The Local Unions

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will exert their utmost efforts to recruit sufficient numbers of skilled and qualified crafts employees to fulfill the requirements of the Contractor.

**SECTION 6. UNION DUES**

All employees covered by this Agreement shall be subject to the union security provisions contained in the applicable Schedule A local agreements, as amended from time to time, but only for the period of time during which they are performing on-site Program Work and only to the extent of tendering payment of the applicable union dues and assessments uniformly required for union membership in the Local Unions which represent the craft in which the employee is performing Program Work. No employee shall be discriminated against at any Program Work site because of the employee's union membership or lack thereof. In the case of unaffiliated employees, the dues payment will be received by the Local Unions as an agency shop fee.

**SECTION 7. CRAFT FOREPERSONS AND GENERAL FOREPERSONS**

The selection of craft forepersons and/or general forepersons and the number of forepersons required shall be solely the responsibility of the Contractor except where otherwise provided by specific provisions of an applicable Schedule A, and provided that all craft forepersons shall be experienced and qualified journeypersons in their trade as determined by the appropriate Local Union. All forepersons shall take orders exclusively from the designated Contractor representatives. Craft forepersons shall be designated as working forepersons at the request of the Contractor, except when an existing local Collective Bargaining Agreement prohibits a foreperson from working when the craft persons he is leading exceed a specified number.

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**SECTION 8. ON CALL REPAIR REFERRALS**

A. When an Agency awards a contract that requires the Contractor to have employees available on short notice to make time sensitive repairs with such contract requiring the Contractor to respond within as little as two hours from the time the Contractor is contacted by the Agency ("On Call, Repair Contract"), the Contractor will, within ten (10) days of being awarded an On Call, Repair Contract subject to this Agreement, notify the appropriate affiliated Union that it has been awarded such a contract and immediately enter into good faith negotiations with such relevant affiliated Union to establish a procedure to receive time sensitive referrals from such affiliated Union(s).

B. In the event the Contractor and the relevant affiliated Union(s) are unable to negotiate a specific, mutually agreeable procedure for on call repair referral procedure within twenty (20) days of commencement of negotiations or, prior to commencement of performance of the contract, whichever is earlier, the Contractor and the relevant affiliated Unions will follow the following procedure:

1. Upon notification by a Contractor that it has been awarded an On Call Repair Contract pursuant to paragraph A above, each relevant affiliate Union shall provide the Contractor with the name and twenty four (24) hour contact information of an On Call, Repair Contract contact person for urgent on call repair referrals.

2. The relevant affiliated Unions shall prepare a list of individuals eligible and prepared for referral on an immediate basis to respond to the on call repair contractor. Such list shall be provided to and in the possession of the designated on call repair contact person for the affiliated Union and available for immediate reference.

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3. Individuals on such list must be able to comply with the Contractor's response time pursuant to contract requirements.

4. The Union's On Call, Repair Contract contact person shall respond to a contractor's request for referrals within a reasonable time of the request so that compliance with the contract shall be possible.

C. In the event that the Contractor makes a request for an on call referral that is compliant with this procedure and a Union is not able to respond to the request, that Union will be deemed to have waived the forty-eight (48) hour referral rule contained in Section 2 above and the Contractor may employ qualified applicants from any other available source that can meet contract requirements for that time sensitive on call repair work only; provided, however, that any work related to the repair work that is not of a time sensitive nature under the contract shall comply with Section 2. If a Union fails to timely refer a worker and the Contractor employs other workers, the Contractor will e-mail the agency within 72 hours and the agency will forward that e-mail to the designated Labor Management Committee contacts.

**ARTICLE 5- UNION REPRESENTATION**

**SECTION 1. LOCAL UNION REPRESENTATIVE**

Each Local Union representing on-site employees shall be entitled to designate in writing (copy to Contractor involved and Construction Manager) one representative, and/or the Business Manager, who shall be afforded access to the Program Work site during such time as bargaining unit work is occurring and subject to otherwise applicable policies pertaining to visitors to the site.



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**SECTION 2. STEWARDS**

A. Each Affiliated Union shall have the sole discretion to designate any journey person as a Steward and an alternate Steward. The Union shall notify the Owner and/or Construction Manager as well as the Contractor of the identity of the designated Steward (and alternate) prior to the assumption of such duties. Stewards shall not exercise supervisory functions and will receive the regular rate of pay for their craft classifications. All Stewards shall be working Stewards.

B. In addition to their work as an employee, the Steward shall have the right to receive complaints or grievances and to discuss and assist in their adjustment with the Contractor's appropriate supervisor. Each Steward shall be concerned with the employees of the Steward's trade and, if applicable, subcontractors of their Contractor, but not with the employees of any other trade Contractor. No Contractor shall discriminate against the Steward in the proper performance of Union duties.

C. The Stewards shall not have the right to determine when overtime shall be worked, or who shall work overtime except pursuant to a Schedule A provision providing procedures for the equitable distribution of overtime.

**SECTION 3. LAYOFF OF A STEWARD**

Contractors agree to notify the appropriate Union 24 hours prior to the layoff of a Steward, except in cases of discipline or discharge for just cause. If a Steward is protected against layoff by a Schedule A provision, such provision shall be recognized to the extent the Steward possesses the necessary qualifications to perform the work required.

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In any case in which a Steward is discharged or disciplined for just cause, the Local Union involved shall be notified immediately by the Contractor.

**ARTICLE 6- MANAGEMENT'S RIGHTS**

**SECTION 1. RESERVATION OF RIGHTS**

Except as expressly limited by a specific provision of this Agreement, Contractors retain full and exclusive authority for the management of their operations including, but not limited to, the right to: direct the work force, including determination as to the number of employees to be hired and the qualifications therefore; the promotion, transfer, layoff of its employees; require compliance with the directives of the Agency including standard restrictions related to security and access to the site that are equally applicable to Agency employees, guests, or vendors; or the discipline or discharge for just cause of its employees; assign and schedule work; promulgate reasonable Program Work rules that are not inconsistent with this Agreement or rules common in the industry and are reasonably related to the nature of work; and, the requirement, timing and number of employees to be utilized for overtime work. No rules, customs, or practices which limit or restrict productivity or efficiency of the individual, as determined by the Contractor, Agency and/or Construction Manager and/or joint working efforts with other employees shall be permitted or observed.

**SECTION 2. MATERIALS, METHODS & EQUIPMENT**

There shall be no limitation or restriction upon the Contractor's choice of materials, techniques, methods, technology or design, or, regardless of source or location, upon the use and installation of equipment, machinery, package units, pre-cast,

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pre-fabricated, pre-finished, or pre-assembled materials or products, tools, or other labor-saving devices. Contractors may, without restriction, install or use materials, supplies or equipment regardless of their source; provided, however, that where there is a Schedule "A" that includes a lawful union standards and practices clauses, then such clause as set forth in Schedule A Agreements will be complied with, unless there is a lawful Agency specification (or specification issued by a Construction Manager which would be lawful if issued by the Agency directly) that would specifically limit or restrict the Contractor's choice of materials, techniques, methods, technology or design, or, regardless of source or location, upon the use and installation of equipment, machinery, package units, pre-cast, pre-fabricated, pre-finished, or pre-assembled materials or products, tools, or other labor-saving devices, and which would prevent compliance with such Schedule A clause. The on-site installation or application of such items shall be performed by the craft having jurisdiction over such work; provided, however, it is recognized that other personnel having special qualifications may participate, in a supervisory capacity, in the installation, check-off or testing of specialized or unusual equipment or facilities as designated by the Contractor. There shall be no restrictions as to work which is performed off-site for Program Work.

