



PROJECT ID: P5SPKHORA

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

LAW

VOLUME 1 OF 3

BID BOOKLET

FOR FURNISHING ALL LABOR AND MATERIALS
NECESSARY AND REQUIRED FOR:

Ocean Breeze Indoor Horse Riding Arena Construction

LOCATION:
BOROUGH:
CITY OF NEW YORK

621 Father Capodanno Boulevard
Staten Island 10305

CONTRACT NO. 1

GENERAL CONSTRUCTION WORK

Department of Parks and Recreation

Department of Design and Construction



Date: June 13, 2013

13-065



NEW YORK CITY DEPARTMENT OF
DESIGN + CONSTRUCTION

DDC-BID ROOM CONTRACTS

2014 MAR 17 A 9:32

Ramon Rodriguez
Acting Agency Chief
Contracting Officer

March 14, 2014

CERTIFIED MAIL - RETURN RECEIPT REQUEST

Triton Structural Concrete, Inc.
3100 47th Avenue
Long Island City, NY 11101

RE: FMS ID: P5SPKHORA
E-PIN: 85013B0119001
DDC PIN: 8502013PV0022C
Ocean Breeze Indoor Horse Riding Arena
Construction - Borough Of Staten Island
NOTICE OF AWARD - Revised

Dear Contractor:

You are hereby awarded the above referenced contract based upon your bid in the amount of \$5,109,911.55 submitted at the bid opening on September 19, 2013. 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, 1st 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.



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,

Ramon Rodriguez
Acting ACCO

Bid Tab

**Revised
Description**

**OCEAN BREEZE INDOOR HORSE RIDING ARENA
CONSTRUCTION - BOROUGH OF STATEN ISLAND**

Bid Date	9/19/2013	FMS ID	P5SPKHORA
Estimated Cost	*\$4,836,364.00	PLA	Yes
Bid Security	2% of Total Bid Price	Client Agency	DPR
Time Allowed	365 CCD	Contract Manager	Eugene Werner
Addendum	2	Project Manager	Fox, Michael
PIN	8502013PV0022C	E-PIN	85013B0119001
Selective Bidding	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Consultant	In-House

Bid Rank	Vendor	Bid Amount	Security Type
1	TRITON STRUCTURAL CONCRETE, INC.	\$5,109,911.55	Bond
2	ASHNU INTERNATIONAL, INC	\$5,650,000.00	Bond
3	P & K CONTRACTING, INC.	\$6,252,516.00	Bond
4	ROCKMORE CONTRACTING CORP.	\$6,668,000.00	Bond
5	PENTA RESTORATION CORP	\$6,883,000.00	Bond
6	ATLAS RESTORATION CORP.	\$6,913,000.00	Bond
7	PADILLA CONSTRUCTION SERVICES, INC	\$7,800,844.00	Bond
8	WWC CORPORATION	\$8,200,000.00	Bond
9	C & L CONTRACTING CORP	\$8,346,939.00	Bond
10	BEYS SPECIALTY, INC.	\$9,169,608.00	Bond
11	E & A RESTORATION, INC.	\$9,250,000.00	Bond

Subcontractors:

Plumbing – Louis L. Buttermark and Sons, Inc. - \$185,926.00
HVAC – U.S. Mechanical - \$186,844.00
Electrical – Uptown Electric - \$617,000.00

Recorder: Vicky Avo-Vaughan – ext. 3442

Approver:

Serrano Holley

Bid Tab

Pin: 8502013PV0022C

Page 1 of 1

Qualification Form

Project ID: P5SPKHORA

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: Triton Structural Concrete, Inc.

Name of Project: Maintenance Building, Comfort Station & Rain Shelter at Ferry Point Golf Course

Location of Project: 700 Hutchinson River Parkway, Bronx, NY 11101

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

Name: Medhat Azer

Title: Project Manager, DDC Phone Number: 718-391-2514

Brief description of work completed: (P-1FERY6A) New construction of a PEMB Maintenance Building, a comfort station and rain shelter, work included sitework and landscaping, and all exterior and interior trades.

Was the work performed as a prime or a subcontractor: Prime Contractor

Amount of Contract: \$7,976,234.00

Date of Completion: 8/5/2013

Name of Contractor: Triton Structural Concrete

Name of Project: Marcus Garvey Amphitheater

Location of Project: Marcus Garvey Park, Harlem, New York, NY

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

Name: James Malin

Title: Project Manager, Dept Parks & Rec Phone Number: 718-760-6758

Brief description of work completed: Construction of an outdoor amphitheater, sitework mechanical, plumbing, major building trades, landscaping.

Was the work performed as a prime or a subcontractor: Prime

Amount of Contract: \$5,670,569

Date of Completion: 06/08/2011

Qualification Form

Project ID: P5SPKHORA

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: Triton Structural Concrete, Inc.

Name of Project: Reconstruction of the Coney Island Boardwalk

Location of Project: Coney Island, Brooklyn, NY 11224

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

Name: Department of Parks and Recreation

Title: Martin Christie, PM Phone Number: 718-760-6754

Brief description of work completed: Work featured sitework, utilities, electrical, plumbing, site furnishings precast concrete, and piles in order to reconstruct/refurbish a stretch of the boardwalk.

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: _____

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 P5SPKHORA and located at 621 Father Capodanno Blvd, Staten Island (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: 9/25/13

Triton Structural Concrete, Inc.
(Name of CM; GC; Contractor or
Higher Level Subcontractor)

Triton Structural Concrete, Inc.
(Name of Contractor or subcontractor)

Stacey Coughlan, Chief Estimator
(Authorized Officer & Title)

3100 47th Avenue, LIC, NY 11101
(Address)

(p) 877.874.8669 (f) 866.414.2636
(Phone) (Fax)

Contractor's State License
N/A

Sworn to before me this 2013
day of 2009

Notary Public

See attached notary form

**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: L.I.C., New York
Sep. 19, 2013



SIGNATURE

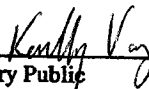
Steve Levan

PRINTED NAME

Operations Manager

TITLE

Sworn to before me this
19 day of Sept, 2013



Notary Public

Dated: 9/19/13

KAILLY ANN VAY
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01VA6226642
Qualified in New York County
Commission Expires August 16, 2014

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

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

PROJECT ID: P5SPKHORA

**Ocean Breeze Indoor Horse Riding Arena
621 Father Capodanno Boulevard
10305**

Name of Bidder: Triton Structural Concrete, Inc.

Date of Bid Opening: 09/19/2013

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

Place of Business of Bidder: 3100 47th Avenue, Long Island City, NY 11101

Bidder's Telephone Number: 877.874.8669 Bidder's Fax Number: 866.414.2636

Bidder's Email Address: div3eastcoast@tritonstructural.com

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 California

Name and Home Address of President: Timothy J. Penick
6435 Brynwood Way Brynwood Way, San Diego, CA 92120

Name and Home Address of Secretary: Timothy J. Penick
6435 Brynwood Way Brynwood Way, San Diego, CA 92120

Name and Home Address of Treasurer: Timothy J. Penick
6435 Brynwood Way Brynwood Way, San Diego, CA 92120

BID FORM

Triton Structural Concrete, 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 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:

BID FORM

PROJECT ID: P5SPKHORA

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

LUMP SUM PRICE - Total price for all labor and material for all required work. 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
Labor

Total Price for Material Sold and
Delivered

\$ 3,065,946.93 +

\$ 2,043,964.62

Total Bid Price \$ 5,109,911.55

HA ✓

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

- * **M/WBE UTILIZATION PLAN:** By signing its bid in the space below, 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.

Bidder: Triton Structural Concrete, Inc.

By: *[Signature]*

(Signature of Partner or corporate officer)

Attest:

Secretary of Corporate Bidder

(Corporate Seal)

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 Queens ss:
Steve Levan being duly sworn says:

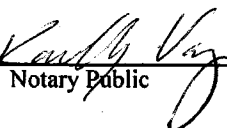
I am the Operations Manager of the above named corporation whose name is subscribed to and which executed
the foregoing bid. I reside at 134 Frosty Valley Road, Bloomsburg, PA 17815

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
19 day of Sept, 2013



Notary Public

KAILLY ANN VAY
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01VA6226642
Qualified in New York County
Commission Expires August 16, 2014

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: Triton Structural Concrete, Inc.
Address: 3100 47th Avenue (#10)
City: Long Island City State: New York Zip Code: 11101

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

26-0768973

By: 
Signature:

Title: Steve Levan, Operations Manager

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

Project ID: P5SPKHORA

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.

1. **PLUMBING CONTRACTOR:**

Louis L. Buttermark and Sons, Inc

(Print Name)

Agreed Amount To Be Paid To Subcontractor: \$ 185,926.00

2. **HVAC CONTRACTOR:**

U.S. Mechanical

(Print Name)

Agreed Amount To Be Paid To Subcontractor: \$ 186,844.00

3. **ELECTRICAL CONTRACTOR:**

Uptown Electric

(Print Name)

Agreed Amount To Be Paid To Subcontractor: \$ 617,000.00

BIDDER'S SIGNATURE: The Bidder must sign this form in the space provided below:

Name of Bidder: Triton Structural Concrete, Inc.

By: 
Signature of Partner or Corporate Officer

Print Name: Steve Levan

Title: Operations Manager

CONTRACTOR BID BREAKDOWN FORM

CONTRACT 1- GENERAL CONSTRUCTION

FMS PROJECT ID: P5SPKHORA
CLIENT AGENCY: DPR

Project: Ocean Breeze Indoor Horse Riding Arena
Location: 621 Father Capodanno Boulevard, Staten Island NY 10305
Bidder: Triton Structural Concrete

Item No.	Item Description	Quantity	Unit Type	Unit Price	Total Price
CONTRACT 1 - GENERAL CONSTRUCTION WORK					
	DIVISION 1 - GENERAL CONDITIONS	1	LS	\$ 547,173.93	\$ 547,173.93
	MOBILIZATION	1	LS	\$ 69,950.00	\$ 69,950.00
	LEED Requirements (see General Conditions)	1	LS	\$ -	\$ -
1	Item Deleted		--		
2	Item Deleted		--		
3	Item Deleted		--		
4	LEED Building Performance Requirements	1	LS	\$ 5,365.00	\$ 5,365.00
5	Maintenance & Protection of Traffic - Type A	0	LS		
	Maintenance & Protection of Traffic - Type B	1	LS	\$ 17,168.00	\$ 17,168.00
	Maintenance & Protection of Traffic - Type C	0	LS		
6	Temporary Wooden Tree Guard w Tree Wrap	5	EA	\$ 751.10	\$ 3,755.50
7	Removals	1	LS	\$ 10,730.00	\$ 10,730.00
8	Tree Removal over 6" to 12" DBH	3	EA	\$ 1,287.60	\$ 3,862.80
9	Relocate Site Items	1	LS	\$ 10,730.00	\$ 10,730.00
10	Saw Cut Pavement	27	LF	\$ 9.12	\$ 246.24
11	Saw Cut Curbs and Walls	2	LF	\$ 30.04	\$ 60.08
12	Hand and/or Pneumatic Excavation	1	CY	\$ 134.13	\$ 134.13
13	Unclassified Excavation	95	CY	\$ 85.58	\$ 8,130.10
14	Stabilized Construction Entrance	89	SY	\$ 48.29	\$ 4,297.81
15	Item Deleted		--		
16	Earth Moving Operations	1,000	CY	\$ 87.45	\$ 87,450.00
17	Geotextile - Drainage	252	SY	\$ 10.73	\$ 2,703.96
18	Temporary Silt Fence	1,071	LF	\$ 10.73	\$ 11,491.83
19	Restoration of Street Pavement	1	LS	\$ 17,168.00	\$ 17,168.00
20	Item Deleted		--		
21	Chain Link Fence 8'-0" Height	279	LF	\$ 80.48	\$ 22,453.92

CONTRACTOR BID BREAKDOWN FORM

CONTRACT 1- GENERAL CONSTRUCTION

FMS PROJECT ID: P5SPKHORA
CLIENT AGENCY: DPR

Project: Ocean Breeze Indoor Horse Riding Arena
Location: 621 Father Capodanno Boulevard, Staten Island NY 10305
Bidder: Triton Structural Concrete

	1	EA	\$	1,931.40	\$	1,931.40
22		EA	\$	3,433.60	\$	6,867.20
23	1,612	SY	\$	5.37	\$	8,656.44
24	6	EA	\$	965.70	\$	5,794.20
25	0	SF	In Line 29		In Line 29	
26	0	LF				
27	0	LF				
28	0	LF				
29	20	LF	\$	155.59	\$	3,111.80
30	0	LF				
31	0	LF				
32	0	LF				
33	0	LF				
34	1	EA	\$	15,934.05	\$	15,934.05
35	24	CY	\$	184.45	\$	4,426.80
36		--				
37	6	EA	\$	15,202.26	\$	91,213.56
38	1	\$800.00	\$	800.00	\$	800.00
39	0	LB				
40	81	LF	\$	126.61	\$	10,255.41
41	0	LF				
42	0	LF				
43	2	EA	\$	375.55	\$	751.10
44	2	EA	\$	214.60	\$	429.20
45	0	EA				
46	1	SET	\$	2,682.50	\$	2,682.50
47	0	CY	In Line 16		In Line 16	
48	1,140	CY	\$	688.27	\$	784,627.80
49	284,480	LB	\$	1.90	\$	540,512.00
50		--				
51	9,200	LF	\$	31.34	\$	288,328.00

CONTRACTOR BID BREAKDOWN FORM

CONTRACT 1- GENERAL CONSTRUCTION

Project: Ocean Breeze Indoor Horse Riding Arena

FMS PROJECT ID: P5SPKHORA

Location: 621 Father Capodanno Boulevard, Staten Island NY 10305

CLIENT AGENCY: DPR

Bidder: Triton Structural Concrete

52	Item Deleted		--	
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CONTRACTOR BID BREAKDOWN FORM

CONTRACT 1- GENERAL CONSTRUCTION

FMS PROJECT ID: P5SPKHORA
CLIENT AGENCY: DPR

Project: Ocean Breeze Indoor Horse Riding Arena
Location: 621 Father Capodanno Boulevard, Staten Island NY 10305
Bidder: Triton Structural Concrete

53	Concrete Masonry Units	2,560	SF	\$	31.44	\$	80,486.40
54	Structural Steel	0	LB	In Line 77		In Line 77	
55	Steel Decking	13,000	SF	\$	1.42	\$	18,460.00
56	Metal Stairs	1	LS	\$	28,107.24	\$	28,107.24
57	Item Deleted		--				
58	Item Deleted		--				
59	Vinyl Base Trim	1	LS	\$	1,073.00	\$	1,073.00
60	Item Deleted		--				
61	Thermal Insulation	3,000	SF	\$	13.05	\$	39,150.00
62	Joint sealants	1	LS	In Line 77		In Line 77	
63	Hollow Metal Doors	1	LS	\$	23,647.85	\$	23,647.85
64	Aluminum Frames	1	LS	In Line 69		In Line 69	
65	Aluminum-Framed Entrances and Storefronts	1	LS	In Line 69		In Line 69	
66	Aluminum Window - Fixed	1	LS	In Line 69		In Line 69	
67	Aluminum Window - Casement	1	LS	In Line 69		In Line 69	
68	Door Hardware	1	LS	In Line 63		In Line 63	
69	Glazing - Glass (Laminated)	2,360	SF	\$	90.02	\$	212,447.20
70	Plastic Glazing	0	SF	In Line 69		In Line 69	
71	Non-structural Metal Framing	0	LF	In Line 72		In Line 72	
72	Gypsum Board	1	LS	\$	67,075.30	\$	67,075.30
73	Tiling	1	LS	\$	4,184.70	\$	4,184.70
74	Interior Painting	16,425	SF	\$	2.06	\$	33,835.50
75	Item Deleted		--				
76	Toilet Accessories	1	LS	\$	1,388.46	\$	1,388.46
77	Metal Building Systems	1	LS	\$	540,178.24	\$	540,178.24
78	Sand	62	CY	\$	136.70	\$	8,475.40
79	Plumbing Work	1	LS	\$	198,822.61	\$	198,822.61
80	Installation of HVAC System	1	LS	\$	202,629.61	\$	202,629.61
81	Electrical Work	1	LS	\$	662,041.00	\$	662,041.00
82	Allowance for Utility Company Fees	1	#####	\$	8,000.00	\$	8,000.00