**ARTICLE 7- WORK STOPPAGES AND LOCKOUTS**

**SECTION 1. NO STRIKES-NO LOCK OUT**

There shall be no strikes, sympathy strikes, picketing, work stoppages, slowdowns, hand billing, demonstrations or other disruptive activity at the Program Work site for any reason by any Union or employee against any Contractor or employer. There

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shall be no other Union, or concerted or employee activity which disrupts or interferes with the operation of the Program Work or the objectives of the Agency at any Program Work site. In addition, failure of any Union or employee to cross any picket line established by any Union, signatory or non-signatory to this Agreement, or the picket or demonstration line of any other organization, at or in proximity to a Program Work site where the failure to cross disrupts or interferes with the operation of Program Work is a violation of this Article. Should any employees breach this provision, the Unions will use their best efforts to try to immediately end that breach and return all employees to work. There shall be no lockout at a Program Work site by any signatory Contractor, Agency or Construction Manager.

**SECTION 2. DISCHARGE FOR VIOLATION**

A Contractor may discharge any employee violating Section 1, above, and any such employee will not be eligible thereafter for referral under this Agreement for a period of 100 days.

**SECTION 3. NOTIFICATION**

If a Contractor contends that any Union has violated this Article, it will notify the Local Union involved advising of such fact, with copies of the notification to the Council. The Local Union shall instruct and order, the Council shall request, and each shall otherwise use their best efforts to cause, the employees (and where necessary the Council shall use its best efforts to cause the Local Union), to immediately cease and desist from any violation of this Article. If the Council complies with these obligations it shall not be liable for the unauthorized acts of a Local Union or its members. Similarly, a Local Union

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and its members will not be liable for any unauthorized acts of the Council. Failure of a Contractor or the Construction Manager to give any notification set forth in this Article shall not excuse any violation of Section 1 of this Article.

**SECTION 4. EXPEDITED ARBITRATION**

Any Contractor or Union alleging a violation of Section 1 of this Article may utilize the expedited procedure set forth below (in lieu of, or in addition to, any actions at law or equity) that may be brought.

A. A party invoking this procedure shall notify J.J. Pierson or Richard Adelman; who shall alternate (beginning with Arbitrator J.J. Pierson) as Arbitrator under this expedited arbitration procedure. If the Arbitrator next on the list is not available to hear the matter within 24 hours of notice, the next Arbitrator on the list shall be called. Copies of such notification will be simultaneously sent to the alleged violator and Council.

B. The Arbitrator shall thereupon, after notice as to time and place to the Contractor, the Local Union involved, the Council and the Construction Manager, hold a hearing within 48 hours of receipt of the notice invoking the procedure if it is contended that the violation still exists. The hearing will not, however, be scheduled for less than 24 hours after the notice required by Section 3, above.

C. All notices pursuant to this Article may be provided by telephone, telegraph, hand delivery, or fax, confirmed by overnight delivery, to the Arbitrator, Contractor, Construction Manager and Local Union involved. The hearing may be held on any day including Saturdays or Sundays. The hearing shall be completed in one session, which shall not exceed 8 hours duration (no more than 4 hours being allowed to either side

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to present their case, and conduct their cross examination) unless otherwise agreed. A failure of any Union or Contractor to attend the hearing shall not delay the hearing of evidence by those present or the issuance of an award by the Arbitrator.

D. The sole issue at the hearing shall be whether a violation of Section 1, above, occurred. If a violation is found to have occurred, the Arbitrator shall issue a Cease and Desist Award restraining such violation and serve copies on the Contractor and Union involved. The Arbitrator shall have no authority to consider any matter in justification, explanation or mitigation of such violation or to award damages (any damages issue is reserved solely for court proceedings, if any.) The Award shall be issued in writing within 3 hours after the close of the hearing, and may be issued without an Opinion. If any involved party desires an Opinion, one shall be issued within 15 calendar days, but its issuance shall not delay compliance with, or enforcement of, the Award.

E. The Agency and Construction Manager (or such other designee of the Agency) may participate in full in all proceedings under this Article.

F. An Award issued under this procedure may be enforced by any court of competent jurisdiction upon the filing of this Agreement together with the Award. Notice of the filing of such enforcement proceedings shall be given to the Union or Contractor involved, and the Construction Manager.

G. Any rights created by statute or law governing arbitration proceedings which are inconsistent with the procedure set forth in this Article, or which interfere with compliance thereto, are hereby waived by the Contractors and Unions to whom they accrue.

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H. The fees and expenses of the Arbitrator shall be equally divided between the involved Contractor and Union.

**SECTION 5. ARBITRATION OF DISCHARGES FOR VIOLATION**

Procedures contained in Article 9 shall not be applicable to any alleged violation of this Article, with the single exception that an employee discharged for violation of Section 1, above, may have recourse to the procedures of Article 9 to determine only if the employee did, in fact, violate the provisions of Section 1 of this Article; but not for the purpose of modifying the discipline imposed where a violation is found to have occurred.

**ARTICLE 8 - LABOR MANAGEMENT COMMITTEE**

**SECTION 1. SUBJECTS**

The Program Labor Management Committee will meet on a regular basis to: 1) promote harmonious relations among the Contractors and Unions; 2) enhance safety awareness, cost effectiveness and productivity of construction operations; 3) protect the public interests; 4) discuss matters relating to staffing and scheduling with safety and productivity as considerations; and 5) review efforts to meet applicable participation goals for MWBEs and workforce participation goals for minority and female employees.

**SECTION 2. COMPOSITION**

The Committee shall be jointly chaired by a designee of the Agency and the President of the Council. It may include representatives of the Local Unions and Contractors involved in the issues being discussed. The parties may mutually designate an

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MWBE representative to participate in appropriate Committee discussions. The Committee may conduct business through mutually agreed upon sub-committees.

**ARTICLE 9- GRIEVANCE & ARBITRATION PROCEDURE**

**SECTION 1. PROCEDURE FOR RESOLUTION OF GRIEVANCES**

Any question, dispute or claim arising out of, or involving the interpretation or application of this Agreement (other than jurisdictional disputes or alleged violations of Article 7, Section 1) shall be considered a grievance and shall be resolved pursuant to the exclusive procedure of the steps described below, provided, in all cases, that the question, dispute or claim arose during the term of this Agreement. Grievances shall include the City contract number and the Program Work address; such information is posted at the Program Work Site if already commenced, and is available in the City Record and Notice to Proceed for projects not already commenced.

Grievances as to whether a scope of work is included or excluded from this Agreement shall be submitted to the Labor Management Committee (LMC) in the first instance rather than Step 1 below. To be timely, such notice must be given no later than ten days prior to a bid opening if the grievance is challenging a determination by an Agency that the contract is not subject to this Agreement. For other grievances as to contractor scope of work issues, notice of such challenges shall be submitted to the LMC within 7 calendar days after the act, occurrence or event giving rise to the grievance. If the scope of work grievance is not resolved within 21 days of its submission to the LMC, then the grievance may proceed directly to Step 3 below.

**Step 1:**



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(a) When any employee covered by this Agreement feels aggrieved by a claimed violation of this Agreement, the employee shall, through the Local Union business representative or job steward give notice of the claimed violation to the work site representative of the involved Contractor and the Construction Manager. To be timely, such notice of the grievance must be given within 7 calendar days after the act, occurrence or event giving rise to the grievance. The business representative of the Local Union or the job steward and the work site representative of the involved Contractor shall meet and endeavor to adjust the matter within 7 calendar days after timely notice has been given. If they fail to resolve the matter within the prescribed period, the grieving party, may, within 7 calendar days thereafter, pursue Step 2 of the grievance procedure by serving the involved Contractor with written copies of the grievance setting forth a description of the claimed violation, the date on which the grievance occurred, and the provisions of the Agreement alleged to have been violated. Grievances and disputes settled at Step 1 are non-precedential except as to the specific Local Union, employee and Contractor directly involved unless the settlement is accepted in writing by the Construction Manager (or designee) as creating a precedent.

(b) Should any signatory to this Agreement have a dispute (excepting jurisdictional disputes or alleged violations of Article 7, Section 1) with any other signatory to this Agreement and, if after conferring, a settlement is not reached within 7 calendar days, the dispute shall be reduced to writing and proceed to Step 2 in the same manner as outlined in subparagraph (a) for the adjustment of employee grievances.

**Step 2:**

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A Step 2 grievance shall be filed with the Agency, the BCTC, the Contractor, and, if the grievance is against a subcontractor, the subcontractor. The Business Manager or designee of the involved Local Union, together with representatives of the involved Contractor, Council, the Construction Manager (or designee), and, if the grievance is against a subcontractor, the subcontractor, shall meet in Step 2 within 7 calendar days of service of the written grievance to arrive at a satisfactory settlement. The BCTC shall schedule the Step 2 meeting.

**Step 3:**

(a) If the grievance shall have been submitted but not resolved in Step 2, any of the participating Step 2 entities may, within 21 calendar days after the initial Step 2 meeting, submit the grievance in writing (copies to other participants, including the Construction Manager or designee) to the BCTC. In the event the matter is not resolved at Step 2, either J.J. Pierson or Richard Adelman, who shall act, alternately (beginning with Arbitrator J.J. Pierson), as the Arbitrator under this procedure, shall be designated at the Step 2 hearing and the BCTC will notify the arbitrator of his designation. After such notification by the BCTC, the local demanding arbitration shall within a reasonable time request the arbitrator to schedule the matter for an arbitration hearing date. The Labor Arbitration Rules of the American Arbitration Association shall govern the conduct of the arbitration hearing, at which all Step 2 participants shall be parties. The decision of the Arbitrator shall be final and binding on the involved Contractor, Local Union and employees and the fees and expenses of such arbitrations shall be borne equally by the involved Contractor and Local Union.

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(b) Failure of the grieving party to adhere to the time limits set forth in this Article shall render the grievance null and void. These time limits may be extended only by written consent of the Construction Manager (or designee), involved Contractor and involved Local Union at the particular step where the extension is agreed upon. The Arbitrator shall have authority to make decisions only on the issues presented to him and shall not have the authority to change, add to, delete or modify any provision of this Agreement.

**SECTION 2. LIMITATION AS TO RETROACTIVITY**

No arbitration decision or award, with the exception of those related to compliance with requirements to pay prevailing wages and supplements in accordance with federal or State law, may provide retroactivity of any kind exceeding 60 calendar days prior to the date of service of the written grievance on the Construction Manager and the involved Contractor or Local Union.

**SECTION 3. PARTICIPATION BY AGENCY AND/OR CONSTRUCTION  
MANAGER**

The Agency and Construction Manager (or such other designee of the Agency) shall be notified by the involved Contractor of all actions at Steps 2 and 3 and, at its election, may participate in full in all proceedings at these Steps, including Step 3 arbitration.

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**ARTICLE 10 - JURISDICTIONAL DISPUTES**

**SECTION 1. NO DISRUPTIONS**

There will be no strikes, sympathy strikes, work stoppages, slowdowns, picketing or other disruptive activity of any kind arising out of any jurisdictional dispute. Pending the resolution of the dispute, the work shall continue uninterrupted and as assigned by the Contractor. No jurisdictional dispute shall excuse a violation of Article 7.

**SECTION 2. ASSIGNMENT**

All Program Work assignments shall be made by the Contractor to unions affiliated with the BCTC consistent with the New York Plan for the Settlement of Jurisdictional Disputes ("New York Plan") and its Greenbook decisions, if any. Where there are no applicable Greenbook decisions, assignments shall be made in accordance with the provisions of the New York Plan and local industry practice.

**SECTION 3. NO INTERFERENCE WITH WORK**

There shall be no interference or interruption of any kind with the Program Work while any jurisdictional dispute is being resolved. The work shall proceed as assigned by the Contractor until finally resolved under the applicable procedure of this Article. The award shall be confirmed in writing to the involved parties. There shall be no strike, work stoppage or interruption in protest of any such award.

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**ARTICLE 11 - WAGES AND BENEFITS**

**SECTION 1. CLASSIFICATION AND BASE HOURLY RATE**

All employees covered by this Agreement shall be classified in accordance with the work performed and paid the hourly wage rates applicable for those classifications as required by the applicable prevailing wage laws.

**SECTION 2. EMPLOYEE BENEFITS**

A. The Contractors agree to pay on a timely basis contributions on behalf of all employees covered by this Agreement to those established jointly trustee employee benefit funds designated in the applicable Collective Bargaining Agreements in Schedule A (in the appropriate Schedule A amounts), provided that such benefits are required to be paid on public works under any applicable prevailing wage law. Bona fide jointly trustee fringe benefit plans established or negotiated through collective bargaining during the life of this Agreement may be added if similarly required under applicable prevailing wage law. Contractors, not otherwise contractually bound to do so, shall not be required to contribute to benefits, trusts or plans of any kind which are not required by the prevailing wage law provided, however, that this provision does not relieve Contractors signatory to local collective bargaining agreement with any affiliated union from complying with the fringe benefit requirements for all funds contained in the CBA.

B. 1. Notwithstanding Section 2 (A) above, and subject to 2 (B)(2) below, Contractors who designate employees pursuant to Article 4, Section 2 (B) and (C) ("core" employees) that are not signatory to a Schedule A Agreement and who maintain bona fide private benefit plans that satisfy the requirements of Section 220 of the Labor Law, may

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satisfy the above benefit obligation with respect to those employees by providing those employees with coverage under their private benefit plans (to the extent consistent with Section 220). The total benefit payments to be made on behalf of each such employee must be equal to the total Section 220 supplement amount and any shortfall must be paid by cash supplement to the employee.

2. A contractor that will satisfy its Section 220 obligations in accordance with subsection 2(B)(1) above shall make available to the Agency at the time of contract award a complete set of plan documents for each non-Schedule A benefit plan into which contributions will be made and/or coverage provided pursuant to the provisions of Section 2(B)(1) above. The Contractor shall also provide certification from a certified public accountant as to the annualized hourly value of such benefits consistent with the requirements of Section 220.

3. The City shall verify that the alternate benefit plan(s), together with any cash supplement to the employee, is compliant with Section 220 prior to awarding the Contractor a contract covered by this Agreement. In the event the Contractor's alternate benefit plan(s), together with any cash supplement to the employee, is determined to be compliant with Section 220 and will be utilized by the Contractor on behalf of Article 4, Section 2(B) and (C) core employees, the Local Unions have no duty to enforce the Contractor's obligations on the alternate benefit plan(s) as they are not party to the alternate plan(s) or privy to the terms and conditions of the plan obligations. In the event the City determines the alternate benefit plan(s), together with any cash supplement to the employee, is not compliant with Section 220, the Contractor may, upon executing a Letter

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of Assent, satisfy its obligations for all employees, including core employees, by contributing to the Schedule A benefit plans in accordance with the terms of the Schedule A Agreements.

C. The Contractors agree to be bound by the written terms of the legally established jointly trustee Trust Agreements specifying the detailed basis on which payments are to be paid into, and benefits paid out of, such Trust Funds but only with regard to Program Work done under this Agreement and only for those employees to whom this Agreement requires such benefit payments.