CONTRACTOR BID BREAKDOWN FORM

CONTRACT 1- GENERAL CONSTRUCTION

FMS PROJECT ID: P5SPKHORA
CLIENT AGENCY: DPR

Project: Ocean Breeze Indoor Horse Riding Arena
Location: 621 Father Capodanno Boulevard, Staten Island NY 10305
Bidder: Triton Structural Concrete

83	Item Deleted		--						
84	Item Deleted		--						
85	Item Deleted		--						
86	Item Deleted		--						
87	Dry Pipe Sprinkler System	1	LS	\$	103,973.70	\$	103,973.70		
88	Interior Finish Carpentry	1	LS	\$	1,716.80	\$	1,716.80		
89	Horse Stalls	1	LS	\$	40,275.95	\$	40,275.95		
90	Corner Hay Racks	8	EA	\$	45.07	\$	360.56		
91	Wall Feed Pans	8	EA	\$	74.04	\$	592.32		
92	Feed Storage Bins	4	EA	\$	260.74	\$	1,042.96		
93	Bridle Racks	8	EA	\$	33.40	\$	267.20		
94	Saddle Racks	8	EA	\$	75.11	\$	600.88		
95	Flexible Fence and Gates	1	LS	\$	22,360.75	\$	22,360.75		
96	Full Depth Asphalt Pavement	0	SY						
97	Cement Concrete Pavement	90	SY	\$	135.20	\$	12,168.00		
98	Item Deleted		--						
99	Pipe Handrail	300	LF	\$	337.64	\$	101,292.00		
100	Item Deleted		--						
101	Equestrian Fence	100	LF	\$	75.83	\$	7,583.00		
102	Steel Faced Concrete Curb	25	LF	\$	69.75	\$	1,743.75		
103	Remove and Reset Concrete Wheel Stop	3	EA	\$	26.83	\$	80.49		
104	Precast Concrete Wheelstop	7	EA	\$	53.65	\$	375.55		
105	Thermoplastic HRPRM - Arrow	2	EA	\$	48.29	\$	96.58		
106	Item Deleted		--						
107	Bicycle Rack	1	EA	\$	1,130.94	\$	1,130.94		
108	Thermoplastic HRPRM - ADA Parking Symbol	3	EA	\$	375.55	\$	1,126.65		
109	Thermoplastic HRPRM - Parking Lines - 4" Width	796	LF	\$	2.68	\$	2,133.28		
110	ADA Signs	3	EA	\$	134.13	\$	402.39		
111	Steel Drive Rail	0	LF		In Line 110		In Line 110		
112	Item Deleted		--						

CONTRACTOR BID BREAKDOWN FORM

CONTRACT 1- GENERAL CONSTRUCTION

Project: Ocean Breeze Indoor Horse Riding Arena
 Location: 621 Father Capodanno Boulevard, Staten Island NY 10305
 Bidder: Triton Structural Concrete

FMS PROJECT ID: P5SPKHORA
 CLIENT AGENCY: DPR

Item	Description	82	CY	\$	69.75	\$	5,719.50
113	Topsoil for Sodded Areas	82	CY	\$	69.75	\$	5,719.50
114	Commercial Fertilizer Low Phosphorous (Slow Release)	310	LB	\$	2.15	\$	666.50
115	Limestone	425	LB	\$	1.07	\$	454.75
116	Elemental Sulphur	80	LB	\$	2.15	\$	172.00
117	Compost (Truck Measure)	120	CY	\$	69.75	\$	8,370.00
118	Item Deleted						
119	Reconstruct Lawn	480	SY	\$	5.37	\$	2,577.60
120	Shredded Bark Mulch	10	SY	\$	7.51	\$	75.10
121	Shredded Bark Mulch - without Fertilizer	55	SY	\$	5.37	\$	295.35
122	Landscape Fabric	55	SY	\$	4.83	\$	265.65
123	Topsoil for Native Planting Pits and Beds	300	CY	\$	69.75	\$	20,925.00
124	Plant Cornus Florida 'Cherokee' 1 1/2' - 2" cal.	3	EA	\$	434.57	\$	1,303.71
125	Plant Nyssa Sylvatica 2 1/2' - 2" cal.	4	EA	\$	708.18	\$	2,832.72
126	Plant Amelanchier Canadensis 1 1/2' - 2" cal.	4	EA	\$	370.19	\$	1,480.76
127	Plant Viburnum Trifolium 5'-6' Ht	6	EA	\$	144.86	\$	869.16
128	Plant Myrica pensylvanica, Northern Bayberry 4'-5' Ht.	12	EA	\$	118.03	\$	1,416.36
129	Plant Rosa 'Knock-Out' 3-4 HT.	25	EA	\$	59.02	\$	1,475.50
130	Plant Fothergilla gardenii, 3'-4' Ht.	28	EA	\$	80.48	\$	2,253.44
131	Plant Carex radiata, edge	2,100	SF	\$	1.61	\$	3,381.00
132	ADDED LINE ITEMS	1		\$	-	\$	-
133	4" Ductile Iron Pipe	88	LF	\$	134.13	\$	11,803.44
134	Plug Valve 1.5" & 4"	2	EA	\$	375.55	\$	751.10
135	Millwork	1	LS	\$	12,500.45	\$	12,500.45
136	Type K Copper Tubing 2" Dia.	88	LF	\$	134.13	\$	11,803.44
137		1	SF	\$	-	\$	-
CONTRACT 1 - GENERAL CONSTRUCTION WORK							\$5,109,911.55

Tax ID #: 26-0768973

APT E-
PIN#: 85013B0119

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 # 85013B0119 FMS Project ID#: P5SPKHORA

Project Title/Agency Ocean Breeze Indoor Horse Riding Arena

PIN # 8502013PV0022C

Bid/Proposal

Response Date: 09/17/2013

Contracting Agency Department of Design and Construction

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

Contact Person James A. Cerasoli Title Deputy Director

Telephone # (718) 391-1549 Email cerasoli@ddc.nyc.gov

Project Description (attach additional pages if necessary)

This Project consists of the construction of a new indoor horse riding arena on Father Capodanno Boulevard in Staten Island.

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 Service

Prime Contract Industry: Construction

Group	Percentage	
<u>Unspecified</u>	<u>13</u>	<u>%</u>
or		
<u>Black American</u>	<u>N/A</u>	<u>%</u>
<u>Hispanic American</u>	<u>N/A</u>	<u>%</u>
<u>Asian American</u>	<u>N/A</u>	<u>%</u>
<u>Women</u>	<u>N/A</u>	<u>%</u>
Total Participation Goals	13	%

Line 1

Tax ID #: 26-0768973

APT E-
PIN #: 85013B0119

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 #	<u>26-0768973</u>
FMS Vendor ID #	
Business Name	<u>Triton Structural Concrete, Inc.</u>
Contact Person	<u>Steve Levan</u>
Address	<u>3100 47th Avenue, Long Island City, NY 11101</u>
Telephone #	<u>877.874.8669</u>
Email	<u>div3eastcoast@tritonstructural.com</u>

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.				
	\$ 5,109,911.55	X	13%	= \$ 664,288.50 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? % 60

Enter brief description of the type(s) and dollar value of subcontracts for all 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. Landscaping, \$100,000, MBE, 11/2013-11/2014
- 2. Pre-Engineered Metal Building, \$1,000,000, 4/2014-8/2014
- 3. Electrical, \$617,000, 7/2014-11/2014
- 4. Plumbing, \$185,926, 7/2014-11-2014
- 5. Fire Sprinkler, \$96,000, 6/2014-11/2014
- 6. Mechanical, \$186,844, 6/2014-11/2014
- 7. Concrete, \$800,000, MBE, 1/2014-4/2014
- 8.
- 9.
- 10.
- 11. ** Actual trades and contract values may vary pending final subcontractor negotiations and buyouts. Triton will however meet or exceed all M/WBE goals.
- 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: [Signature]

Date: 09/19/13

Print Name: Steve Levan

Title: Operations Manager

BID BOND 1
FORM OF BID BOND

KNOW ALL MEN BY THESE PRESENTS. That we, Triton Structural Concrete, Inc.

hereinafter referred to as the "Principal", and Liberty Mutual Insurance Company

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 _____

Ocean Breeze Indoor Horse Riding Arena Construction

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 10th day of September, 2013.

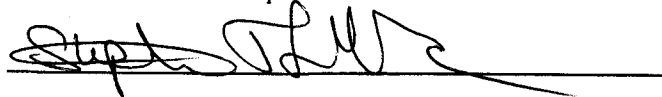
(Seal)

Triton Structural Concrete, Inc.

(L.S.)

Principal

By:

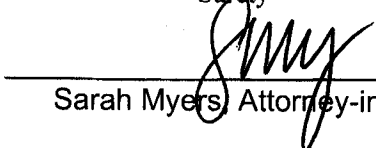


(Seal)

Liberty Mutual Insurance Company

Surety

By:


Sarah Myers, Attorney-in-Fact

BID BOND 3

ACKNOWLEDGEMENT OF PRINCIPAL, IF A CORPORATION

State of New York County of Queens ss:
On this 19th day of September, 2013, before me personally came Steve Levan to me known, who, being by me duly sworn, did depose and say that he resides at 134 Frosty Valley Road, Bloomsburg, PA 17815 that he is the Operations Manager of Triton Structural Concrete, 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.

KAILLY ANN VAY
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01VA6226642
Qualified in New York County
Commission Expires August 16, 2014

Kailly Vay

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.

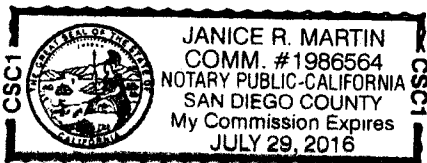
CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

STATE OF CALIFORNIA

County of San Diego

On SEP 10 2013 before me, Janice R. Martin, Notary Public,
Date Insert Name of Notary exactly as it appears on the official seal

personally appeared Sarah Myers
Name(s) of Signer(s)



Place Notary Seal Above

who proved to me on the basis of satisfactory evidence to be the person(~~s~~) whose name(~~s~~) is/~~are~~ subscribed to the within instrument and acknowledged to me that ~~he~~/she/~~it~~/~~they~~ executed the same in ~~his~~/her/~~their~~ authorized capacity(~~ies~~), and that by ~~his~~/her/~~their~~ signature(~~s~~) on the instrument the person(~~s~~), or the entity upon behalf of which the person(~~s~~) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

Witness my hand and official seal.

Signature Janice R. Martin
Signature of Notary Public Janice R. Martin

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of the form to another document.

Description of Attached Document

Title or Type of Document: _____

Document Date: _____ Number of Pages: _____

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____

- Individual
- Corporate Officer — Title(s): _____
- Partner Limited General
- Attorney in Fact
- Trustee
- Guardian or Conservator
- Other: _____

RIGHT THUMBPRINT
OF SIGNER

Top of thumb here

Signer is Representing:

Signer's Name: _____

- Individual
- Corporate Officer — Title(s): _____
- Partner Limited General
- Attorney in Fact
- Trustee
- Guardian or Conservator
- Other: _____

RIGHT THUMBPRINT
OF SIGNER

Top of thumb here

Signer is Representing:

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 6202881

American Fire and Casualty Company
The Ohio Casualty Insurance Company

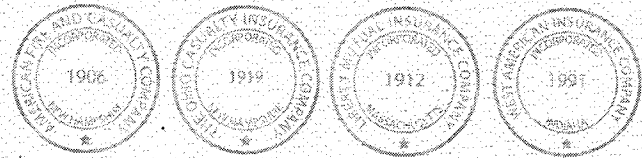
Liberty Mutual Insurance Company
West American Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That American Fire & Casualty Company and The Ohio Casualty Insurance Company are corporations duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Charlotte Aquino; James Baldassare, Jr.; Janice Martin; Jennifer L. Clampert; Lawrence F. McMahon; Maria Guise; Sarah Myers

all of the city of San Diego, state of CA each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 12th day of July, 2013.



American Fire and Casualty Company
The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
West American Insurance Company

By: Gregory W. Davenport
Gregory W. Davenport, Assistant Secretary

STATE OF WASHINGTON ss
COUNTY OF KING

On this 12th day of July, 2013, before me personally appeared Gregory W. Davenport, who acknowledged himself to be the Assistant Secretary of American Fire and Casualty Company, Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Seattle, Washington, on the day and year first above written.



By: KD Riley
KD Riley, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV - OFFICERS - Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

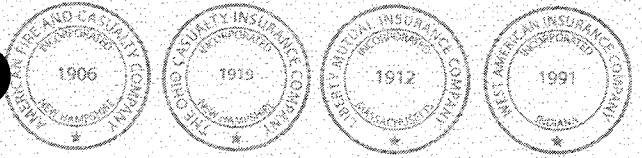
ARTICLE XIII - Execution of Contracts - SECTION 5: Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes Gregory W. Davenport, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization - By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, David M. Carey, the undersigned, Assistant Secretary, of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this SEP 10 2013 day of SEP 10 2013, 2013.



By: David M. Carey
David M. Carey, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or individual value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

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: Triton Structural Concrete, Inc.

DDC Project Number: P5SPKHORA

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

Company has previously worked for DDC

2. Type(s) of Construction Work

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

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
2013	.74	N/A
2012	.75	
2011	.94	

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:

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

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.

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

YEAR	TOTAL NUMBERS OF HOURS WORKED BY EMPLOYEES	INCIDENT RATE
2012	336,786	2.38
2011	222,804	3.59
2010	160,203.75	4.99

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 Contractor previously audited by the DDC Office of Site Safety.

DDC Project Number(s): Beachfront Restoration #SANDSTPCP
Beachfront Restoration #SANDPRFAB
P-1FERY6A

YES Accident on previous DDC Project(s).

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].

Date: 10/3/13

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

Title: Steve Levan, Operations Manager

TRITON - P55PK/H

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
Maintenance Building, Comfort Station and Rain Shelter, Ferry Point Park, Bronx, NY (PEMB)	GC	\$7,976,234.00	8/5/2013	NYC DDC Azer Medhat 347-203-2697	James Rogers Architects Tony Panza 203-3540-5215
Forest Park Greenhouses Forest Park, Queens	GC	\$2,359,989.00	03/05/2012	NYC DPR Vincent Alfano 718-760-6758	MKW & Associates Laura Venin 201-933-7809
Marcus Garvey Amphitheater, Marcus Garvey Park, Harlem	GC	\$5,670,569.00	06/08/2011	NYC DPR James Malin 718-760-6755	Cooper Robertson Jason Cadorette 212-247-1717
El Centro Hangars, Naval Air Facility, El Centro, CA (PEMB)	GC - D/B	\$24,007,585.00	9/30/2009	US NAVY Melinda Russel 559-381-6344	SMR - Hung Nguyen 619-294-6600x563

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
Please see attached list.							

Project & Location	Contract Type	Contract Amount	Subcontracted to Others	Uncompleted Portion	Date Schedule to Complete	Owner Reference & Tel. No.	Architect/ Engineer Reference & Tel. No. if Different from Owner
SODCD SCIENCE & TECHNOLOGY BUILDING BP #04 - San Diego	GC	\$9,348,700.00	\$3,459,019.00	\$93,487.00	10/31/2013	SODCD - Christine Hernandez 858-259-6262	Harley Ellis Devereaux - Christopher Knell 619-398-3800
CARL DARNALL MEDICAL CENTER, Fort Hood, Texas	Sub	\$19,000,000.00	\$13,300,000.00	\$760,000.00	12/31/2013	Army Corp-Ron Harris 254-535-6154	HKS Inc/Cageley & Associates-Jimmy Lahey 301-882-9050
UCSD JACOBS MEDICAL CENTER BED TOWER - San Diego	Sub	\$11,448,252.00	\$3,434,475.60	\$3,892,405.68	12/6/2013	UC San Diego - Richard Allely 858-658-0794	CannonDesign - (Arch.) - KPFF - (Structural) - Christof Madeiski 858-224-0904 310-665-1536
CONSTRUCT NEW CLASSROOM BLDG@ ZAMORANO ELEMENTARY SCHOOL - San Diego	GC	\$9,059,969.00	\$8,335,171.48	\$90,599.69	11/1/2013	San Diego Unified School District - Francisco Campuzano - 858-637-3510	HB&A Architects - Mark Baker - 760738-8608
BANNING JUSTICE CENTER, Banning CA	Sub	\$9,903,200.00	\$2,871,928.00	\$990,320.00	10/11/2013	Judicial Council of California Administrative office of the Courts - Gary Swanson	R.L. Binder Faia, Architects LLP-Kim Walsh 310-301-0260
JACOBS MEDICAL CENTER CUP - San Diego	Sub	\$9,200,192.00	\$2,944,061.44	\$3,588,074.88	12/13/2013	UC San Diego-Randal Slane 858-658-0794	CannonDesign - Jordan Terry 310-665-1536
UCSD MEDICAL CENTER - RENOVATION - San Diego	Sub	\$490,778.00	\$39,262.24	\$490,778.00	1/30/2015	UC San Diego-Richard Allely 858-658-0794	CannonDesign - Jordan Terry 310-665-1536
CHURCH OF ST. THOMAS MORE - Oceanside, CA	Sub	\$1,670,000.00	\$0.00	\$1,670,000.00	1/10/2014	Diocese of St Thomas More - Brian Leahey leaheyb@gmail.com	Renzo Zecchetto - Alex Garcia 310-312-3900
ALGA NORTE PARK - Carlsbad, CA	GC	\$26,405,000.00	\$21,124,000.00	\$12,410,350.00	10/12/2013	City of Carlsbad	CSC+A Architects 619-298-3480
SDUSD CREATIVE PERFORMING AND MEDIA ARTS SCHOOL - San Diego	GC	\$19,708,399.00	\$19,117,147.03	\$8,277,527.58	2/19/2014	San Diego Unified School District - Rick Mortazvi - 858658-0794	Platt/Whitelaw Architects - Rebecca Grijalva 619-546-4326
P212 CHILD DEVELOPMENT CENTER - Twentynine Palms, CA	GC	\$18,512,436.25	\$14,809,949.00	\$13,573,654.50	12/12/2013	Dept. of the Navy NAVFAC Southwest-Rebecca Maddox 760-830-5223	Dominy & Associates Architects 619-692-9393
29 PALMS MOFA - Twentynine Palms, CA	GC	\$15,221,250.00	TBD	\$15,221,250.00	9/2/2014		Cass Sowatsky Chapman + Associates-Mark Sowatsky 619-298-3480

LA JOLLA COMMONS EXECUTIVE GARAGE - San Diego	Sub	\$3,224,800.00	\$483,720.00	\$322,480.00	9/30/2013	HSPF La Jolla Commons II Investors - Jason Hunking 858-435-4000 NAVFAC Southwest- Rebecca Maddox 760-830-5223	AECOM/Nabih Youssef Associates - 213-593-8100 / 213-362-0707
REPAIR EROSION DAMAGE AT VADO DEL RIO, AREA 25 - Camp Pendleton, CA	GC	\$1,097,000.00	\$1,064,090.00	\$1,042,150.00	3/17/2014	US Army Corps of Engineers-John Stephens 661-510-9709	Burkett & Wong Engineers Tom Eagling 619-299-5550
DESIGN BUILD DECONSTRUCT ABL FACILITIES,S. BASE, EDWARDS AFB	GC - D/B	\$11,798,100.00	\$11,503,147.50	\$5,309,145.00	12/20/2013	Port Authority of NY & NJ Devin Maher - dmaher@panynj.gov	Cass Sowatsky Chapman + Associates- Brett Huiitt 619-298-3480
WORLD TRADE CENTER SHOPPING CENTER - CORTLANDT WAY - NY, NY	GC	\$10,365,500.00	\$10,261,845.00	\$3,627,925.00	12/1/2015	San Diego Unified School District - Francisco Campuzano - 858-637-3510	PWP Architects - Nathan Pepple 516-849-9494
DOWNTOWN CHARTER HIGH SCHOOL - San Diego	GC	\$7,081,700.00	\$7,010,883.00	\$212,451.00	11/1/2013	US Dept of Veterans Affairs	LPA, Inc - Eric Jones - 619-629-3930
DENVER VA REPLACEMENT MEDICAL CENTER - Denver, CO	Sub	\$6,174,000.00	\$1,852,200.00	\$3,704,400.00	5/15/2014	NYC DDC - Charlie Jimenez 646-772-6279	H&L SOM 303-298-4700
SANDSTPCP DDC#3 Reconstruction of Coney Island Steeplechase Pier	GC	\$16,213,840.00	\$7,134,089.60	\$324,276.80	9/30/2013	NYC DDC - James Cerasoli -718-391-1000	LTL Architects - 212-505-5955
SANDPRFAB DDC #1 Prefab Modular Buildings, Brooklyn, Queens & Staten Island	GC	\$105,003,443.00	\$84,002,754.40	\$5,250,172.15	12/31/2013		Garrison Architects - Sal Tranchina 718-596-8300 x109

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
Orange Coast Interdisciplinary Complex, Costa Mesa, CA	Prime	\$2,000,000.00	pending	Coast Community College District	LPA 949-261-1001
Ft. Irwin Water Treatment Plant, Ft. Irwin CA	DB Contractor	\$3,000,000.00	pending	USACE, Sacramento 916-557-7461	N/A
World Trade Center Temporary Corridors, New York NY	GC	\$4,000,000.00	October, 2013	Port Authority of NY & NJ 646-545-3784	Beyer Blinder Belle 212-777-7800
St Thomas Church, Oceanside CA	GC	\$19,000,000.00	pending	St Thomas Church Brian Leahy leahyb@gmail.com	Renzo Zecchetto - Alex Garcia 310-312-3900
Repair Erosion Damage at Vado Del Rio, Camp Pendleton CA	GC Design Build	\$1,097,000.00	Currently in design	NAVFAC SW- Akemi Pugnier 619-532-4112	
29 Palms Multiuse Operational Facility (MOFA), 29 Palms CA	GC	\$15,221,250.00	Currently in design	NAVFAC SW- Rebecca Maddox 760-830-5223	Cass Sowatsky Chapman + Associates- Mark Sowatsky 619-298-3480

VENDEX COMPLIANCE

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: Triton Structural Concrete, Inc.
Bidder's Address: 3100 47th Avenue, #10, LIC, NY 11101
Bidder's Telephone Number: 877.874.8669
Bidder's Fax Number: 866.414.2636
Date of Bid Opening: September 19th, 2013
Project ID: P5SPKHORA

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, 9th 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: Steve Levan

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, Steve Levan, 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: Triton Structural Concrete, Inc.

Vendor's Address: 3100 47th Avenue, Long Island City, NY 11101

Vendor's EIN or TIN: 26-0768973 Requesting Agency: Dept. of Design and Construction

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: 02/24/2012

Signature date on change submission for the submitting vendor: N/A

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	Timothy Penick	2/24/2012	
2	Marc Penick	2/24/2012	
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:

Steve Levan
Name (Print)

Operations Manager
Title

Triton Structural Concrete, Inc.
Name of Submitting Entity

Signature 2/19/14
Date

Notarized By:

Notary Public New York
County License Issued 01VA6226642
License Number

Sworn to before me on: 2/19/14
Date

KAILLY ANN VAY
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01VA6226642
Qualified in New York County
Commission Expires August 16, 2014

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

September 12, 2013

ADDENDUM No. # 1

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

P-5SPKHORA

Ocean Breeze Indoor Horse Riding Arena Construction

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 September 17, 2013, at 2:00pm is rescheduled to September 19, 2013 at 2:00pm.

2. Questions from Bidders and Responses to Questions:

See Attachment A.

3. Revisions to the Specifications:

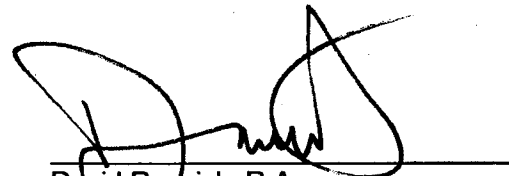
See Attachment B.

4. Revisions to the Drawings:

See Attachment C.

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) 391-2200, (718) 391-1727, or by fax at (718) 391-2615.



David Resnick, R.A.
Deputy Commissioner

Triton Structural Concrete, Inc.
Name of Bidder

By: 

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

September 16, 2013

ADDENDUM No. # 2

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

P-5SPKHORA

Ocean Breeze Indoor Horse Riding Arena Construction

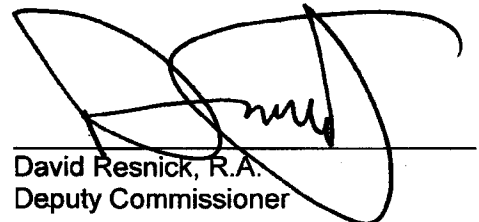
This addendum is issued for the purpose of amending the requirements of the Bid and Contract Documents and is hereby made a part of said Bid and Contract Documents to the same extent as though it were originally included therein.

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

1. **Questions from Bidders and Responses to Questions:**
See Attachment A.
2. **Revisions to the Bid Booklet:**
See Attachment B.
3. **Revisions to the Specifications:**
See Attachment C.
4. **Revisions to the Drawings:**
See Attachment D.

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) 391-2200, (718) 391-1727, or by fax at (718) 391-2615.



David Resnick, R.A.
Deputy Commissioner

Triton Structural Concrete, Inc.
Name of Bidder

By: 

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
- 2a. If you are certified as an MBE, WBE, or LBE, what city/state agency are you certified with?
N/A 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

PART I: CONTRACTOR/SUBCONTRACTOR INFORMATION

5. 26-0768973 Div3Estimating@tritonstructural.com
Employer Identification Number or Federal Tax I.D./ Email Address
6. Triton Structural Concrete, Inc.
Company Name
7. 3100 47th Avenue (#10), Long Island City, NY 11101
Company Address and Zip Code
8. Timothy Penick 858.558.1800
Chief Operating Officer Telephone Number
9. Pete Lupo 858.558.1800
Designated Equal Opportunity Compliance Officer Telephone Number
(If same as Item #7, write "same")
10. Triton Structural Concrete, Inc., Steve Levan
Name of Prime Contractor and Contact Person
(If same as Item #5, write "same")
11. Number of employees in your company: 905

12. Contract information:

(a) Department of Design & Construction
Contracting Agency (City Agency)

(b) TBD (Bidding)
Contract Amount

(d) 8502013PV0022C
Procurement Identification Number (PIN)

(e) TBD (Bidding)
Contract Registration Number (CT#)

(f) TBD
Projected Commencement Date

(g) _____
Projected Completion Date

(h) Description and location of proposed contract:
Construction of new indoor equestrian arena at 621 Father Capodanno Boulevard,
Staten Island, NY

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

If yes, attach a copy of certificate.

14. 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.

15. 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: _____

16. 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.

- (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.

17. 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 X No ___

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

AGC, Laborers 731, Operators 14/15, Dockbuilders 1456

PART II: DOCUMENTS REQUIRED

18. 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.

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

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

X (c) Employee Policy/Handbook

X (d) Personnel Policy/Manual

X (e) Supervisor's Policy/Manual

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

X (g) Collective bargaining agreement(s).

X (h) Employment Application(s)

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

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

19. 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 X

(b) After a conditional job offer Yes ___ No X

(c) After a job offer Yes X No ___

(d) Within the first three days on the job Yes ___ No X

(e) To some applicants Yes ___ No X

(f) To all applicants Yes X No ___

(g) To some employees Yes ___ No X

(h) To all employees Yes X No ___

20. Explain where and how completed I-9 Forms, with their supportive documentation, are maintained and made accessible.
I-9 forms & supporting docs for current & terminated employees are stored in separate binders. Binders are maintained by HR & accessible in the HR office.

21. 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.

22. Do you have a written equal employment opportunity (EEO) policy? Yes X No ___

If yes, list the document(s) and page number(s) where these written policies are located.
See Triton policy, p.14a.

23. Does the company have a current affirmative action plan(s) (AAP)

- X Minorities and Women
X Individuals with handicaps
___ Other. Please specify _____

24. 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.

25. 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.

26. 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.

27. Are there any jobs for which there are physical qualifications? Yes X No

If yes, list the job(s), submit a job description and state the reason(s) for the qualification(s).
All field personnel must be able to physically perform their respective
scopes of work.

28. 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).



Small Business
Services

Robert W. Walsh
Commissioner

March 19, 2013

Ms. Kailly Vay, Project Manager
Triton Structural Concrete, Inc.
3100 47th Avenue
Long Island City, NY 11101
Brewster, NY 10509

Re: Department of Design and Construction Contract; Pin 8502013PV0007C, SANDPRFAB; Phase 3; Beachfront restoration project, new prefab modular building units; Boroughs of Brooklyn, Queens and Staten Island; Contract Value: ~~\$1,050,003,443.02~~; **File Number 213CY057**; and

Pin No. 8502013PV0009C, SANDSTPCP; Phase 3; Beachfront restoration project, reconstruction of Coney Island Steeplechase Pier; Borough of Brooklyn; Contract Value: \$16,213,840.70; **File Number 213CY058; Certificate of Approval.**

Dear Ms. Vay:

The Department of Small Business Services/Division of Labor Services (DLS) has concluded that Triton Structural Concrete, Inc. (TSCI) met 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 the Department Design and Construction of this determination.

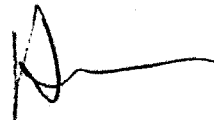
Contingent upon TSCI's ongoing compliance with E.O. 50 and Chapter 56, this approval shall be effective for the three (3) year period commencing on March 18, 2013 and terminating on March 17, 2016. **The determination for a three year approval only exempts contractors from completing the policy and procedure 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, TSCI must regularly submit to DLS the **Monthly Workforce Utilization Table and Payroll Records** as explained during the pre-award conference on March 19, 2013.

PAGE TWO
March 19, 2013

It is important that TSCI, as a New York City contractor, provide equal employment opportunity for all employees and applicants for employment.

Please direct all correspondence to Lisa Middleton, Project Manager. Should you have any questions regarding this letter, you may call Ms. Middleton at (212) 618-8823 or email her at lmiddleton@sbs.nyc.gov.

Very truly yours,



Helen Wilson
Executive Director
Division of Labor Services

cc: Lisa Middleton
Celoy Williams
FILE

SIGNATURE PAGE

I, (print name of authorized official signing) Steve Levan 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.

Triton Structural Concrete, Inc.

Contractor's Name

Seth Cowan Estimating Coordinator


Name of person who prepared this Employment Report Title

Steve Levan Operations Manager

Name of official authorized to sign on behalf of the contractor Title

877.874.8669 x465

Telephone Number



09/19/2013

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.

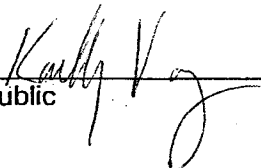
Willful or fraudulent falsifications of any data or information submitted herewith may result in the termination of the contract between the City and the bidder or contractor and in disapproval of future contracts for a period of up to five years. Further, such falsification may result in civil and/or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

KAILLY ANN VAY
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01VA6226642
Qualified in New York County
Commission Expires August 16, 2014

Sworn to before me this 19 day of Sept 20 13



Notary Public

Authorized Signature

9/19/13
Date

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 to learn more about the loan or contact 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: P5SPKHORA

**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. 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

Bidders are advised that the special experience requirements set forth below apply to the General Construction Contractor if a check mark is indicated before the word "Yes". Compliance with these special experience requirements will be determined solely by the City. Failure to meet these special experience requirements will result in the rejection of the bid as non-responsive.

General Construction Contractor x YES NO

- (A) **EXPERIENCE REQUIREMENTS FOR THE BIDDER (PRIME CONTRACTOR):** The special experience requirements set forth below apply to the bidder. Compliance with such special experience requirements will be evaluated at the time of the bid.
- 1) The bidder must, with 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 meet the experience requirements set forth above, the bidder must complete and submit with its bid the Qualification Form set forth in this Bid Booklet. All information on the Qualification Form must be provided.
- (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.
- 1) 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.
 - 2) 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) **COMPLIANCE:** Compliance with the experience requirements set forth herein will be determined solely by the City. The bidder is advised that failure to meet the above described experience will result in the rejection of the bid as non-responsive.

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Qualification Form

Project ID: P5SPKHORA

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, by emailing DSBS at 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, emailing 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 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.

Tax ID #: _____

APT E-
PIN#: 85013B0119

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 # 85013B0119 FMS Project ID#: P5SPKHORA

Project Title/Agency Ocean Breeze Indoor Horse Riding Arena

PIN # 8502013PV0022C

Bid/Proposal
Response Date: 09/17/2013

Contracting Agency Department of Design and Construction

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

Contact Person James A. Cerasoli Title Deputy Director

Telephone # (718) 391-1549 Email cerasoli@ddc.nyc.gov

Project Description (attach additional pages if necessary)

This Project consists of the construction of a new indoor horse riding arena on Father Capodanno Boulevard in Staten Island.