D. 1. To the extent consistent with New York City's Procurement Policy Board Rules with respect to prompt payment, as published at [www.nyc.gov/ppb](http://www.nyc.gov/ppb), §4-06(e), and in consideration of the unions' waiver of their rights to withhold labor from a contractor or subcontractor delinquent in the payment of fringe benefits contributions ("Delinquent Contractor"); the Agency agrees that where any such union and/or fringe benefit fund shall notify the Agency, the General Contractor, and the Delinquent Contractor in writing with back-up documentation that the Delinquent Contractor has failed to make fringe benefit contributions to it as provided herein and the Delinquent Contractor shall fail, within ten (10) calendar days after receipt of such notice, to furnish either proof of such payment or notice that the amount claimed by the union and/or fringe benefit fund is in dispute, the Agency shall withhold from amounts then or thereafter becoming due and payable to the General Contractor an amount equal to that portion of such payment due to the General Contractor that relates solely to the work performed by

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the Delinquent Contractor which the union or fringe benefit fund claims to be due it, and shall remit the amount when and so withheld to the fringe benefit fund and deduct such payment from the amounts then otherwise due and payable to the General Contractor, which payment shall, as between the General Contractor and the Agency, be deemed a payment by the Agency to the General Contractor; provided however, that in any month, such withholding shall not exceed the amount contained in the General Contractor's monthly invoice for work performed by the Delinquent Contractor. The union or its employee benefit funds shall include in its notification of delinquent payment of fringe benefits only such amount it asserts the Delinquent Contractor failed to pay on the specific project against which the claim is made and the union or its employee benefit funds may not include in such notification any amount such Delinquent Contractor may have failed to pay on any other City or non-City project.

2. In addition, where a union or employee benefit fund gives notice to the City that a Contractor is Delinquent as defined in subsection 2(D)(1) above and the City determines that the notice includes appropriate back-up documentation that the Contractor is delinquent, the City will promptly, but not later than twenty (20) days after receipt of the notice, provide a copy of said notice to City Agencies. In the event the City determines there is insufficient back-up documentation, it will notify the appropriate union and/or fringe benefit fund promptly, but not later than twenty (20) days after receipt of the Delinquency Notice, and shall include notice of what additional documentation is requested. Any determination by the City that there is insufficient back-up must be reasonable. This provision is intended to enhance compliance with the prevailing wage



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law and the PLA with respect to the payment of fringe benefits, and is not intended as a substitute for the resolution of a disputed claim pursuant to any applicable law or agreement.

The City and the relevant Agency(s) will thereafter require the Delinquent Contractor to provide cancelled checks or other equivalent proof of payment of benefit contributions that have come due, to be submitted with certified payroll reports for all Program Work covered by this Agreement on which the Delinquent Contractor is engaged, for at least a one-year period or such earlier period if the Contractor is ultimately determined not be a Delinquent Contractor. Such proof of payment when required is a condition of payment of the Delinquent Contractor's invoices by any entity, including, but not limited to, the City, the relevant Agency(s), Construction Manager, General Contractor, the prime or higher level subcontractor, as is appropriate under the Delinquent Contractor's engagement. The union and the funds shall upon request receive copies of the certified payrolls, cancelled checks, or other proof of payment from the City and/or the relevant Agency(s).

E. In the event the General Contractor or Delinquent Contractor shall notify the Agency as above provided that the claim of the union or fringe benefit fund is in dispute, the Agency shall withhold from amounts then or thereafter becoming due and payable to the General Contractor an amount equal to that portion of such payment due to the General Contractor that relates solely to the work performed by the Delinquent Contractor that the union and/or fringe benefit fund claims to be due it, pending resolution of the dispute pursuant to the union's Schedule A agreement, and the amount shall be paid to the party or parties ultimately determined to be entitled thereto, or held until the

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Delinquent Contractor and union or employee benefit fund shall otherwise agree as to the disposition thereof; provided however, that such withholding shall not exceed the amount contained in the General Contractor's monthly invoice for work performed by the Delinquent Contractor. In the event the Agency shall be required to withhold amounts from a General Contractor for the benefit of more than one fringe benefit fund, the amounts so withheld in the manner and amount prescribed above shall be applied to or for such fund in the order in which the written notices of nonpayment have been received by the Agency, and if more than one such notice was received on the same day, proportionately based upon the amount of the union and/or fringe benefit fund claims received on such day. Nothing herein contained shall prevent the Agency from commencing an interpleader action to determine entitlement to a disputed payment in accordance with section one thousand six of the civil practice law and rules or any successor provision thereto.

F. Payment to a fringe benefit fund under this provision shall not relieve the General Contractor or Delinquent Contractor from responsibility for the work covered by the payment. Except as otherwise provided, nothing contained herein shall create any obligation on the part of the Agency to pay any union or fringe benefit fund, nor shall anything provided herein serve to create any relationship in contract or otherwise, implied or expressed, between the union/fund and/or fringe benefit and the Agency.

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**ARTICLE 12- HOURS OF WORK, PREMIUM PAYMENTS,**

**SHIFTS AND HOLIDAYS**

**SECTION 1. WORK WEEK AND WORK DAY**

A. The standard work week shall consist of 40 hours of work at straight time rates, Monday through Friday, 8 hours per day, plus ½ hour unpaid lunch period. The standard work week may be reduced to 35 or 37 ½ hours of work at straight time rates, Monday to Friday, 7 or 7 ½ hours per day, plus ½ hour unpaid lunch period in those limited circumstances where the City states in the bid documents that the Contractor will not be given access to the site to accommodate an 8 hour day. The 8 hour, 7 ½ hour or 7 hour work day must be established at the commencement of the project and may not be altered by the Contractor.

B. In accordance with Program needs, there shall be flexible start times with advance notice from Contractor to the Union. The Day Shift shall commence between the hours of 6:00 a.m. and 9:00 a.m. and shall end between the hours of 2:30 p.m. and 5:30 p.m., for an 8 hour day, and up to 7:30 p.m. for a 10 hour day. The Evening Shift shall commence between the hours of 3:00 p.m. and 6:00 p.m., unless different times are necessitated by the Agency's phasing plans on specific projects. The Night Shift shall commence between the hours of 11:00 p.m. and 2:00 a.m., unless different times are necessitated by the Agency's phasing plans on specific projects. Subject to the foregoing, starting and quitting times shall occur at the Program Work site designated by the Contractor.

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C. Scheduling — Except as provided above, Monday through Friday is the standard work week; 8 hours of work plus ½ hour unpaid lunch. Notwithstanding any other provision of this Agreement, a contractor may schedule a four day work week, 10 hours per day at straight time rates, plus a ½ hour unpaid lunch, at the commencement of the job.

D. Notice - Contractors shall provide not less than 5 days prior notice to the Local Union involved as to the work week and work hour schedules to be worked or such lesser notice as may be mutually agreed upon.

**SECTION 2. OVERTIME**

Overtime shall be paid for any work (i) over an employee's regularly scheduled work day, i.e., work over eight (8) hours in a day where 5/8s is scheduled, work over ten (10) hours in a day where 4/10s is scheduled, or work over seven (7) or seven and one half (7 ½) hours where such hours are scheduled pursuant to Article 12, section 1(A) and (ii) over forty (40) hours in a week, or over thirty five (35) or thirty seven and one-half (37 ½) where such hours are scheduled pursuant to Article 12, section 1(A). Overtime shall be paid at time and one half (1½) Monday through Saturday. All overtime work performed on Sunday and Holidays will be paid pursuant to the applicable Schedule A. There shall be no stacking or pyramiding of overtime pay under any circumstances. There will be no restriction upon the Contractor's scheduling of overtime or the nondiscriminatory designation of employees who shall be worked, including the use of employees, other than those who have worked the regular or scheduled work week, at straight time rates. The Contractor shall have the right to schedule work so as to minimize

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overtime or schedule overtime as to some, but not all, of the crafts and whether or not of a continuous nature.