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 Service

Prime Contract Industry: Construction

Group	Percentage	
<u>Unspecified</u>	<u>13</u>	<u>%</u>
or		
Black American	<u>N/A</u>	<u>%</u>
Hispanic American	<u>N/A</u>	<u>%</u>
Asian American	<u>N/A</u>	<u>%</u>
Women	<u>N/A</u>	<u>%</u>
Total Participation Goals	13	%

Line 1

Tax ID #: _____

APT E-
PIN #: _____

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 # _____	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.)

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

TYPE OF Contract	AGENCY/ENTITY	DATE COMPLETED
Manager at agency/entity that hired vendor (Name/Phone No./Email)		
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

TYPE OF Contract	AGENCY/ENTITY	DATE COMPLETED
Manager at entity that hired vendor (Name/Phone No./Email)		
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

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: _____

Shaded area below is for agency completion only

AGENCY CHIEF CONTRACTING OFFICER APPROVAL
 Signature: _____ Date: _____
CITY CHIEF PROCUREMENT OFFICER APPROVAL
 Signature: _____ Date: _____

Waiver Determination

Full Waiver Approved:
 Waiver Denied:
 Partial Waiver Approved:
 Revised Participation Goal: _____ %

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

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

PROJECT ID: P5SPKHORA

**Ocean Breeze Indoor Horse Riding Arena
621 Father Capodanno Boulevard
10305**

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

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:

BID FORM

PROJECT ID: P5SPKHORA

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

LUMP SUM PRICE - Total price for all labor and material for all required work. 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
Labor

Total Price for Material Sold and
Delivered

\$ _____ +

\$ _____

Total Bid Price \$ _____

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

- * **M/WBE UTILIZATION PLAN:** By signing its bid in the space below, 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.

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.
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 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.

The list of subcontractors is to be submitted in a separate sealed envelope by completing the form on the next page entitled "Bidder's Identification of Subcontractors". This form provides for the identification of 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 so indicate on the form.

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 the Subcontractor Utilization Plan, the bid will be non-responsive unless the bidder requests and obtains a Waiver of Target Subcontracting Percentage (Subcontractor Utilization Plan, Part III) in advance of bid submission.

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: P5SPKHORA

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.

1. PLUMBING CONTRACTOR:

(Print Name)

Agreed Amount To Be Paid To Subcontractor: \$ _____

2. HVAC CONTRACTOR:

(Print Name)

Agreed Amount To Be Paid To Subcontractor: \$ _____

3. ELECTRICAL CONTRACTOR:

(Print Name)

Agreed Amount To Be Paid To Subcontractor: \$ _____

BIDDER'S SIGNATURE: The Bidder must sign this form in the space provided below:

Name of Bidder: _____

By: _____
Signature of Partner or Corporate Officer

Print Name: _____

Title: _____

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: _____

BID BOND 3

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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CONTRACTOR BID BREAKDOWN FORM

TITLE: Ocean Breeze Indoor Horse Riding Arena

CONTRACT 1 - GENERAL CONSTRUCTION WORK

LOCATION: 621 Father Capodanno Boulevard, Staten Island NY 10305

FMS PROJECT ID# P5SPKHORA

BIDDER:

CLIENT AGENCY: DPR

Item No.	Item Description	Qty	Unit Type	Unit Price	Total Price
CONTRACT 1 - GENERAL CONSTRUCTION WORK					
	DIVISION 1 - GENERAL CONDITIONS		LS		
	MOBILIZATION		LS		
	LEED Requirements (see General Conditions)		LS		
1	Item Deleted		--		
2	Item Deleted		--		
3	Item Deleted		--		
4	LEED Building Performance Requirements		LS		
5	Maintenance & Protection of Traffic - Type A		LS		
	Maintenance & Protection of Traffic - Type B		LS		
	Maintenance & Protection of Traffic - Type C		LS		
6	Temporary Wooden Tree Guard w Tree Wrap		EA		
7	Removals		LS		
8	Tree Removal Over 6" to 12" DBH		EA		
9	Relocate Site Items		LS		
10	Saw Cut Pavement		LF		
11	Saw Cut Curbs and Walls		LF		
12	Hand and/or Pneumatic Excavation		CY		
13	Unclassified Excavation		CY		
14	Stabilized Construction Entrance		SY		
15	Item Deleted		--		
16	Earth Moving Operations		CY		
17	Geotextile - Drainage		SY		
18	Temporary Silt Fence		LF		
19	Restoration of Street Pavement		LS		
20	Item Deleted		--		
21	Chain Link Fence 8'-0" Height		LF		
22	Single Gate for CLF 8'-0" HT. (9'-6" Wide)		EA		

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CONTRACTOR BID BREAKDOWN FORM

TITLE: Ocean Breeze Indoor Horse Riding Arena

CONTRACT 1 - GENERAL CONSTRUCTION WORK

LOCATION: 621 Father Capodanno Boulevard, Staten Island NY 10305

FMS PROJECT ID# P5SPKHORA

BIDDER:

CLIENT AGENCY: DPR

Item No.	Item Description	Qty	Unit Type	Unit Price	Total Price
23	Double Gate for CLF 8'-0" HT.		EA		
24	Native Seed Mix		SY		
25	Preparatory Pruning of Tree Over 6" to 12" DBH		EA		
26	Temporary Sheeting		SF		
27	Item Deleted		LF		
28	Ductile Iron Sewer Pipe - 12" Dia.		LF		
29	Service Weight Cast Iron Soil Pipe - 6" Dia.		LF		
30	Polyethylene Corrugated 4" Dia.		LF		
31	Polyethylene Corrugated 8" Dia.		LF		
32	Polyethylene Corrugated 12" Dia.		LF		
33	Slotted Polyethylene Pipe 18" Dia.		LF		
34	19" Dia. Manhole with H-20 Rated 18" Solid Cover		EA		
35	Broken Stone - Loose Measure		CY		
36	Item Deleted		--		
37	Precast Concrete Drywell		EA		
38	Allowance for DEP Sewer Review Fee		\$800.00		
39	Miscellaneous Iron & Steel		LB		
40	Galvanized Steel Fence		LF		
41	Type K Copper Tubing 1" Dia.		LF		
42	Type K Copper Tubing 1 1/2" Dia.		LF		
43	Plug Valve 1" Dia.		EA		
44	Cast Iron Valve Box - 5 1/4" Dia		EA		
45	Ground Hydrant - 1" Dia		EA		
46	Irrigation Accessories - Type A		SET		
47	Borrowed Fill (Truck Measured)		CY		
48	Controlled Concrete		CY		
49	Steel Bar Reinforcement		LB		
50	Item Deleted		--		
51	Vertical Timber Piles - 12" Dia.		LF		
52	Item Deleted		--		

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CONTRACTOR BID BREAKDOWN FORM

TITLE: Ocean Breeze Indoor Horse Riding Arena

CONTRACT 1 - GENERAL CONSTRUCTION WORK

LOCATION: 621 Father Capodanno Boulevard, Staten Island NY 10305

FMS PROJECT ID# P5SPKHORA

BIDDER:

CLIENT AGENCY: DPR

Item No.	Item Description	Qty	Unit Type	Unit Price	Total Price
53	Concrete Masonry Units		SF		
54	Structural Steel		LB		
55	Steel Decking		SF		
56	Metal Stairs		LS		
57	Item Deleted		--		
58	Item Deleted		--		
59	Vinyl Base Trim		LS		
60	Item Deleted		--		
61	Thermal Insulation		SF		
62	Joint Sealants		LS		
63	Hollow Metal Doors		LS		
64	Aluminum Frames		LS		
65	Aluminum-Framed Entrances and Storefronts		LS		
66	Aluminum Window - Fixed		LS		
67	Aluminum Window - Casement		LS		
68	Door Hardware		LS		
69	Glazing - Glass (Laminated)		SF		
70	Plastic Glazing		SF		
71	Non-Structural Metal Framing		LF		
72	Gypsum Board		LS		
73	Tiling		LS		
74	Interior Painting		SF		
75	Item Deleted		--		
76	Toilet Accessories		LS		
77	Metal Building Systems		LS		
78	Sand		CY		
79	Plumbing Work		LS		
80	Installation of HVAC System		LS		
81	Electrical Work		LS		
82	Allowance for Utility Company Fees		\$8,000.00		

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CONTRACTOR BID BREAKDOWN FORM

TITLE: Ocean Breeze Indoor Horse Riding Arena

CONTRACT 1 - GENERAL CONSTRUCTION WORK

LOCATION: 621 Father Capodanno Boulevard, Staten Island NY 10305

FMS PROJECT ID# P5SPKHORA

BIDDER:

CLIENT AGENCY: DPR

Item No.	Item Description	Qty	Unit Type	Unit Price	Total Price
83	Item Deleted		--		
84	Item Deleted		--		
85	Item Deleted		--		
86	Item Deleted		--		
87	Dry Pipe Sprinkler System		LS		
88	Item Deleted		--		
89	Horse Stalls		LS		
90	Corner Hay Racks		EA		
91	Wall Feed Pans		EA		
92	Feed Storage Bins		EA		
93	Bridle Racks		EA		
94	Saddle Racks		EA		
95	Flexible Fence and Gates		LS		
96	Full Depth Asphalt Pavement		SY		
97	Cement Concrete Pavement		SY		
98	Item Deleted		--		
99	Pipe Handrail		LF		
100	Item Deleted		--		
101	Equestrian Fence		LF		
102	Steel Faced Concrete Curb		LF		
103	Remove and Reset Concrete Wheel Stop		EA		
104	Precast Concrete Wheelstop		EA		
105	Thermoplastic HRPRM - Arrow		EA		
106	Item Deleted		--		
107	Bicycle Rack		EA		
108	Thermoplastic HRPRM - ADA Parking Symbol		EA		
109	Thermoplastic HRPRM - Parking Lines - 4" Width		LF		
110	ADA Signs		EA		
111	Steel Drive Rail		LF		
112	Item Deleted		--		

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CONTRACTOR BID BREAKDOWN FORM

TITLE: Ocean Breeze Indoor Horse Riding Arena
 LOCATION: 621 Father Capodanno Boulevard, Staten Island NY 10305
 BIDDER:

CONTRACT 1 - GENERAL CONSTRUCTION WORK

FMS PROJECT ID# P5SPKHORA

CLIENT AGENCY: DPR

Item No.	Item Description	Qty	Unit Type	Unit Price	Total Price
113	Topsoil for Sodded Areas		CY		
114	Commercial Fertilizer Low Phosphorous (Slow Release)		LB		
115	Limestone		LB		
116	Elemental Sulphur		LB		
117	Compost (Truck Measure)		CY		
118	Item Deleted		--		
119	Reconstruct Lawn		SY		
120	Shredded Bark Mulch		SY		
121	Shredded Bark Mulch - without Fertilizer		SY		
122	Landscape Fabric		SY		
123	Topsoil for Native Planting Pits and Beds		CY		
124	Plant Cornus Florida 'Cherokee' 1 1/2 - 2" cal.		EA		
125	Plant Nyssa Sylvatica 2 1/2 - 2" cal.		EA		
126	Plant Amelanchier Canadensis 1 1/2"-2" cal.		EA		
127	Plant Viburnum Trifolium 5'-6' Ht		EA		
128	Plant Myrica pensylvanica, Northern Bayberry 4'-5' Ht.		EA		
129	Plant Rosa 'Knock-Out' 3 -4' HT.		EA		
130	Plant Fothergilla gardenii, 3'-4' Ht.		EA		
131	Plant Carex radiata, edge		SF		
CONTRACT 1 - GENERAL CONSTRUCTION WORK					

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PLA PROJECT

**ATTACHMENT 1 - BID INFORMATION
PROJECT ID: P5SPKHORA**

DESCRIPTION AND LOCATION OF WORK:

**Ocean Breeze Indoor Horse Riding Arena
621 Father Capodanno Boulevard
Staten Island, NY 10305
E-PIN: 85012B0119 / DDC PIN: 8502012PV0022C**

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: **TUESDAY, SEPTEMBER 17, 2013**
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:

PLACE OF BID OPENING:	Department of Design and Construction Contract Section 30-30 Thomson Avenue – First Floor Long Island City, NY 11101
DATE AND HOUR:	TUESDAY, SEPTEMBER 17, 2013 @ 2:00 PM
	LATE BIDS WILL NOT BE ACCEPTED

PRE-BID CONFERENCE

PLACE	Ocean Breeze Indoor Horse Riding Arena 621 Father Capodanno Boulevard Staten Island, NY 10305
DATE AND HOUR	TUESDAY, SEPTEMBER 3, 2013 AT 10:00AM
MANDATORY OR OPTIONAL	OPTIONAL

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 excess of \$1,000,000.00. 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) 391-2200 or (718) 391-2601 Fax: (718) 391-2615

**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

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	_____	_____
Other (specify)	_____	_____
_____	_____	_____

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:

_____ Contractor has received a willful violation issued by OSHA or New York City Department of Buildings (NYCDOB) within the last three years.

_____ 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)

_____ Contractor previously audited by the DDC Office of Site Safety.

DDC Project Number(s): _____

_____ Accident on previous DDC Project(s).

_____ 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].

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

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, 9th 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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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

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

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: _____

**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
- 2a. If you are certified as an **MBE, WBE, or LBE**, 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

PART I: CONTRACTOR/SUBCONTRACTOR INFORMATION

- 5. _____
Employer Identification Number or Federal Tax I.D./ _____ Email Address
- 6. _____
Company Name
- 7. _____
Company Address and Zip Code
- 8. _____
Chief Operating Officer Telephone Number
- 9. _____
Designated Equal Opportunity Compliance Officer Telephone Number
(If same as Item #7, write "same")
- 10. _____
Name of Prime Contractor and Contact Person
(If same as Item #5, write "same")
- 11. Number of employees in your company: _____

12. Contract information:

(a) _____ (b) _____
Contracting Agency (City Agency) Contract Amount

(d) _____ (e) _____
Procurement Identification Number (PIN) Contract Registration Number (CT#)

(f) _____ (g) _____
Projected Commencement Date Projected Completion Date

(h) Description and location of proposed contract:

13. 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.

14. 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.

15. 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: _____

16. 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.

17. 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

18. 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?

19. 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___ |

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

21. 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.

22. 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.

23. Does the company have a current affirmative action plan(s) (AAP)
___ Minorities and Women
___ Individuals with handicaps
___ Other. Please specify _____

24. 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.

25. 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.

26. 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.

27. 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).

28. 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).

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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

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FMS ID: P5SPKHORA



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

Contract for Furnishing all Labor and Material Necessary and Required for:

CONTRACT NO. 1 GENERAL CONSTRUCTION WORK

Ocean Breeze Indoor Horse Riding Arena Construction

**LOCATION: 621 Father Capodanno Boulevard
BOROUGH: Staten Island 10305
CITY OF NEW YORK**

Contractor _____

Dated _____, 20____

Entered in the Comptroller's Office

First Assistant Bookkeeper _____

Dated _____, 20____





PROJECT ID: P5SPKHORA

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

LAW

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

**Ocean Breeze Indoor Horse Riding
Arena Construction**

LOCATION: 621 Father Capodanno Boulevard
BOROUGH: Staten Island 10305
CITY OF NEW YORK

CONTRACT NO. 1 GENERAL CONSTRUCTION WORK

Department of Parks and Recreation

Department of Design and Construction

Date: June 13, 2013



13-065



NEW YORK CITY DEPARTMENT OF
DESIGN + CONSTRUCTION

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

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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



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, by emailing DSBS at 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, emailing 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 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 MWBEs 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 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 trusted 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 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 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

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Thomas Klein, Bus. Mgr.
boilermakers5@optonline.net

BLASTERS & DRILLERS LOCAL NO. 29

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BRICKLAYERS LOCAL NO. 1

Santo Lanzafame (718) 392-0525

BUILDING TRADES

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Fax: (212) 647-0705
John Barnett, Chairman

CARPENTERS DISTRICT COUNCIL

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CONCRETE WORKERS DISTRICT COUNCIL NO. 16

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DERRICKMEN AND RIGGERS CONCRETE WORKERS

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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.
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Gregg Nolan, Bus. Rep.
Christopher Thomas, Bus. Rep.
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Kevin O'Rourke, Pres. Bus. Agent

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Anthony DeBlaisie, Bus. Agent, V.P.
John Delaney, Jr., Rec. Sec.
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Eugene Sparano, Organizer Mkt. Dev.
John Modica, Bus. Agent
Joseph Cangelosi, Bus. Agent
Kenny Robinson, Bus. Agent
James Haggerty, Bus. Agent
Carl Tully, Bus. Agent
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Fred LeMoine Jr., Bus. Agent
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METAL TRADES DIVISION

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Dennis Milton, Bus. Agent

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Jose Torent, Bus. Rep.
Raul Rendon, Bus. Rep.
Paul Belliveau, Bus. Rep.
Joseph Ramaglia, Bus. Mgr.
Anthony Buscema, Bus. Rep.
James Barnett, Bus. Rep.
Angelo Serse, Bus. Rep.
Jack Kittle, Political Dir.
Gus Diamantas, Training Director
John Barrett, Bus. Rep.