**SECTION 3. SHIFTS**

A. Flexible Schedules - Scheduling of shift work, including Saturday and Sunday work, shall be within the discretion of the Contractor in order to meet Program Work schedules and existing Program Work conditions including the minimization of interference with the mission of the Agency. It is not necessary to work a day shift in order to schedule a second or third shift, or a second shift in order to schedule a third shift, or to schedule all of the crafts when only certain crafts or employees are needed. Shifts must have prior approval of the Agency or Construction Manager, and must be scheduled with not less than five work days notice to the Local Union or such lesser notice as may be mutually agreed upon.

B. Second and/or Third Shifts/Saturday and/or Sunday Work - - The second shift shall start between 3 p.m. and 6 p.m. and the third shift shall start between 11 p.m. and 2 a.m., subject to different times necessitated by the Agency phasing plans on specific projects. There shall be no reduction in shift hour work. With respect to second and third shift work there shall be a 5% shift premium. No other premium or other payments for such work shall be required unless such work is in excess of the employee's regularly scheduled work week, i.e., 40 hours in the week or thirty five (35) or thirty seven and one half (37 ½) pursuant to Article 12, section 1(A). All employees within a classification performing Program Work will be paid at the same wage rate regardless of the shift or work scheduled work, subject only to the foregoing provisions.

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C. Flexible Starting Times - Shift starting times will be adjusted by the Contractor as necessary to fulfill Program Work requirements subject to the notice requirements of paragraph A.

**SECTION 4. HOLIDAYS**

A. Schedule - There shall be nine (9) recognized holidays on the Project:

New Year's Day

Martin Luther King Day      President's Day

Memorial Day      Veteran's Day

Labor Day      Thanksgiving Day

Independence Day      Christmas Day

All said holidays shall be observed on the calendar date except those holidays which occur on Saturday shall be observed on the previous Friday and those that occur on Sunday shall be observed on the following Monday.

B. Payment - Regular holiday pay, if any, for work performed on such a recognized holiday shall be in accordance with the applicable Schedule A.

C. Exclusivity - No holidays other than those listed in Section 4(A) above shall be recognized or observed.

**SECTION 5. SATURDAY MAKE-UP DAYS**

When severe weather, power failure, fire or natural disaster or other similar circumstances beyond the control of the Contractor prevent work from being performed on

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a regularly scheduled weekday, the Contractor may schedule a Saturday make-up day and such time shall be scheduled and paid as if performed on a weekday. Any other Saturday work shall be paid at time and one-half (1½). The Contractor shall notify the Local Union on the missed day or as soon thereafter as practicable if such a make-up day is to be worked.

**SECTION 6. REPORTING PAY**

A. Employees who report to the work location pursuant to their regular schedule and who are not provided with work shall be paid two hours reporting pay at straight time rates. An employee whose work is terminated early by a Contractor due to severe weather, power failure, fire or natural disaster or for similar circumstances beyond the Contractor's control, shall receive pay only for such time as is actually worked. In other instances in which an employee's work is terminated early (unless provided otherwise elsewhere in this Agreement), the employee shall be paid for his full shift. Contractors shall not be permitted to call, text or email or voicemail employees in advance of their regularly scheduled shift starting time to avoid reporting pay. Notwithstanding the above, in the event that the National Weather Service issues a weather advisory for the area in which the work location is situated, and the entire project is shut down as a result of the Weather Advisory, the contractor shall be permitted to speak to employees no less than four (4) hours in advance of their shift starting time, unless the Local Union consents to a shorter notice in writing, to advise them not to report to work due to the National Weather Service advisory, and employees who are so notified shall not receive two (2) hours reporting pay if they report to the work location. The contractor shall make every effort to

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notify each employee directly and confirm that notification has been received. Voice, text, and email messages left for employees without confirmation of delivery and receipt by employee do not constitute sufficient notice under this provision.

B. When an employee, who has completed their scheduled shift and left the Program Work site, is "called out" to perform special work of a casual, incidental or irregular nature, the employee shall receive overtime pay at the rate of time and one-half of the employee's straight time rate for hours actually worked.

C. When an employee leaves the job or work location of their own volition or is discharged for cause or is not working as a result of the Contractor's invocation of Section 7 below, they shall be paid only for the actual time worked.

D. Except as specifically set forth in this Article there shall be no premiums, bonuses, hazardous duty, high time or other special premium payments or reduction in shift hours of any kind.

E. There shall be no pay for time not actually worked except as specifically set forth in this Article and except where an applicable Schedule A requires a full weeks' pay for forepersons.

**SECTION 7. PAYMENT OF WAGES**

A. Termination- Employees who are laid off or discharged for cause shall be paid in full for that which is due them at the time of termination. The Contractor shall also provide the employee with a written statement setting forth the date of lay off or discharge.



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**SECTION 8. EMERGENCY WORK SUSPENSION**

A Contractor may, if considered necessary for the protection of life and/or safety of employees or others, suspend all or a portion of Program Work. In such instances, employees will be paid for actual time worked, except that when a Contractor requests that employees remain at the job site available for work, employees will be paid for that time at their hourly rate of pay.

**SECTION 9. INJURY/DISABILITY**

An employee who, after commencing work, suffers a work-related injury or disability while performing work duties, shall receive no less than a full day's pay in accordance with the employee's regularly scheduled work day under Article 12, section (1)(A). Further, the employee shall be rehired at such time as able to return to duties provided there is still Program Work available for which the employee is qualified and able to perform.

**SECTION 10. TIME KEEPING**

A Contractor may utilize brassing or other systems to check employees in and out. Each employee must check in and out. The Contractor will provide adequate facilities for checking in and out in an expeditious manner.

**SECTION 11. MEAL PERIOD**

A Contractor shall schedule an unpaid period of not more than 1/2 hour duration at the work location between the 3rd and 5th hour of the scheduled shift. A Contractor may, for efficiency of operation, establish a schedule which coordinates the meal periods of two or more crafts or which provides for staggered lunch periods within a

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craft or trade. If an employee is required to work through the meal period, the employee shall be compensated in a manner established in the applicable Schedule A.

**SECTION 12. BREAK PERIODS**

There will be no rest periods, organized coffee breaks or other non-working time established during working hours. Individual coffee containers will be permitted at the employee's work location. Where 4/10s are being worked there shall be a morning and an afternoon coffee break.

**ARTICLE 13 - APPRENTICES**

**SECTION 1. RATIOS**

Recognizing the need to maintain continuing supportive programs designed to develop adequate numbers of competent workers in the construction industry and to provide craft entry opportunities for minorities, women and economically disadvantaged non-minority males, Contractors will employ apprentices in their respective crafts to perform such work as is within their capabilities and which is customarily performed by the craft in which they are indentured. Contractors may utilize apprentices and such other appropriate classifications in the maximum ratio permitted by the New York State Department of Labor or the maximum allowed per trade. Apprentices and such other classifications as are appropriate shall be employed in a manner consistent with the provisions of the appropriate Schedule A. The parties encourage, as an appropriate source of apprentice recruitment consistent with the rules and operations of the affiliated unions' apprentice-programs, the use of the Edward J. Malloy Initiative for Construction Skills, Non-Traditional Employment for Women and Helmets to Hardhats.

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**ARTICLE 14-SAFETY PROTECTION OF PERSON AND PROPERTY**

**SECTION 1. SAFETY REQUIREMENTS**

Each Contractor will ensure that applicable OSHA and safety requirements are at all times maintained on the Program Work site and the employees and Unions agree to cooperate fully with these efforts to the extent consistent with their rights and obligations under the law. Employees will cooperate with employer safety policies and will perform their work at all times in a safe manner and protect themselves and the property of the Contractor and Agency from injury or harm, to the extent consistent with their rights and obligations under the law. Failure to do so will be grounds for discipline, including discharge.

**SECTION 2. CONTRACTOR RULES**

Employees covered by this Agreement shall at all times be bound by the reasonable safety, security, and visitor rules as established by the Contractors and the Construction Manager for this Program Work. Such rules will be published and posted in conspicuous places throughout the Program Work sites. Any site security and access policies established by the Construction Manager or General Contractor intended for specific application to the construction workforce for Program Work and that are not established pursuant to an Agency directive shall be implemented only after notice to the BCTC and its affiliates and an opportunity for negotiation and resolution by the Labor Management Committee.

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**SECTION 3. INSPECTIONS**

The Contractors and Construction Manager retain the right to inspect incoming shipments of equipment, apparatus, machinery and construction materials of every kind.

**ARTICLE 15 - TEMPORARY SERVICES**

Temporary services, i.e. all temporary heat, climate control, water, power and light, shall only be required upon the determination of the Agency or Construction Manager, and when used shall be staffed and assigned to the appropriate trade(s) with jurisdiction. Temporary services shall be provided by the appropriate Contractors' existing employees during working hours in which a shift is scheduled for employees of this Contractor. The Agency or Construction Manager may determine the need for temporary services requirements during non-working hours, and when used shall be staffed and assigned to the appropriate trades(s). There shall be no stacking of trades on temporary services, provided this does not constitute a waiver of primary trade jurisdiction. In the event a temporary system component is claimed by multiple trades, the matter shall be resolved through the New York Plan for Jurisdictional Disputes.

**ARTICLE 16 - NO DISCRIMINATION**

**SECTION 1. COOPERATIVE EFFORTS**

The Contractors and Unions agree that they will not discriminate against any employee or applicant for employment because of creed, race, color, religion, sex, sexual orientation, national origin, marital status, citizenship status, disability, age or any other status provided by law, in any manner prohibited by law or regulation.

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**SECTION 2. LANGUAGE OF AGREEMENT**

The use of the masculine or feminine gender in this Agreement shall be construed as including both genders.

**ARTICLE 17- GENERAL TERMS**

**SECTION 1. PROJECT RULES**

A. The Construction Manager and the Contractors shall establish such reasonable Program Work rules that are not inconsistent with this Agreement or rules common in the industry and are reasonably related to the nature of work. These rules will be explained at the pre-job conference and posted at the Program Work sites and may be amended thereafter as necessary. Notice of amendments will be provided to the appropriate Local Union. Failure of an employee to observe these rules and regulations shall be grounds for discipline, including discharge. The fact that no order was posted prohibiting a certain type of misconduct shall not be a defense to an employee disciplined or discharged for such misconduct when the action taken is for cause.

B. The parties adopt and incorporate the BCTC's Standards of Excellence as annexed hereto as Exhibit "B".

**SECTION 2. TOOLS OF THE TRADE**

The welding/cutting torch and chain fall are tools of the trade having jurisdiction over the work performed. Employees using these tools shall perform any of the work of the trade. There shall be no restrictions on the emergency use of any tools or equipment by any qualified employee or on the use of any tools or equipment for the performance of work within the employee's jurisdiction.

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**SECTION 3. SUPERVISION**

Employees shall work under the supervision of the craft foreperson or general foreperson.

**SECTION 4. TRAVEL ALLOWANCES**

There shall be no payments for travel expenses, travel time, subsistence allowance or other such reimbursements or special pay except as expressly set forth in this Agreement.

**SECTION 5. FULL WORK DAY**

Employees shall be at their work area at the starting time established by the Contractor, provided they are provided access to the work area. The signatories reaffirm their policy of a fair day's work for a fair day's wage.

**SECTION 6. COOPERATION AND WAIVER**

The Construction Manager, Contractors and the Unions will cooperate in seeking any NYS Department of Labor, or any other government, approvals that may be needed for implementation of any terms of this Agreement. In addition, the Council, on their own behalf and on behalf of its participating affiliated Local Unions and their individual members, intend the provisions of this Agreement to control to the greatest extent permitted by law, notwithstanding contrary provisions of any applicable prevailing wage, or other, law and intend this Agreement to constitute a waiver of any such prevailing wage, or other, law to the greatest extent permissible only for work within the scope of this Agreement, including specifically, but not limited to those provisions relating to shift, night, and similar differentials and premiums. This Agreement does not, however,

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constitute a waiver or modification of the prevailing wage schedules applicable to work not covered by this Agreement.

**ARTICLE 18. SAVINGS AND SEPARABILITY**

**SECTION 1. THIS AGREEMENT**

In the event that the application of any provision of this Agreement is enjoined, on either an interlocutory or permanent basis, or is otherwise determined to be in violation of law, or if such application may cause the loss of Program funding or any New York State Labor Law exemption for all or any part of the Program Work, the provision or provisions involved (and/or its application to particular Program Work, as necessary) shall be rendered, temporarily or permanently, null and void, but where practicable the remainder of the Agreement shall remain in full force and effect to the extent allowed by law (and to the extent no funding or exemption is lost), unless the part or parts so found to be in violation of law or to cause such loss are wholly inseparable from the remaining portions of the Agreement and/or are material to the purposes of the Agreement. In the event a court of competent jurisdiction finds any portion of the Agreement to trigger the foregoing, the parties will immediately enter into negotiations concerning the substance affected by such decision for the purpose of achieving conformity with the court determination and the intent of the parties hereto for contracts to be let in the future.

**SECTION 2. THE BID SPECIFICATIONS**

In the event that the Agency's (or Construction Manager's) bid specifications, or other action, requiring that a successful bidder (and subcontractor) become signatory to this Agreement is enjoined, on either an interlocutory or permanent

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basis, or is otherwise determined to be in violation of law, or may cause the loss of Program funding or any New York State Labor Law exemption for all or any part of the Program Work, such requirement (and/or its application to particular Program Work, as necessary) shall be rendered, temporarily or permanently, null and void, but where practicable the Agreement shall remain in full force and effect to the extent allowed by law and to the extent no funding or exemption is lost). In such event, the Agreement shall remain in effect for contracts already bid and awarded or in construction only where the Agency and Contractor voluntarily accepts the Agreement. The parties will enter into negotiations as to modifications to the Agreement to reflect the court or other action taken and the intent of the parties for contracts to be let in the future.

**SECTION 3. NON-LIABILITY**

In the event of an occurrence referenced in Section 1 or Section 2 of this Article, neither the Agency, the Construction Manager, any Contractor, nor any Union shall be liable, directly or indirectly, for any action taken, or not taken, to comply with any court order or injunction, other determination, or in order to maintain funding or a New York State Labor Law exemption for Program Work. Bid specifications will be issued in conformance with court orders then in effect and no retroactive payments or other action will be required if the original court determination is ultimately reversed.

**SECTION 4. NON-WAIVER**

Nothing in this Article shall be construed as waiving the prohibitions of Article 7 as to signatory Contractors and signatory Unions.



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**ARTICLE 19 - FUTURE CHANGES IN SCHEDULE A AREA CONTRACTS**

**SECTION 1. CHANGES TO AREA CONTRACTS**

A. Schedule A to this Agreement shall continue in full force and effect until the Contractor and/or Union parties to the Area Collective Bargaining Agreements that are the basis for the Schedule A notify the Agency and Construction Manager in writing of the changes agreed to in that Area Collective Bargaining which are applicable to work covered by this Agreement and their effective dates.

B. It is agreed that any provisions negotiated into Schedule A collective bargaining agreements will not apply to work under this Agreement if such provisions are less favorable to those uniformly required of contractors for construction work normally covered by those agreements; nor shall any provision be recognized or applied on Program Work if it may be construed to apply exclusively, or predominantly, to work covered by this Agreement.

C. Any disagreement between signatories to this Agreement over the incorporation into Schedule A of provisions agreed upon in the renegotiation of Area Collective Bargaining Agreements shall be resolved in accordance with the procedure set forth in Article 9 of this Agreement.