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Lowell Barton, Bus. Agent
Francisco Fernandez, Bus. Agent
Joao Teixeira, Bus. Agent
Bonaventura Valerio, Bus. Agent
Joseph Sarro, Bus. Agent

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NYC AGENCY RENOVATION & REHAB OF CITY OWNED BUILDINGS/STRUCTURES

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;

NYC AGENCY RENOVATION & REHAB CITY OWNED BUILDINGS/STRUCTURES

- (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

NYC AGENCY RENOVATION & REHAB CITY OWNED BUILDINGS/STRUCTURES

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

NYC AGENCY RENOVATION & REHAB CITY OWNED BUILDINGS/STRUCTURES

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;

NYC AGENCY RENOVATION & REHAB CITY OWNED BUILDINGS/STRUCTURES

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

NYC AGENCY RENOVATION & REHAB CITY OWNED BUILDINGS/STRUCTURES

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

NYC AGENCY RENOVATION & REHAB CITY OWNED BUILDINGS/STRUCTURES

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 (2nd), fourth (4th), sixth (6th), and eighth (8th) 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 (2nd), fifth (5th), and eighth (8th) 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

NYC AGENCY RENOVATION & REHAB CITY OWNED BUILDINGS/STRUCTURES

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 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.

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

NYC AGENCY RENOVATION & REHAB CITY OWNED BUILDINGS/STRUCTURES

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

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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,

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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

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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, §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.

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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

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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

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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

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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.

NYC AGENCY RENOVATION & REHAB CITY OWNED BUILDINGS/STRUCTURES

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.

NYC AGENCY RENOVATION & REHAB CITY OWNED BUILDINGS/STRUCTURES

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

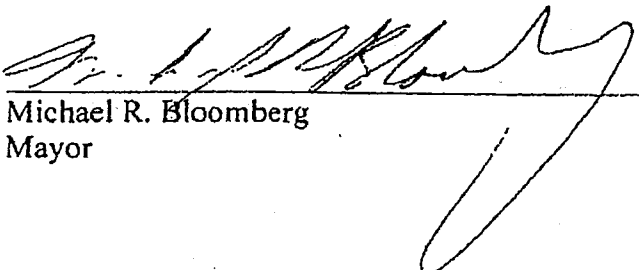
NYC AGENCY RENOVATION & REHAB CITY OWNED BUILDINGS/STRUCTURES

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

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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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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 BIDDERS

DAMAGES FOR DELAY PILOT PROGRAM

Please be advised that this contract is part of a pilot program in which the Standard Construction Contract provisions concerning delay damages have been revised to allow contractors to be reimbursed for specified additional costs that are attributable to a delay in the performance of the work resulting from certain acts or omissions of the City agency or its representatives. Certain changes are highlighted here to alert bidders to the pilot program. Please see Articles 11, 12.3, and 13.10 of the Standard Construction Contract for a full understanding and the actual text of the pilot program. 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.

Changes to Articles 11, 12.3, and 13.10 of the Standard Construction Contract permit contractors to make claims for delay damages relating to the following circumstances:

The failure of the City to take reasonable measures to coordinate and progress the Work;

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 constitute a material change to the Work and which have a verifiable impact on project costs.

The unavailability of the site for an extended period of time that significantly affects the scheduled completion of the contract.

The issuance by the City of a stop work order relative to a substantial portion of work for a period exceeding thirty days, that was not brought about through any action or omission of the Contractor.

Differing site conditions that were not known or 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.

Delays caused by the City's bad faith or its willful, malicious, or grossly negligent conduct;

Delays not contemplated by the parties;

Delays so unreasonable that they constitute an intentional abandonment of the Contract by the City; and

Delays resulting from the City's breach of a fundamental obligation of the Contract.

Please see Article 11.4 for provisions regarding compensable delays.

Specific exclusions to claims for damages also apply, such as for third party (non-City) acts and omissions, court orders, strikes or *force majeure* events. For provisions related to non-compensable delays, please see Article 11.5.

For those delays where damages are available, Article 11 also sets forth what costs are recoverable. Please see Article 11.7 for which costs are recoverable and which costs are non-recoverable.

Article 11 also contains provisions concerning notice and documentation of claims. Please see Articles 11.1, 11.2, and 11.6. Contractors must comply with the notice requirements in order to preserve their claims. Consequently, please read these sections carefully. Delay damages are compensable only if they were actually, reasonably and necessarily incurred and are verified by appropriate documentation submitted at the appropriate times.

Claims for delay damages are not covered by the dispute resolution process in Article 27 of the Standard Construction Contract. See Article 11.8. When the amount of delay damages are agreed upon, such damages may be paid through a change order.

NOTICE TO BIDDERS, PROPOSERS, CONTRACTORS, AND RENEWAL CONTRACTORS

This contract includes a provision concerning the protection of employees for whistleblowing activity, pursuant to New York City Local Law Nos. 30-2012 and 33-2012, effective October 18, 2012 and September 18, 2012, respectively. The provisions apply to contracts with a value in excess of \$100,000.

Local Law No. 33-2012, the Whistleblower Protection Expansion Act (“WPEA”), prohibits a contractor or its subcontractor from taking an adverse personnel action against an employee or officer for whistleblower activity in connection with a City contract; requires that certain City contracts include a provision to that effect; and provides that a contractor or subcontractor may be subject to penalties and injunctive relief if a court finds that it retaliated in violation of the WPEA. The WPEA is codified at Section 12-113 of the New York City Administrative Code.

Local Law No. 30-2012 requires a contractor to prominently post information explaining how its employees can report allegations of fraud, false claims, criminality, or corruption in connection with a City contract to City officials and the rights and remedies afforded to employees for whistleblowing activity. Local Law No. 30-2012 is codified at Section 6-132 of the New York City Administrative Code.

WHISTLEBLOWER PROTECTION EXPANSION ACT RIDER

1. In accordance with Local Law Nos. 30-2012 and 33-2012, codified at sections 6-132 and 12-113 of the New York City Administrative Code, respectively,
 - (a) 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 (i) the Commissioner of the Department of Investigation, (ii) a member of the New York City Council, the Public Advocate, or the Comptroller, or (iii) the City Chief Procurement Officer, ACCO, Agency head, or Commissioner.
 - (b) If any of Contractor's officers or employees believes that he or she has been the subject of an adverse personnel action in violation of subparagraph (a) of paragraph 1 of this rider, he or she shall be entitled to bring a cause of action against Contractor to recover all relief necessary to make him or her whole. Such relief may include but is not limited to: (i) an injunction to restrain continued retaliation, (ii) reinstatement to the position such employee would have had but for the retaliation or to an equivalent position, (iii) reinstatement of full fringe benefits and seniority rights, (iv) payment of two times back pay, plus interest, and (v) compensation for any special damages sustained as a result of the retaliation, including litigation costs and reasonable attorney's fees.
 - (c) 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:
 - (i) 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
 - (ii) the rights and remedies afforded to its employees under New York City 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.
 - (d) For the purposes of this rider, "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.
 - (e) This rider is applicable to all of Contractor's subcontractors having subcontracts with a value in excess of \$100,000; accordingly, Contractor shall include this rider in all subcontracts with a value a value in excess of \$100,000.
2. Paragraph 1 is not applicable to this Contract if it is valued at \$100,000 or less. Subparagraphs (a), (b), (d), and (e) of paragraph 1 are not applicable to this Contract if it was solicited pursuant to a finding of an emergency. Subparagraph (c) of paragraph 1 is neither applicable to this Contract if it was solicited prior to October 18, 2012 nor if it is a renewal of a contract executed prior to October 18, 2012.

NOTICE TO BIDDERS

Please be advised that the City of New York has revised the form of the performance bond that is required for City construction contracts that do not exceed \$5 million. The form of bond required for contracts that are greater than \$5 million has not changed. The City now has two approved forms. One form is to be used for contracts that do not exceed \$5 million and one form is to be used for contracts above \$5 million. The City's payment bond remains unchanged.

The new bond form for contracts that do not exceed \$5 million has been approved by the U.S. Small Business Administration ("SBA") for participation in their Bond Guarantee Program. The SBA's Bond Guarantee Program enables eligible small businesses to obtain or increase bonding by having the SBA act as a partial guarantor of the contractor to the surety. If you are interested in participating in this program, we suggest that you contact your broker or the SBA.

In order to maximize participation by small businesses in the SBA Guarantee Program, the City also encourages prime contractors who are awarded contracts greater than \$5 million to allow their subcontractors to use the SBA-approved form, particularly on contracts that are subject to Local Law 129 (the M/WBE program), if the prime contractor requires subcontractors to obtain performance bonds.



Notice to Bidders:

In 2013 the City will be implementing a new web based subcontractor reporting system. Once this subcontractor reporting system is implemented, and Contractor receives notice of its implementation, Contractor will be required to list in the system all of the subcontractors that it knows it will use or is already using in the performance of this contract. For each subcontractor listed, Contractor will be required to provide the following information: maximum contract value, description of subcontractor work, start and end date of the subcontract and identification of the subcontractor's industry. Identification of subcontractors in the system along with the required information will be required in order to obtain subcontractor approval under [section 3.02 of Appendix A][Article 17 of the Standard Construction Contract] and PPB Rule § 4-13 for all subcontractors that have not been approved as of the implementation date. 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...

When the subcontractor reporting system is implemented, Contractor will receive a written notice from the City which will contain the information the Contractor will need to list its subcontractors and report payments. Contractor will not be required to comply with the requirements set forth herein until such notice is received. Contractor will have 30 days from the date of the notice to list its current subcontractors for which it has already received Agency approval, if any. Thereafter, for those subcontractors that have not yet been approved by the Agency, subcontractors will have to be listed in the system in order to obtain the required Agency approval.

Failure of the Contractor to list a subcontractor and/or to report subcontractor payments in a timely fashion may result in the Agency declaring the Contractor in default of the Contract and may 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. For construction contracts, the provisions of Article 15 of the Standard Construction Contract shall govern the issue of liquidated damages.

Contractor hereby agrees to these provisions and acknowledges that they will become effective on the date set forth in the notice.

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CITY OF NEW YORK

**DEPARTMENT OF
DESIGN AND CONSTRUCTION
DIVISION OF STRUCTURES**

INFORMATION FOR BIDDERS

DELAY DAMAGES PILOT

September 2008

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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, 9th 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. 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

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
DELAY DAMAGES PILOT

September 2008

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**CITY OF NEW YORK
STANDARD CONSTRUCTION CONTRACT**

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CITY OF NEW YORK

STANDARD CONSTRUCTION CONTRACT (September 2008)

The Standard Construction Contract dated September 2008 (the "Contract") is amended as set forth below.

- Article 77: Article 77, Part A, Section 5 is deleted in its entirety and replaced with the following:
 5. Where a Subcontractor 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. **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 a contract that is subject to a Project Labor Agreement] where the bidder is required to identify at the time of bid submission its intended subcontractors for the Wicks trades [i.e., 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 of the Wicks trades, regardless of what point in the life of the contract such subcontracts will occur, at the time of bid submission. In the event that the Contractor's selection of a subcontractor is disapproved, the Contractor shall have a reasonable time to propose alternate subcontractors.**

- Article 77: Article 77, Part A, Section 11 is deleted in its entirety and replaced with the following:
 11. **Modification of Subcontractor Utilization Plan.** A Contractor may request a modification of its Subcontractor Utilization Plan (Subcontractor Participation Goals) 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 a contract that is subject to a Project Labor Agreement] where the bidder is required to identify at the time of bid submission its intended subcontractors for the Wicks trades [i.e., 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 Subcontractor Utilization Plan as part of its bid submission. The Agency may grant a request for Modification of a Contractor's Subcontractor 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 Subcontractor Participation Goals. In making such determination, Agency shall consider evidence of the following efforts, as applicable, along with any other relevant factors:**

Sub-paragraphs (a) through (h) remain unchanged.

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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 content 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 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.

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 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.

2.1.4 "**City**" shall mean the City of New York.

2.1.5 "**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.

2.1.6 "**Commissioner**" shall mean the head of the Agency that has entered into this Contract, or his/her duly authorized representative.

2.1.7 "**Comptroller**" shall mean the Comptroller of the City of New York.

2.1.8 "**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.

2.1.9 "**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.

2.1.10 "**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.

2.1.11 "**Contractor**" shall mean the entity which executed this Contract, whether a corporation, firm, partnership, joint venture, individual, or any combination thereof, and it(s), 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.

2.1.12 "**Days**" shall mean calendar days, except where otherwise specified.

2.1.13 "**Engineer**" or "**Architect**" or "**Project Manager**" shall mean the person so designated in writing by the Commissioner to act as such in relation to this Contract, including a private Architect or Engineer or Project Manager, as the case may be.

2.1.14 "**Engineering Audit Officer**" (EAO) shall mean the person so designated by the Commissioner to perform responsible auditing functions hereunder.

2.1.15 "**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.

2.1.16 "**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.

2.1.17 "**Final Acceptance**" shall mean final written acceptance of all the Work by the Commissioner, a copy of which shall be sent to the Contractor.

2.1.18 "**Final Approved Punch List**" shall mean a list, approved in writing by the Engineer, specifying those items of Work to be completed by the Contractor after Substantial Completion and dates for the completion of each item of Work.

2.1.19 "**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.

2.1.20 **"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.

2.1.21 **"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.

2.1.22 **"Other Contractor(s)"** shall mean any Contractor (other than the entity which executed this Contract or its Subcontractors) who has a contract with the City for work on or adjacent to the building or site of the Work.

2.1.23 **"Payroll Taxes"** shall mean State Unemployment Insurance ("SUI"), Federal Unemployment Insurance (FUI) and payments pursuant to the Federal Insurance Contributions Act ("FICA").

2.1.24 **"Project"** shall mean the public improvement to which this Contract relates.

2.1.25 **"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.

2.1.26 **"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.

2.1.27 **"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.

2.1.28 **"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.

2.1.29 **"Specifications"** shall mean all of the directions, requirements and standards of performance applying to the Work as hereinafter detailed and designated under the Specifications.

2.1.30 **"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, at the site. Wherever the word Subcontractor appears, it shall also mean Sub-Subcontractor.

2.1.31 **"Substantial Completion"** shall mean the written determination by the Commissioner that the Work required under this Contract is substantially, but not entirely, complete.

2.1.32 **"Treasurer"** shall mean the Commissioner of the Department of Finance of the City of New York.

2.1.33 "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 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 Department of Environmental Protection.

5.3.2 The Contractor agrees to comply with Section 24-219 of the Administrative Code of the City ("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 work 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 New York City Department of Environmental Protection. In addition, the Contractor's certified Construction Noise Mitigation Plan is subject inspection by the Department of Environmental Protection in accordance with 15 RCNY §28-101. No Contract work may take place at a worksite 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 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 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.

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 to fulfill the requirements of this Article 5.4.2, where the Commissioner of the New York 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 City agencies and Contractors. Any such determination shall expire after six months unless renewed.

5.4.2(c) Contractors shall not be required to comply with this Article 5.4.2 where the 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 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 is available. Any finding made pursuant to this subdivision shall expire after sixty days, at which time the requirements of this Article 5.4.2 shall be in full force and effect unless the 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 or by contacting the Agency issuing this solicitation.

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 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 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 calendar 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)(1) Where the 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 those paragraphs is unavailable for such vehicle, Contractor shall use whatever technology for reducing the emission of pollutants, if any, is available and appropriate for such vehicle.