**SECTION 2. LABOR DISPUTES DURING AREA CONTRACT NEGOTIATIONS**

The Unions agree that there will be no strikes, work stoppages, sympathy actions, picketing, slowdowns or other disruptive activity or other violations of Article 7 affecting the Program Work by any Local Union involved in the renegotiation of Area

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Local Collective Bargaining Agreements nor shall there be any lock-out on such Program Work affecting a Local Union during the course of such renegotiations.

**ARTICLE 20 - WORKERS' COMPENSATION ADR**

**SECTION 1.**

An ADR program may be negotiated and participation in the ADR Program will be optional by trade.

**ARTICLE 21 - HELMETS TO HARDHATS**

**SECTION 1.**

The Contractors and the Unions recognize a desire to facilitate the entry into the building and construction trades of veterans who are interested in careers in the building and construction industry. The Contractors and Unions agree to utilize the services of the New York City Helmets to Hardhats Program to serve as a resource for preliminary orientation, assessment of construction aptitude, referral to apprenticeship programs or hiring halls, counseling and mentoring, support network, employment opportunities and other needs as identified by the parties.

**SECTION 2.**

The Unions and Contractors agree to coordinate with the Program to create and maintain an integrated database of veterans interested in working on this Project and of

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apprenticeship and employment opportunities for this Project. To the extent permitted by law, the Unions will give credit to such veterans for bona fide, provable past experience.

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IN WITNESS WHEREOF the parties have caused this Agreement to be executed and  
effective as of the \_\_\_ day of \_\_\_\_\_, \_\_\_\_\_

FOR BUILDING AND CONSTRUCTION TRADES COUNCIL  
OF GREATER NEW YORK AND VICINITY

BY: \_\_\_\_\_  
Gary LaBarbera  
President

FOR NEW YORK CITY

BY:  
Anthony Shorris  
First Deputy Mayor

APPROVED AS TO FORM:

\_\_\_\_\_  
ACTING CORPORATION COUNSEL  
NEW YORK CITY

LIST OF SIGNATORY UNIONS

Boiler Makers Local No. 5

Carpenters District Council

Cement Masons No. 780

Concrete Workers, District Council No. 16

Derrickmen and Riggers, Local Union No. 197

Drywall Tapers 1974, District Council 9

Electrical Workers Local No. 3

Glaziers Local Union No. 1087 District Council 9

Heat & Frost Insulators, Local Union No. 12A

Heat & Frost Insulators, Local Union No. 12

Iron Workers District Council

Iron Workers Local Union No. 40

Iron Workers Local No. 361

Laborers Local No. 78, Asbestos & Lead Abatement

Laborers Local 1010 Pavers and Road Builders District Council

Laborers 79 Construction and General Building Laborers

Laborers Local No. 731 Excavators

Mason Tenders District Council

Metal Lathers Local No. 46

Metal Polishers District Council 9

Ornamental Iron Workers Local No. 580

Painters District Council 9

Plumbers Local No. 1

Painters, Decorators & Wallcoverers District Council 9

Painters Structural Steel No. 806

Plasterers Local Union No. 262

Roofers & Waterproofers Local 8

Steamfitters Local Union No. 638

Sheet Metal Workers Local No. 28

Sheet Metal Workers Local No. 137

Teamsters Local Union No. 282

Teamsters Local Union 814

Teamsters Local No. 813 Private Sanitation

Tile, Marble & Terrazzo B.A.C. Local Union No. 7

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SCHEDULE "A"

Architectural and Ornamental Iron Workers Local Union 580, AFL-CIO	Allied Building Metal Industries, Inc.
Building, Concrete, Excavating & Common Laborers Local 731	Independent
Building, Concrete, Excavating & Common Laborers Local 731	Members of the General Contractors Association of New York, Inc.
District Council No. 9, I.U.P.A.T Glaziers Local 1087	Window and Plate Glass Dealers Association
Drywall Tapers and Pointers Local 1974, affiliated with International Union of Painters & Allied Trades and Drywall Taping Contractor's Association & Association of Wall-Ceiling & Carpentry Industries NY, Inc.	Independent
Enterprise Association of Steamfitters and Apprentices Local 638	Mechanical Contractors Association of NY, Inc.
Enterprise Association of Steamfitters and Apprentices Local 638	Independent
Highway Road and Street Laborers Local Union 1010 of the District Council of Pavers and Road Builders of the Laborers' International Union of North America AFL-CIO	Independent
Highway Road and Street Laborers Local Union 1010 of the District Council of Pavers and Road Builders of the Laborers' International Union of North America AFL-CIO	Member of the General Contractors Association of New York, Inc.
International Association of Heat and Frost Insulators and Allied Workers Local No. 12 of New York City	Independent
International Association of Heat and Frost Insulators and Allied Workers Local No. 12 of New York City	The Insulation Contractors Association of New York City, Inc.
International Association of Heat and Frost Insulators and Allied Workers Local No. 12A of New York City	Independent

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International Association of Heat and Frost Insulators and Allied Workers Local No. 12A of New York City	Environmental Contractors Association, Inc.
International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers and Helpers, AFL-CIO, Local Lodge No. 5	Boilermakers Association of Greater New York
Local Union No. 3 International Brotherhood of Electrical Workers, AFL-CIO	New York Electrical Contractors Association
International Brotherhood of Teamsters, Local 282, High Rise contract	Building Contractors Association & Independents
Local 46 Metallic Lathers Union and Reinforcing Iron Workers of NY and Vicinity of the International Association of Bridge, Structural, Ornamental and Reinforcing Iron Workers	Cement League
Local 46 Metallic Lathers Union and Reinforcing Iron Workers of NY and Vicinity of the International Association of Bridge, Structural, Ornamental and Reinforcing Iron Workers	Independent
Local 8 Roofers, Waterproofers & Allied Workers	Roofing and Waterproofing Contractors Association of New York and Vicinity
Local Union 1 of the United Association of Journeymen and Apprentices of the Pipe Fitting Industry of the United States and Canada	Association of Contracting Plumbers of the City of New York
Local Union Number 40 & 361 of Bridge, Structural Ornamental and Reinforcing Iron Workers AFL-CIO	Independent
Operative Plasterers' and Cement Masons' International Association Local No. 262	Independent
Painters and Allied Trades AFL-CIO, District Council No. 9 (Painting and Protective Coatings CBA)	Independent

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Painters and Allied Trades AFL-CIO, District Council No. 9 (Painting and Protective Coatings CBA)	The Association of Master Painters & Decorators of NY, Inc. and The Association of Wall, Ceiling & Carpentry Industries of NY, Inc. and The Window and Plate Glass Dealers Association
Sheet Metal Workers' International Association, Local 28	Sheet Metal & Air Conditioning Contractors Association of New York City, Inc.
Sheet Metal Workers' International Association, Local 137	The Greater New York Sign Association
Structural Steel and Bridge Painters Local 806, DC 9 International Union of Painters and Allied Trades, AFL-CIO	New York Structural Steel Painting Contractors Association
Teamsters Local 813	Independent
Teamsters Local 813	IESI NY Corporation
Teamsters Local 814	Greater New York Movers and Warehousemen's Bargaining Group
The Cement Masons' Union, Local 780	Cement League
The District Council of Cement and Concrete Workers (comprised of Local 6A; Local 18A and Local 20)	Cement League
The District Council of Cement and Concrete Workers (comprised of Local 6A; Local 18A and Local 20)	Independent



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The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Heavy Carpenters	GCA
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Dockbuilders Local No. 1556	Concrete Contractors of NY
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Dockbuilders Local 1556	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Millwright Local 740	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Timbermen Local 1556	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Timbermen Local 1556	GCA
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Heavy Carpenters	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Carpenters	Manufacturing Woodworkers Association of Greater New York Incorporated
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America	The Hoisting Trade Association of New York, Inc.
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America	The Test Boring Association

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The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America	Building Contractors Association
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America	The Association of Wall-Ceiling & Carpentry Industries of New York, Incorporated
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners	The Cement League
The District Council of NYC and Vicinity of the United Brotherhood of Carpenters and Joiners of America	New York City Millwright Association
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners	Greater New York Floor Covering Association
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Carpenters	Association of Architectural Metal & Glass
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Carpenters	Concrete Contractors of NY
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Building Construction Carpenters	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Local 2287	Independent
The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America for Shop Carpenters	Independent
The Tile Setters and Tile Finishers Union of New York and New Jersey, Local 7 of the International Bricklayers and Allied Craftworkers	The Greater New York and New Jersey Contractors Association

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United Derrickmen & Riggers Association, Local 197 of NY, LI, Westchester & Vicinity	Contracting Stonesetters Association Inc.
United Derrickmen & Riggers Association L 197 of NY, LI, Westchester and Vicinity	Building Stone and Pre-cast Contractors Association
International Union of Operating Engineers Local 14-14B	Building Contractors Association
International Union of Operating Engineers Local 14-14B	Contractors Association of Greater NY
International Union of Operating Engineers Local 14-14B	GCA
International Union of Operating Engineers Local 14-14B	The Cement League
International Union of Operating Engineers Local 14-14B	Allied Building Metal Industries, Inc.
International Union of Operating Engineers Local 14-14B	Brick Association
International Union of Operating Engineers Local 14-14B	Independent
International Union of Operating Engineers Local 15	Allied Building Metal Industries, Inc.
International Union of Operating Engineers Local 15-15A	General Contractors Association
International Union of Operating Engineers Local 15D	General Contractors Association
International Union of Operating Engineers Local 15D	Structural Steel Erectors

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International Union of Operating Engineers Local 15-15A	Building Contractors Association
International Union of Operating Engineers Local 15D	Building Contractors Association
International Union of Operating Engineers Local 15-15A	Contractors Association of Greater NY
International Union of Operating Engineers Local 15D	Contractors Association of Greater NY
International Union of Operating Engineers Local 15-15A	The Cement League
International Union of Operating Engineers Local 15D	The Cement League

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**Project Labor Agreement - - Letter of Assent**

Dear:

The undersigned party confirms that it agrees to be a party to and be bound by the New York Agency, Project Labor Agreement as such Agreement may, from time to time, be amended by the parties or interpreted pursuant to its terms. The terms of the Project Labor Agreement, its Schedules, Addenda and Exhibits are hereby incorporated by reference herein.

The undersigned, as a Contractor or Subcontractor (hereinafter Contractor) on the Project known as \_\_\_\_\_ and located at \_\_\_\_\_ (hereinafter PROJECT), for and in consideration of the award to it of a contract to perform work on said PROJECT, and in further consideration of the mutual promises made in the Project Labor Agreement, a copy of which was received and is acknowledged, hereby:

- (1) Accepts and agrees to be bound by the terms and conditions of the Agreement, together with any and all schedules; amendments and supplements now existing or which are later made thereto:
- (2) Agrees to be bound by the legally established collective bargaining agreements; local trust agreements for employee benefit funds; and trust documents for joint apprentice programs as well as apprentice program rules and procedures but only to the extent of Program Work and as required by the PLA.
- (3) Authorizes the parties to such local trust agreements to appoint trustees and successor trustees to administer the trust funds and hereby ratifies and accepts the trustees so appointed as if made by the Contractor but only to the extent of Program Work as required by the PLA.
- (4) Certifies that it has no commitments or agreements that would preclude its full and complete compliance with the terms and conditions of said Agreement. The Contractor agrees to employ labor that can work in harmony with all other labor on the Project and shall require labor harmony from every lower tier subcontractor it has engaged or may engage to work on the Project. Labor harmony disputes/issues shall be subject to the Labor Management Committee provisions.
- (5) Agrees to secure from any Contractor(s) (as defined in said Agreement) which is or becomes a Subcontractor (of any tier), to it, a duly executed Agreement to be Bound in from identical to this document.

Provide description of the Work, identify craft jurisdiction(s) and all contract numbers below:

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Dated: \_\_\_\_\_

\_\_\_\_\_  
(Name of Contractor or subcontractor)

\_\_\_\_\_  
(Name of CM; GC; Contractor or  
Higher Level Subcontractor)

\_\_\_\_\_  
(Authorized Officer & Title)

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(Phone) (Fax)

\_\_\_\_\_  
Contractor's State License  
# \_\_\_\_\_

Sworn to before me this  
\_\_\_\_ day of \_\_\_\_\_

\_\_\_\_\_  
Notary Public

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**NEW YORK CITY BUILDING AND CONSTRUCTION TRADES COUNCIL  
STANDARDS OF EXCELLENCE**

The purpose of this Standard of Excellence is to reinforce the pride of every construction worker and the commitment to be the most skilled, most productive and safest workforce available to construction employers and users in the City of New York. It is the commitment of every affiliated local union to use our training and skills to produce the highest quality work and to exercise safe and productive work practices.

The rank and file members represented by the affiliated local unions acknowledge and adopt the following standards:

- *Provide a full days work for a full days pay;*
- *Safely work towards the timely completion of the job;*
- *Arrive to work on time and work until the contractual quitting time;*
- *Adhere to contractual lunch and break times;*
- *Promote a drug and alcohol free work site;*
- *Work in accordance with all applicable safety rules and procedures;*
- *Allow union representatives to handle job site disputes and grievances without resort to slowdowns, or unlawful job disruptions;*
- *Respect management directives that are safe, reasonable and legitimate;*
- *Respect the rights of co-workers;*
- *Respect the property rights of the owner, management and contractors.*

The Unions affiliated with the New York City Building and Construction Trades Council will expect the signatory contractors to safely and efficiently manage their jobs and the unions see this as a corresponding obligation of the contractors under this Standard of Excellence. The affiliated unions will expect the following from its signatory contractors:

- *Management adherence to the collective bargaining agreements;*
- *Communication and cooperation with the trade foremen and stewards;*
- *Efficient, safe and sanitary management of the job site;*
- *Efficient job scheduling to mitigate and minimize unproductive time;*
- *Efficient and adequate staffing by properly trained employees by trade;*
- *Efficient delivery schedules and availability of equipment and tools to ensure efficient job progress;*
- *Ensure proper blueprints, specifications and layout instructions and material are available in a timely manner*
- *Promote job site dispute resolution and leadership skills to mitigate such disputes;*
- *Treatment of all employees in a respectful and dignified manner acknowledging their contributions to a successful project.*

The affiliated unions and their signatory contractors shall ensure that both the rank and file members and the management staff shall be properly trained in the obligations undertaken in the Standard of Excellence.





FMS ID: HH112BLEL



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**THE CITY OF NEW YORK  
DEPARTMENT OF DESIGN AND CONSTRUCTION  
DIVISION OF PUBLIC BUILDINGS**

30-30 THOMSON AVENUE                      LONG ISLAND CITY, NEW YORK 11101-3045  
TELEPHONE (718) 391-1000                  WEBSITE [www.nyc.gov/buildnyc](http://www.nyc.gov/buildnyc)

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Contract for Furnishing all Labor and Material Necessary and Required for:

CONTRACT NO. 1      GENERAL CONSTRUCTION WORK

# Bellevue Men's Shelter Elevator Rehabilitation

LOCATION:                      400 East 30th Street  
BOROUGH:                    Manhattan 10016  
CITY OF NEW YORK

---

Five Star Contracting Companies, Inc.  
Contractor

Dated \_\_\_\_\_, 20\_\_\_\_

---

Entered in the Comptroller's Office

\_\_\_\_\_  
First Assistant Bookkeeper

Dated \_\_\_\_\_, 20\_\_\_\_