5.4.3(d)(2) 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, 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)(3) In determining which technology to use for the purposes of Articles 5.4.3(d)(1) and 5.4.3(d)(2) above, 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)(4) Contractors 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 Agency issuing the solicitation. Any finding or waiver made or issued pursuant to Articles 5.4.3(d)(1) and 5.4.3(d)(2) above shall expire after one hundred eighty days, at which time the requirements of Article 5.4.3(a) shall be in full force and effect unless the 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. Contractors 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) 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 and ten thousand 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 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 Department the following information:

5.4.6(1) The total number of diesel-powered Nonroad Vehicles used to fulfill the requirements of this Public Works Contract;

5.4.6(2) The number of such Nonroad Vehicles that were powered by Ultra Low Sulfur Diesel Fuel;

5.4.6(3) 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(4) 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(5) The locations where such Nonroad Vehicles were used; and

5.4.6(6) 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.

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 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 of New York 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 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 terms shall not apply to horticultural maintenance vehicles used for landscaping purposes that are powered by a Nonroad Engine of sixty-five horsepower 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.

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 horsepower (HP) rating of 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.

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 the persons and 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 notify in writing the commercial general liability insurance carrier, and, where applicable, the worker's compensation and/or other insurance carrier, of any such loss, damage, injury, or accident, and any claim or suit arising therefrom, immediately, but not later than 20 days after such event. The **Contractor's** notice to the commercial general liability insurance carrier must expressly specify that "this notice is being given on behalf of the City of New York as Additional Insured as well as [the Contractor] as Named Insured." The **Contractor's** notice to the insurance carrier shall contain the following information: the name of the **Contractor**, the number of the **Contract**, the date of the occurrence, the location (street address and borough) of the occurrence, and the identity of the persons or things injured, damaged or lost.

7.3.2(a) At the time notice is provided to the insurance carrier(s), the **Contractor** shall provide copies of such notice to the **Comptroller** and the **Commissioner**. Notice to the **Comptroller** shall be sent to the Insurance Unit, NYC Comptroller's Office, 1 Centre Street – Room 1222, New York, New York, 10007. Notice to the **Commissioner** shall be sent to the address set forth in Schedule A of the General Conditions.

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 indemnify, defend and hold the **City**, its employees and agents (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 **Contractor** waives all rights against the **City** for any damages or losses for which either is covered under any insurance required under Article 22 (whether or not such insurance is actually procured) or any other insurance applicable to the operations of the **Contractor** and/or its **Subcontractors** in the performance of this **Contract**.

7.6 The provisions of this Article 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 **Work** on the date specified in a written notice signed by the **Commissioner**. The time for performance of the **Work** under the **Contract** shall be computed from the date specified in such written notice. **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 herein, 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** with this **Contract**, unless otherwise directed by the **Engineer**, shall submit to the **Engineer** a proposed progress schedule 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**; 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** 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 enable 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, 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 Section 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 fully 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.

11.1.3 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.

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 City 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 work for a period exceeding thirty days, that was not brought about through any action or omission of the **Contractor**.

11.4.1.5 Differing site conditions that were not known or 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 The provisions of this Article 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 section shall be allowed.

11.5 **Non-Compensable Delays.** The **Contractor** agrees to make no monetary request for, and has 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 or similar situation;

11.5.5 Any shortages of supplies of materials 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 war or of the public enemy or terrorist acts;

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 dates of the claimed periods of delay and, in addition, a description of the operations that were delayed, the reasons for the delay and an explanation of how they were delayed.

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 section 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 Labor;

11.7.1.2 Materials;

11.7.1.3 Equipment;

- 11.7.1.4 Extended Field Office Costs;
- 11.7.1.5 Extended Contract Site Overhead;
- 11.7.1.6 Extended Home office overhead; and
- 11.7.1.7 Insurance and Bond Costs.

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 11.7.1.1 through 11.7.1.6, and an additional overhead of 5% of the costs outlined in 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 that a compensable delay has occurred and agree on the amount of compensation, payment may be made pursuant to a written change order, subject to pre-audit by the **Engineering Audit Officer**, and may be post-audited by the **Comptroller** and/or the **Department**.

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** shall determine 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. Except as provided for in Article 11.4.1.1, the **Contractor** agrees to make no claim against the **City** for

any damages relating to or arising out of any timely directions issued by the **Engineer** pursuant to this article (including but not limited to the failure of any **Other Contractor** to comply or promptly comply with such 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 this **Contractor's** failure to comply with the **Engineer's** direction 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 **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 suit based upon such claim and if any judgment or claims (even if the allegations of the suit 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 and the **PPB Rules**.

13.2 Any extension of time may be granted only by the **Commissioner** 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 officers, 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 **Commissioner** 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 **Commissioner** 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 **Commissioner** or the Board on an application for an extension of time shall be binding and conclusive on the **Contractor**.

13.6 The granting of an application for an extension of time for causes of delay other than those herein referred to shall be entirely within the discretion of the **Commissioner** or the Board.

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 **Commissioner** of the condition which allegedly has caused or is causing the delay, and shall submit a written application to the **Commissioner** 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 bid amount;

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 **Commissioner** 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 **Commissioner** 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 **Commissioner** 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 **Commissioner**, 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 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** except as set forth in Article 11, and agrees that all it may be entitled to on account of any such delay for which compensation is not specifically provided for in Article 11 is an extension of time to complete performance of the **Work** as provided herein.

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 in Articles 14.2.1 and 14.2.2 have been met. The **Commissioner** will then issue a Certificate of **Substantial Completion**.

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 Punch List and Date for Final Acceptance:** Following inspection of the **Work**, the **Engineer** shall furnish the **Contractor** a final punch list, specifying all items of **Work** to be completed. The **Contractor** shall then submit to the **Engineer** dates for the completion of each specified item of **Work**. 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, shall establish dates for the completion of each item of **Work**. The latest completion date specified shall be the date for **Final Acceptance** of the **Work**.

14.3 **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**.

14.4 **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.

14.5 **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.

14.6 **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 complete the **Work** within the time fixed for such 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 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 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 shall apply to the **Contractor** if it 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 this article. In the event the **Commissioner** takes over, uses, occupies, or operates any part of the **Work**:

16.1.1 the **Commissioner** 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, 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 If an approved **Subcontractor** elects to subcontract any portion of its subcontract, the proposed subcontract shall be submitted in the same manner as directed above.

17.4 The **Commissioner** will notify the **Contractor** in writing whether the proposed **Subcontractor** is qualified or not qualified. If the proposed **Subcontractor** is not qualified, the **Contractor** may submit another proposed **Subcontractor** unless the **Contractor** decides to do the **Work**. No **Subcontractor** shall be permitted on the **Site** unless approved.

17.5 Before entering into any subcontract hereunder, the **Contractor** shall inform the **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**.

17.6 Documents given to a **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.

17.7 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.

17.8 The **Contractor** shall be responsible for ensuring that all **Subcontractors** performing **Work** at the **Site** have either their own insurance coverage or are covered by the **Contractor's** insurance as required by Article 22.

17.9 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:

17.9.1 **Payment to Subcontractors:** The agreement between the **Contractor** and its **Subcontractors** 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**.

17.9.2 **Prevailing Rate of Wages:** The agreement between the **Contractor** and its **Subcontractors** shall include the prevailing wage rates and supplemental benefits to be paid in accordance with Labor Law Section 220.

17.9.3 **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 its **Subcontractors** in excess of \$50,000 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.).

17.10 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 adjusted.

17.11 On **Contracts** where 100% 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.

17.12 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, or conveyance shall not be valid until filed in the office of the **Commissioner** and the **Treasurer**, 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 or conveyance, 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 GUARANTY**

ARTICLE 19. SECURITY DEPOSIT

19.1 The bid deposit, if required, shall be retained by the **Comptroller** as security for the **Contractor's** faithful performance of the **Contract** and will be returned to the **Contractor** only after the sum retained under Article 21 equals the amount of the bid deposit, subject to the other provisions of this **Contract**. If performance and payment bonds are required, any bid security posted shall be returned within a reasonable time after posting of such bonds and execution of this **Contract** by the **City**. When no partial payments are provided, the bid deposit will be released when final payment is certified to the **Comptroller** for payment.

19.2 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**:

19.2.1 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

19.2.2 To indemnify the **City** against any and all claims.

ARTICLE 20. PAYMENT GUARANTEE

20.1 On **Contracts** where 100% performance bonds and payment bonds are executed, this article does not apply.

20.2 In the event the terms of this **Contract** do not require the **Contractor** to provide a payment bond, the **City** shall, in accordance with the terms of this article, guarantee payment of all lawful demands 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 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 this Article 20.3.

20.3.2 Nothing in this article 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**.

20.3.3 All demands made against the **City** pursuant to this article shall be made within four (4) months from the date payment is due on the invoice or invoices submitted by the beneficiary to the **Contractor** for labor or **Work** done or for materials or supplies delivered, or, if the demand is for wages, four (4) months from the date the wages were due to be paid to the beneficiary.

20.3.4 All demands made against the City by such beneficiary shall be presented to the Engineer along with all written documentation concerning the demand which the Engineer deems 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.

20.3.5 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.

20.3.6 The City will not initiate the payment process of this article or make payment on a demand where the beneficiary making the demand has filed a lien against the Work or otherwise sues the City prior to receiving a written notice from the City that it will not pay the demand.

20.3.7 No beneficiary shall be entitled to interest from the City, or to any other costs, including, but not limited to, attorney's fees.

20.4 Upon the receipt by the City of a demand pursuant to this article, 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.

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.

20.4.2 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 lien has been filed, the terms and conditions set forth in Article 23 shall apply.

20.5 The provisions of this article 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, 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 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 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 his **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 within the one year limitations period set forth in Section 137(4)(b).

ARTICLE 21. RETAINED PERCENTAGE

21.1 If this **Contract** requires 100% 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 100% performance and payment security and if the price for which this **Contract** was awarded does not exceed \$500,000, then as further security for the faithful performance of this **Contract**, the **Commissioner** shall deduct, and retain until the substantial completion of the **Work**, ten (10%) percent of the value of **Work** certified for payment in each partial payment voucher.

21.3 If this **Contract** does not require 100% performance and payment security and if the price for which this **Contract** was awarded exceeds \$500,000, 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: 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**), the **Contractor** shall effect 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 issued by companies that meet the standards of Article 22.2.1 and shall be primary (and non-contributing) to any insurance or self-insurance maintained by the **City**.

22.1.1 Commercial General Liability Insurance: The **Contractor** shall provide a Commercial General Liability Insurance policy covering the **Contractor** as Named Insured and the **City** as an Additional Insured. This policy shall protect the **City** and the **Contractor** from claims for property damage and/or bodily injury, including death, which may arise from any of the operations under this **Contract**. Coverage under this policy shall be at least as broad as that provided by ISO Form CG 0001 (10/01 ed.), must be "occurrence" based rather than "claims-made", and shall 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, Medical Payments, Independent Contractors, Personal Injury (Contractual Exclusion deleted), Explosion, Collapse and Underground Property, and Incidental Malpractice. If such insurance contains an aggregate limit, it shall apply separately to this **Project**.

22.1.1(a) Such Commercial General Liability Insurance shall name the City, together with its officials and employees, as an Additional Insured under this policy. Coverage for the City as Additional Insured shall specifically include the City's officials and employees, and shall be at least as broad as either Insurance Services Office ("ISO") Form CG 20 10 (07/04 ed.) or Form CG 20 33 (07/04 ed.) and shall provide completed operations coverage at least as broad as CG 20 37 (07/04 ed.).

22.1.1(b) If this **Contract** is equal to or greater than Ten Million Dollars (\$10,000,000.00), each Commercial General Liability Insurance policy provided shall contain each of the following endorsements:

22.1.1(b)(i) The Duties in the Event of Occurrence, Claim or Suit condition of the policy is amended per the following: If and insofar as knowledge of an "occurrence", "claim", or "suit" is relevant to the City of New York as Additional Insured under this policy, such knowledge by an agent, servant, official, or employee of the City of New York will not be considered knowledge on the part of the City of New York of the "occurrence", "claim", or "suit" unless the following position shall have received notice thereof from such agent, servant, official, or employee: Insurance Claims Specialist, Affirmative Litigation Division, New York City Law Department; and

22.1.1(b)(ii) Any notice, demand or other writing by or on behalf of the Named Insured to the Insurance Company shall also be deemed to be a notice, demand, or other writing on behalf of the City as Additional Insured. Any response by the Insurance Company to such notice, demand or other writing shall be addressed to Named Insured and to the City at the following addresses: Insurance Unit, NYC Comptroller's Office, 1 Centre Street - Room 1222, New York, N.Y. 10007; and Insurance Claims Specialist, Affirmative Litigation Division, New York City Law Department, 100 Church Street, New York, NY 10007.

22.1.2 **Workers' Compensation Insurance and Disability Benefits Insurance:** The **Contractor** shall provide, and ensure that each **Subcontractor** provides, Workers Compensation 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 qualifying for insurance pursuant to Article 22.1.4).

22.1.3 **Employers' Liability Insurance:** The **Contractor** shall provide, and ensure that each **Subcontractor** provides, Employers Liability Insurance affording compensation due to bodily injury by accident or disease sustained by any employee arising out of and in the course of his/her employment under this **Contract** (except for those qualifying for insurance pursuant to Article 22.1.4).

22.1.4 **United States Longshoremen's and Harbor Workers Act and/or Jones Act Insurance:** The **Contractor** shall provide, and ensure that each **Subcontractor** provides, 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**.

22.1.5 **Builders' Risk Insurance:** The **Contractor** shall provide a Builders' Risk Insurance policy covering all risks in completed value form. Such policy shall cover the total value of the **Work** performed in accordance with Schedule A, as well as the value of any equipment, supplies and/or material for the **Project** that may be in storage (on or off the **Site**) or in transit. The policy shall cover the cost of removing debris, including demolition as may be legally necessary by the operation of any law, ordinance or regulation, and for loss or damage to any owned, borrowed, leased or rented capital equipment, tools, including tools of their agents and employees, staging towers and forms,

and property of the **City** held in their care, custody and/or control. Such policy shall name as insureds the **City**, the **Contractor**, and its **Subcontractors**. The Builders' Risk policy shall contain the following endorsements:

22.1.5(a) The **City** and the **Contractor** shall be named as loss payee for the **Work** in order of precedence, as their interest may appear; and

22.1.5(b) In the event the loss occurs at an occupied facility, the policy shall permit occupancy without the consent of the Insurance Company; and

22.1.5(c) In the event that the insurance policy has been issued by a mutual insurance company, the following language shall be included: "The City of New York is not liable for any premium or assessment under this policy of insurance. The First Named Insured is solely liable therefor."

22.1.6 Comprehensive Business Automobile Liability Insurance: The **Contractor** shall provide a Comprehensive Business Automobile Liability policy for liability arising out of any owned, non-owned, leased and hired vehicles to be used in connection with this **Contract**. Coverage should be at least as broad as ISO Form CA0001, ed. 10/01.

22.1.6(a) If autos 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.

22.1.7 Pollution/Environmental Liability Insurance: The **Contractor** shall provide Pollution/Environmental Liability Insurance covering bodily injury and property damage, including loss of use of damaged property or of property that has not been physically injured. 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, suit, or proceedings against the **City** arising from the operations under this **Contract**. Such insurance shall be in the **Contractor's** name and list the **City** as an Additional Insured. Coverage for the **City** as Additional Insured shall specifically include the **City's** officials and employees, and shall be at least as broad as provided to the **Contractor** for this **Project**.

22.1.7(a) If such coverage 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 years from the time the **Work** under this **Contract** is completed.

22.1.8 Marine Insurance:

22.1.8(a) Marine Protection and Indemnity Insurance: The **Contractor** shall provide a Marine Protection and Indemnity policy with coverage at least as broad as policy form SP-23. The policy shall provide coverage for the **Contractor** and for the **City** (together with its officials and employees) as Additional Insured for bodily injury and property damage arising from marine operations under this **Contract** including injury or death of crew members (if not fully provided through other insurance), damage to piers, wharves and other fixed or movable structures and loss of or damage to any other vessel or craft, or to property on such other vessel or craft, not caused by collision.

22.1.8(b) Ship Repairers Legal Liability Insurance: The **Contractor** shall provide a Ship Repairers Legal Liability Insurance policy covering all repair operations under this **Contract** at

or in the vicinity of a designated approved port or yard under this **Contract**. The policy shall provide coverage from the point of acceptance of care custody and control of any **City** vessel. The policy shall provide Bailee Coverage for any **City** vessel in the **Contractor's** care, custody and control and coverage for damage to property of others caused by any **City** vessel in the **Contractor's** care custody and control.

22.1.8(c) Collision Liability/Towers Liability Insurance: The **Contractor** shall provide a Collision Liability/Towers Liability Insurance policy with coverage for the **Contractor** and for the **City** (together with its officials and employees) as Additional Insured at least as broad as the American Institute Tug Form (08/01/76) for all tugs used under this **Contract** and Collision Liability per American Institute Hull Clauses (6/2/77).

22.1.8(d) Marine Pollution Liability Insurance: The **Contractor** shall provide a Marine Pollution Liability Insurance policy covering itself as Named Insured and the **City** (together with its officials and employees) as Additional Insured for 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. Coverage under this policy shall be at least as broad as that provided by Water Quality Insurance Syndicate Form (09/98 ed.).

22.1.9 The **Contractor** shall provide such other types of insurance, at such minimum limits, as are specified in Schedule A of the General Conditions.

22.2 General Requirements for Insurance 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 AA, unless prior written approval is obtained from the Mayor's Office of Operations.

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 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 All required insurance policies, except for insurance required pursuant to Sections 22.1.2, 22.1.3, and 22.1.4, shall contain the following endorsement: "This policy may not be cancelled, terminated, modified or changed unless thirty (30) days prior written notice is sent by the Insurance Company to the Named Insured (or First Named Insured, as appropriate), the **Commissioner**, and to the **Comptroller**, attn: Office of Contract Administration, Municipal Building, Room 1005, New York, New York 10007."

22.3 Proof of Insurance:

22.3.1 Within ten (10) **Days** of award, the **Contractor** shall, for each policy required under this **Contract**, except for Workers Compensation Insurance and Disability Benefits Insurance and builders' risk insurance, file a Certificate of Insurance with the **Commissioner** pursuant to Article 22.6. For Workers' Compensation Insurance and Disability Benefits Insurance, the **Contractor** shall file proof of insurance in a form acceptable to the **Commissioner** within ten (10) **Days** of award. Accord forms are not acceptable proof of workers' compensation coverage. The **Contractor** must submit one of the following forms to the Department, or another form acceptable to the Department: C-105.2 -- Certificate of Workers' Compensation Insurance, or U-26.3 -- State Insurance Fund Certificate of Workers' Compensation Insurance. For builders' risk insurance, the **Contractor** shall file a Certificate of Insurance with the **Commissioner** at the direction of the **Commissioner** but in any event no later than ten (10) **Days** prior to commencement of the **Work**.

22.3.1(a) All Certificates of Insurance shall be in a form acceptable to the **City** and shall certify the issuance and effectiveness of the types of insurance specified in Schedule A, each with the specified minimum limits and evidence of the compliance with the Additional Insured or Named Insured provisions of Articles 22.1.1(a), 22.1.5, 22.1.7, and 22.1.8, as applicable. All Certificate(s) of Insurance shall be accompanied by either a duly executed "Certification by Broker" in the form contained in Part II of Schedule A or completed copies of all policies referenced in the Certificate of Insurance. In the absence of completed policies, binders are acceptable.

22.3.2 Certificates of Insurance confirming renewals of insurance shall be submitted to the **Commissioner** prior to the expiration date of coverage of policies required under this **Contract**. Such Certificates of Insurance shall comply with the requirements of Article 22.3.1(a) and, if applicable, Article 22.3.1(b).

22.3.3 The **Contractor** shall be obligated to provide the **City** with a copy of any policy required by this Article 22 upon the demand for such policy by the **Commissioner** or the New York City Law Department.

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 hereunder does not excuse the **Contractor** from securing a policy consistent with all provisions of this Article 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.

22.5 The **City** as Additional Insured or Loss Payee under **Subcontractors'** Insurance. The **Contractor** shall ensure that each **Subcontractor** name the **City** as Additional Insured or loss payee, as appropriate, under all

policies covering **Work** performed by such **Subcontractor** under this **Contract**. The **City's** coverage as Additional Insured shall include the **City's** officials and employees and be at least as broad as that provided to the **Contractor**. The foregoing requirements shall not apply to insurance provided pursuant to Articles 22.1.2, 22.1.3, and 22.1.4.

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 If the **Contract** involves disposal of hazardous materials, the **Contractor** shall dispose such materials only at sites where the disposal site operator maintains Pollution Legal Liability Insurance in the amount of at least \$2,000,000 for losses arising from such disposal site.

22.8 **Materiality/Non-Waiver:** The **Contractor's** failure to secure policy(ies) in complete conformity with this Article, or to give the Insurance Company timely notice of any sort required in this **Contract** on behalf of the **City**, or to do anything else required by this Article 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.

22.9 **Other Remedies:** Insurance coverage in the minimum amounts provided for herein shall not relieve the **Contractor** or **Subcontractors** of any liability under this **Contract**, nor shall it preclude the **City** from exercising any rights or taking such other actions as are 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, and return the balance, if any, without interest, to the **Contractor**.

23.3 **Liens:** If at any time before or within thirty (30) **Days** after the **Work** is completed and accepted by the **City**, any persons claiming to have performed any labor or furnished any material toward the performance or completion of this **Contract**, shall file with the **Agency** and with the **Treasurer** any notice as is described in the

New York State Lien Law, or any act of the Legislature of the State of New York, the City shall retain, from the monies due or to become due under this Contract, so much of such monies as shall be sufficient to pay the amount claimed in said notice, together with the reasonable costs of any action or actions brought or that may be brought to enforce such lien. The monies so retained shall be held by the City until the lien thereon created by the said act and the filing of the said notice shall be discharged pursuant to Law.

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 guarantee are provided for.

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 or lessees of the premises.

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 **Laws** 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 **Department**.

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 a time and material basis 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 on a time and material basis 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.

26.2.1 Necessary materials (including transportation to the Site); plus

26.2.2 Necessary direct labor, including payroll taxes 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, 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 PRIMEDIA (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 PRIMEDIA (the "Blue Book"). The reasonable rental value is 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 percent of such rental rates; second shift shall be sixty percent of the first shift rate; and third shift shall be forty percent of the first shift rate. Equipment on standby shall be reimbursed at one-third the prorated monthly rental rate. **Contractor**-owned equipment includes equipment from rental companies affiliated with or controlled by the **Contractor**, as determined by the **Commissioner**. In establishing cost reimbursement for non-operating contractor-owned 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 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 Reasonable rental costs of non-**Contractor**-owned 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

26.2.7 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 shall be based upon the Manual Rate for such insurance for the applicable work classifications/codes, in accordance with the most recent schedule promulgated by the New York Compensation Insurance Rating Board; plus

26.2.8 Additional costs incurred as a result of the **Extra Work** for performance and payment bonds; plus

26.2.9 Ten (10%) 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

26.2.10 Ten (10%) percent of the total of items in Articles 26.2.1 through 26.2.5, plus item 26.2.9, 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

26.2.11 Five (5%) percent of the total of items in Article 26.2.6, 26.2.7, and 26.2.8 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**. The cost of such **Extra Work** and of such omitted or reduced **Work** shall be computed based upon applicable **Contract** unit prices. Where there are no applicable **Contract** unit prices, the cost of such **Extra Work** and of such omitted or reduced **Contract Work** shall be computed in accordance with items 26.2.1 through 26.2.8. If the cost of such **Extra Work** exceeds the costs of such omitted or reduced **Contract Work**, the **Contract** price shall be increased by the difference, plus percentages for overhead and profit as provided in Articles 26.2.9 through 26.2.11. If the cost of the omitted or reduced **Contract Work** exceeds the cost of the **Extra Work**, then the **Contract** price shall be reduced by the difference.

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 that arise under, or by virtue of, this **Contract** shall be finally resolved in accordance with the provisions of this article 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 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 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 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 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, 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 disputed 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 **Contractor** thus brought into the dispute resolution proceeding shall have the same rights and obligations under this article 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 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. 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 **Agency 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 section 7-201 and 7-203 of the New York City 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 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 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;

27.6.1.1 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

27.6.2 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, 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 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 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 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 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 Corporation Counsel, the Director of the Office of Construction, 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 Laws 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.

27.8 Any termination, cancellation, or alleged breach of the **Contract** prior to or during the pendency of any proceedings pursuant to this article 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.

ARTICLE 28. RECORD KEEPING FOR EXTRA OR DISPUTED WORK

28.1 While the **Contractor** or any of its **Subcontractors** is performing **Extra Work** on a Time and Material Basis ordered by the **Commissioner** under Article 25, or is performing **disputed Work**, or complying with a determination or order under protest in accordance with Articles 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 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** 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 fully 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.

30.2 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, 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, 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, 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** or **Comptroller** 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** or **Comptroller** 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.

30.5 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 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** 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**, officer, 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 **Resident Engineer**, or any other officer, 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 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 hours in duration.

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.

36.1.5 The aforesaid provisions of this article covering every **Contract** for or on behalf of the State or a municipality for the manufacture, sale or distribution of materials, equipment or supplies shall be limited to operations performed within the territorial limits of the State of New York.

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 section 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 all information and reports including an Employment Report before the award of the **Contract** which are required by E.O. 50, the Rules and Regulations promulgated thereunder, and orders of the 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.

Failure to comply with E.O. 50 and the rules and regulations promulgated thereunder, in one or more instances, may result in the **Agency** declaring the **Contractor** to be non-responsible.

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 VIII of the Administrative Code;

36.5.2 every agreement between the **Contractor** and its **Subcontractors** in excess of \$50,000 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.); and

36.5.3 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 Section 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) calendar **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. Minimum wages shall be the rates fixed by Federal Law and regulations.

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.

37.4 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 wage scale as provided in Labor Law Section 220, as amended, or

37.4.1(b) Less than 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) and Minimum Wages (Article 37.2.6), the party responsible therefore 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 suits brought by the Corporation Counsel in the name of the City, in addition to damage for any other breach of this Contract, 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 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 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, whether such failures were concurrent or consecutive and whether or not such final determinations concerning separate public work projects are rendered simultaneously, such **Contractor** or **Subcontractor** shall be ineligible to submit a bid on or be awarded any public work 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 work 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 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 work 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 dollars, such notice shall also include a statement that, that each worker, laborer or mechanic 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 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, which signed statement shall be maintained with the payroll records required by this **Contract**; and

37.6.3.1 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:** Provide laminated identification badges which indicate the worker's, laborer's or mechanic's name, trade, employer's name and employment starting date (month/day/year). Further, 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**; 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 in Article 37.6.1 in that language or languages as may be required. The **Contractor** is responsible for all distributions under 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 If this **Contract** is for an amount greater than \$1,000,000, 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 \$750,000, 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** or **Subcontractor(s)** 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**.

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 with the provisions of this article 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** for 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** shall maintain on the **Site** the original payrolls or transcripts thereof which the **Contractor** and its **Subcontractor(s)** are required to maintain pursuant to **Labor Law** Section 220. The **Contractor** and **Subcontractor(s)** shall submit original payrolls or transcripts, subscribed and affirmed by it as true, with each and every payment requisition. 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 original payrolls or transcripts thereof, subscribed and affirmed by it as true, and the statements signed by each worker pursuant to this Chapter VIII. In addition, the **Contractor** and **Subcontractor(s)** shall furnish to the **Engineer** upon written demand any other information to satisfy the **Engineer** that this Chapter VIII and the **Labor Law**, as to the hours of employment and rates of wages, are being observed. The **Contractor** shall maintain the payrolls or transcripts thereof for six (6) years from the date of completion of the **Work** on this **Contract**.

38.2 When directed by the **Engineer**, the **Contractor** or **Subcontractor** shall provide the **Engineer** with an attendance sheet for each **Day** on which **Work** is performed on the **Site**. Such attendance sheet shall be in a form acceptable to the **Agency** and shall provide information for employees of the **Contractor** and **Subcontractor(s)**.

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** void.

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 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, 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 a month, 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 such satisfactory payment application, 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 **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 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 section 43.5 herein, then the **Contractor** shall pay interest on amounts due to such **Subcontractor** or **Materialman** at a 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 NY General Business Law. Accrual of interest shall commence on the day immediately following the expiration of the seventh day following receipt of payment to the **Contractor** by 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 suppliers 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 When the **Work** in the opinion of the **Commissioner**, has been substantially but not entirely completed, he/she shall issue a certificate of **Substantial Completion**.

44.2 The **Contractor** shall submit with the **Substantial Completion** requisition:

44.2.1 A Final Verified Statement of any and all alleged claims against the **City** and any pending dispute resolution procedures in accord with the **PPB Rules** and this **Contract**, 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.

44.2.1(a) With respect to each such claim, the **Commissioner**, the **Comptroller** and, in the event of litigation, the Corporation Counsel of the City 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 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, will have waived any such claims.

44.2.2 A Final Approved Punch List.

44.2.3 Where required, a request for a substantial or final extension of time.

44.3 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 where the **Contractor** shall fail 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.

44.4 No further partial payments shall be made to the **Contractor** after the **Commissioner** issues a Certificate of **Substantial Completion**, except the **Substantial Completion** payment and **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.

44.5 The **Contractor** acknowledges that nothing contained in this article 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. 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 and all alleged claims against the **City**, and any pending dispute resolution procedures in accord with the **PPB Rules** and this **Contract**, 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 Corporation Counsel of the **City** 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, is entitled 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 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 to 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 officers, 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, or those for amounts deducted by the **Commissioner** from the final requisition or by the **Comptroller** 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 officer, 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 from commencing an action for breach of **Contract** under this provision to the extent permitted by **Law** and by the terms of the **Contract** 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 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 the 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.

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 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 a lawsuit 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 provision 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 complete 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 previous provisions of this Chapter X shall be in addition to any and all other legal or equitable remedies permissible in the premises.

54.3 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**.

54.4 The expense of such completion, 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**.

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 lawsuit, 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 lawsuit be instituted or maintained on any such claims unless such lawsuit is commenced within six (6) months after the date the **Commissioner** issues a Certificate of **Substantial Completion** pursuant to Article 44; except that:

56.2.1 Any claims arising out of events occurring after the date the **Commissioner** issues a Certificate of **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 becomes 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 lawsuit 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 indemnify the **City** against any and all claims and judgments for damages for any infringement of copyright and patents or use of patented articles, tools, materials, equipment, appliances or processes in the performance or completion of the **Work**, including all costs and expenses which the **City** shall or may incur or be obligated to pay by reason thereof.

ARTICLE 58. NO CLAIM AGAINST OFFICERS, AGENTS OR EMPLOYEES

58.1 No claim whatsoever shall be made by the **Contractor** against any officer, 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. SERVICES OF NOTICES

59.1 The **Contractor** hereby designates the business 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. Actual delivery of any such notice, direction or communication to the aforesaid place, or depositing it in a postpaid wrapper addressed thereto in any post office box (P.O. Box) regularly maintained by the United States Postal Service, shall be conclusively deemed to be sufficient service thereof upon the **Contractor** as the date of such delivery or deposit.

59.2 Such address 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, local taxes and Sales and Compensation Use Taxes of the State of New York and of cities and counties on all materials and supplies 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** or a **Subcontractor**, or to supplies and materials which even though they are consumed, are not incorporated into the completed **Work** (consumable supplies), and the **Contractor** and its **Subcontractors** shall be responsible for and pay any and all applicable taxes, including Sales and Compensation Use Taxes, on such leased tools, machinery, equipment or other property and upon all such unincorporated supplies and materials.

62.2 The **Contractor** agrees to sell and the **City** agrees to purchase all supplies and materials, other than consumable supplies, 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 supplies and materials shall be in full payment and consideration for the sale of such supplies and materials herein.

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, etc., 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** and labor.

62.3 The purchase by the **Contractor** of the supplies and materials sold hereunder shall be a purchase or procurement for resale and therefore not subject to the New York State or **City** Sales or Compensation Use Taxes or any such taxes of cities or counties. The sale of such supplies and materials by the **Contractor** to the **City** is exempt from the aforesaid sales or compensating use taxes. With respect to such supplies and materials, 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 supplies and materials, free of liens and/or encumbrances, and the **Contractor** shall mark or otherwise identify all such materials as the property of the **City**.

62.4 Title to all materials 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 supplies and materials to the **Site** and prior to its becoming a part of the permanent structure and/or construction. Notwithstanding such transfer of title, the **Contractor** shall have the full and continuing responsibility to install such materials and supplies in accordance with the provisions of this **Contract**, protect them, maintain them in a proper condition and forthwith repair, replace and make good any damage thereto, theft or disappearance thereof, and furnish additional materials 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 such supplies and materials are rejected as being defective or otherwise unsatisfactory, title to all such supplies and materials shall be deemed to have been transferred back to the **Contractor**.

62.5 The purchase by **Subcontractors** of supplies and materials to be sold hereunder shall also be a purchase or procurement for resale to the **Contractor** (either directly or through other **Subcontractors**) and therefore not subject to the aforesaid Sales or Compensation Use Taxes, provided that the subcontract agreements provide for the resale of such supplies and materials prior to and separate and apart from the incorporation of such supplies and materials into the permanent structure and/or construction and that such subcontract agreements are in a form similar to this **Contract** with respect to the separation of the sale of materials from the **Work** and labor, services, consumable supplies and any other matters to be provided, and provided further that the subcontract agreements provide separate prices for materials and all other services and matters. Such separation shall actually be followed in practice, including the separation of payments for supplies and materials from the payments for other **Work** and labor and other things to be provided.

62.6 The **Contractor** and its **Subcontractors** and Materialmen shall obtain any and all necessary **Contractor Exempt Purchase Certificates** or **Resale Certificates** from the appropriate governmental **Agency** or

Agencies, and furnish a **Contractor Exempt Purchase Certificate** or **Resale Certificate** to all persons, firms or corporations from which they purchase supplies and materials for the performance of the **Work** covered by this **Contract**.

62.7 In the event any of the provisions of this article shall be deemed to be in conflict with any other provisions of this **Contract** or create any ambiguity, then the provisions of this article 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 **Agreement**, 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 herein 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 herein 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 herein 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 herein 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, 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 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 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, less salvage value, 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:

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, whichever is less, 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 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 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.

64.2.2 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 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 Material Contracts or Items: On all **Contracts** or items in a **Contract** where time and material records are specified as the basis for payment of the **Work**, 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 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 Cost shall not include overhead.

64.3 In no event shall any payments under this article exceed the **Contract** price for such items.

64.4 All payments pursuant to this article 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, 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 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** of New York, State of New York, 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 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 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 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 United States 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 State of New York, upon request of the **City**, the **Contractor** shall either consent to a transfer of the action to a State Court of competent jurisdiction located in the **City** and State 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 State Court of competent jurisdiction in the **City**.

65.3 If any provision(s) of this article 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 Export Administration Act of 1979, as amended, or the regulations of the United States Department of Commerce 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, 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.

67.2 Unless specifically waived by the **Commissioner** with the approval of the Division of Economic and Financial Opportunity of the 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 enterprise ("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 prime **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 LBE's 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 **Contract**. Remedy for such breach of **Contract** may include the imposition of any or all of the following sanctions:

67.6.1 Reducing a **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 Where non-compliance is by an LBE, de-certifying and declaring the LBE 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 contraction 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** and rules, 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 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 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. HEALTH INSURANCE COVERAGE

70.1 If the price for which this **Contract** was awarded exceeds \$100,000, or if the price for which this **Contract** was awarded when combined with other construction or services contracts awarded the **Contractor** by the **City** in the year prior to award of this **Contract** exceeds \$100,000, the **Contractor**, following registration of the **Contract**, shall be required to submit responses to requests for information regarding the nature of any health insurance provided by the **Contractor** to its employees and their spouses and domestic partners, upon request of the **Agency** or other designated **City** agency.

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 2.

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: Five Million Dollars, (\$5,109,911.55), 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.

One Hundred Nine Thousand Nine Hundred Eleven and 55/100

ARTICLE 76. ELECTRONIC FUNDS TRANSFER

76.1 In accordance with Section 6-107.1 of the New York City Administrative Code, the Contractor agrees to accept payments under this Agreement from the City by electronic funds transfer. An electronic funds transfer 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 Agreement, 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 Finance with information necessary for Contractor to receive electronic funds transfer payments through the 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 agreement. 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 agency head may waive the application of the requirements herein to payments on contracts entered into pursuant to §315 of the City Charter. In addition, the Commissioner of the Department of Finance and the Comptroller may jointly issue standards pursuant to which the contracting agency may waive the requirements hereunder for payments in the following circumstances: (i) for individuals or classes of individuals for whom compliance imposes a hardship; (ii) for classifications or types of checks; or (iii) in other circumstances as may be necessary in the interest of the City.

ARTICLE 77 - 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 Section 6-129 to the Administrative Code of the City of New York. The local law creates a program for participation by minority-owned and women-owned business enterprises (MBEs and WBEs) in City procurement. As stated in the 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 made pursuant to Local Law 129, and the rules of the Department of Small Business Services ("DSBS") promulgated thereunder.

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 of the Contract (entitled the "Subcontractor Utilization Plan"), and are detailed below. The Contractor must comply with all applicable M/WBE requirements for this Contract. Schedule B of the Contract ("Subcontractor Utilization Plan") is included in the Bid Booklet.

Article I, Part A, below, sets forth provisions related to the participation goals for construction 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 AND PROFESSIONAL SERVICES CONTRACTS

1. The Target Subcontracting Percentage applicable to this Contract is set forth on Schedule B, Part I to this Contract (see Page 1, line (1)). The "Target Subcontracting Percentage" is the percentage of the total Contract which Agency anticipates that the prime contractor for this Contract would in the normal course of business award to one or more subcontractors for amounts under \$1 million for construction and professional services.

A prospective contractor may seek a full or partial pre-award waiver of the Target Subcontracting Percentage in accordance with Local Law 129 and Part A, Section 10 below. To apply for the a full or partial waiver of the Target Subcontracting Percentage, a prospective contractor must complete Part III (Page 4) of Schedule B, and must submit such request no later than seven (7) days prior to the date and time the bids or proposals are due, in writing to the Agency by e-mail at poped@ddc.nyc.gov or via facsimile at (718) 391-1885. Bidders/proposers who have submitted requests will receive a response by no later than two (2) calendar days prior to the date bids or proposals are due, provided, however, that if that date would fall on a weekend or holiday, a response will be provided by close-of-business on the business day before such weekend or holiday date.

2. The Subcontractor Participation Goals established for this Contract are set forth on Schedule B, Part I to this Contract (see Page 1, line (2) and/or line (3)). The Subcontractor Participation Goals represent a percentage of the total dollar value of all construction and/or professional services subcontracts under this Agreement for amounts under \$1 million.

3. If Subcontractor Participation Goals have been established for this Contract, Contractor agrees or shall agree as a material term of the Agreement that, with respect to the total amount of the Agreement to be awarded to one or more subcontractors pursuant to subcontracts for amounts under \$1 million, Contractor shall be subject to the Subcontractor Participation Goals, unless the goals are modified by Agency in accordance with Local Law 129 and Part A, Section 11 below.

4. If Subcontractor 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, Part II Subcontractor Utilization Plan (see Page 2-3) indicating: (a) the percentage of work it intends to subcontract; (b) the percentage of

work it intends to award to subcontractors for amounts under \$1 million; (c) in cases where the prospective contractor intends to award subcontracts for amounts under \$1 million, a description of the type and dollar value of work designated for participation by MBEs and/or WBEs; and (d) the general time frames in which such work by MBEs and/or WBEs is scheduled to occur. In the event that this Subcontractor Utilization Plan indicates that the bidder or proposer, as applicable, does not intend to award the **Target Subcontracting Percentage**, 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 **Target Subcontracting Percentage** in accordance with Local Law 129 and Part A, Section 10 below.

THE BIDDER/PROPOSER MUST COMPLETE THE SUBCONTRACTOR UTILIZATION PLAN INCLUDED HEREIN (SCHEDULE B, PART II). SUBCONTRACTOR UTILIZATION PLANS WHICH DO NOT INCLUDE THE REQUIRED AFFIRMATIONS WILL BE DEEMED TO BE NON-RESPONSIVE, UNLESS A FULL WAIVER OF THE TARGET SUBCONTRACTING PERCENTAGE IS GRANTED (SCHEDULE B PART III). IN THE EVENT THAT THE CITY DETERMINES THAT VENDOR HAS SUBMITTED A SUBCONTRACTOR UTILIZATION PLAN WHERE THE REQUIRED AFFIRMATIONS ARE COMPLETED BUT OTHER ASPECTS OF THE PLAN ARE NOT COMPLETE, OR CONTAIN A COPY OR COMPUTATION ERROR THAT IS AT ODDS WITH THE AFFIRMATION, THE VENDOR 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 PLAN 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 EMAILED OR FAXED (IF THE VENDOR 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.

5. Where a Subcontractor 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. **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 Subcontractor Participation Goals established for this Contract by proposing one or more subcontractors that are M/WBEs for any portion of the Wicks trade work if the amount to be awarded to such M/WBE subcontractor is under \$1 million. 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. M/WBE firms must be certified by DSBS in order for the Contractor to credit such firms' participation toward the attainment of the M/WBE participation goals. Such certification must occur prior to the firms' commencement of work as subcontractors. A list of M/WBE firms may be obtained from the DSBS website at www.nyc.gov/buycertified, by emailing DSBS at 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, emailing MWBE@sbs.nyc.gov, or calling the DSBS certification helpline at (212) 513-6311.

7. Where a Subcontractor 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 paid to subcontractors (including subcontractors that are not MBEs or WBEs); the names, addresses and contact numbers of each MBE or WBE hired as a subcontractor pursuant to such plan as well as 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 paid to subcontractors (including subcontractors that are not MBEs or WBEs); 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 hired pursuant to such plan, 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 Subcontractor Utilization Plan, Agency shall take appropriate action, in accordance with Local Law

129 and Article II below, unless the Contractor has obtained a modification of its Subcontractor Utilization Plan in accordance with Local Law 129 and Part A, Section 11 below.

9. Where a Subcontractor Utilization Plan has been submitted, and the Contractor requests a change order the value of which exceeds 10 percent of the Agreement, Agency shall establish participation goals for the work to be performed pursuant to the change order.

10. Pre-award waiver of **Target Subcontracting Percentage**. Agency may grant a full or partial waiver of the **Target Subcontracting Percentage** to a bidder or proposer, as applicable, who demonstrates—before submission of the bid or proposal—that it has legitimate business reasons for proposing the level of subcontracting in its Subcontractor Utilization Plan. In making its determination, Agency shall consider factors that shall include, but not be limited to, whether the bidder or proposer, 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 for under one million dollars represented by the **Target Subcontracting Percentage**. In making such determination, Agency may consider whether the Subcontractor Utilization Plan is consistent with past subcontracting practices of the bidder or proposer, as applicable, and whether the bidder or proposer, as applicable, has made good faith efforts to identify portions of the Contract that it intends to subcontract.

11. Modification of Subcontractor Utilization Plan. A Contractor may request a modification of its Subcontractor Utilization Plan (**Subcontractor Participation Goals**) 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 Subcontractor Utilization Plan as part of its bid submission.** The Agency may grant a request for Modification of a Contractor's Subcontractor 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 **Subcontractor Participation Goals**. In making such determination, Agency shall consider evidence of the following efforts, as applicable, along with any other relevant factors:

- (a) 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;
- (b) The Contractor provided notice of specific opportunities to participate in the Contract, in a timely manner, to minority and women's business organizations;
- (c) The Contractor sent written notices, by certified mail or facsimile, in a timely manner, to advise MBEs and WBEs that their interest in the Contract was solicited;
- (d) 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 Subcontractor Utilization Plan, and for which the Contractor claims an inability to retain MBEs or WBEs;
- (e) 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;
- (f) The Contractor made efforts to negotiate with MBEs and/or WBEs as relevant to perform specific subcontracts;
- (g) Timely written requests for assistance made by the Contractor to Agency's M/WBE liaison officer and to DSBS;
- (h) 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.

12. If this Contract is for an indefinite quantity of construction or professional services or is a requirements type contract and the Contractor has submitted a Subcontractor Utilization Plan and has committed to subcontract work to MBEs and/or WBEs in order to meet the **Subcontractor Participation Goals**, the Contractor will not be

deemed in violation of the M/WBE 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 **Subcontractor Participation Goals** have been established for 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 a Subcontractor 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 Subcontractor Utilization Plan.

2. Pursuant to DSBS rules, construction contracts that include a requirement for a Subcontractor Utilization Plan shall not be subject to the law governing Locally Based Enterprises set forth in Administrative Code Section 6-108.1.

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

4. Prospective contractors are encouraged to enter into joint ventures with MBEs and WBEs.

5. By submitting a bid or proposal the Contractor hereby acknowledges its understanding of the M/WBE requirements set forth herein and the pertinent provisions of Local Law 129 of 2005, and any rules promulgated thereunder, and if awarded this Contract, the Contractor hereby agrees to comply with the M/WBE requirements of this Contract and pertinent provisions of Local Law 129 of 2005, 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 M/WBE's to meet the required **Subcontractor 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 Subcontractor Utilization Plan, Agency shall send a written notice to the Contractor describing the alleged noncompliance and offering 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 this Section 6-129, including, but not limited any Subcontractor 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) assess liquidated damages or reduction of fees, provided that liquidated damages may be based on amounts representing costs of delays in carrying out the purposes of the program established by Section 6-129, 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) exercise 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) take any other appropriate remedy.

4. If a Subcontractor Utilization Plan has been submitted, and pursuant to this Article II, Section 3, the Contractor has been found to have failed to award subcontracts to MBEs and/or WBEs sufficient to meet the Subcontractor Participation Goals contained in its Subcontractor Utilization Plan or the Subcontractor 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 subcontracts required to be awarded to MBE and/or WBE subcontractors to meet the Subcontractor Participation Goals and the dollar amount the Contractor actually awarded and paid to MBE and/or WBE subcontractors. In view of the difficulty of accurately ascertaining the loss which the City will suffer by reason of Contractor's failure to meet the Subcontractor 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 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), 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.

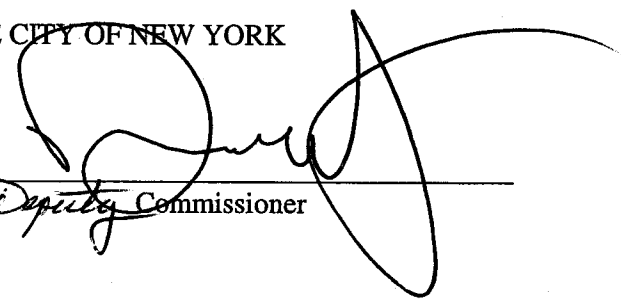
6. Statements made in any instrument submitted to Agency pursuant to Section 6-129 shall be submitted under penalty of perjury and any false or misleading statement or omission shall be grounds for the application of any applicable criminal and/or civil penalties for perjury. The making of a false or fraudulent statement by an MBE 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 Subcontractor Utilization Plan shall be a factor in the evaluation of its performance. Whenever a contracting agency determines that a contractor's compliance with a Subcontractor Utilization Plan has been unsatisfactory, the agency shall, after consultation with the city chief procurement officer, file an advice of caution form for inclusion in VENDEX as caution data.

Deputy

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

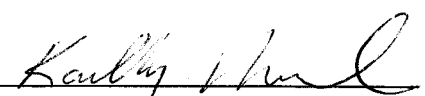
By: 
Deputy Commissioner

CONTRACTOR:

By: 
(Member of Firm or Officer of Corporation)

Title: Ops Mgr

(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 25 day of March 2014, before me personally came Stephen J LeVan Jr to me known, who, being by me duly sworn did depose and say that he resides at 134 Frosty Valley Rd. Bloomsburg, PA 17815 that he is the Operations Manager 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.

[Signature]
Notary Public of Commissioner of Deeds

VICTORIA AYO-VAUGHAN
Notary Public, State of New York
Registration #01AY5014042
Qualified In Queens County
Commission Expires July 15, 2014

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:

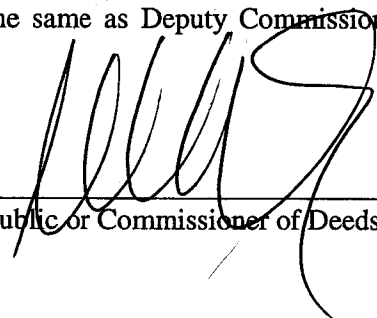
On this _____ day of _____, before me personally appeared _____ to me known, and known to me to be the person described in and who executed the foregoing instrument; and acknowledged that he executed the same.

Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT BY COMMISSIONER

State of New York County of Queens ss:

On this 26 day of March 2014, before me personally came David Bernick 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

VICTORIA AYO-VAUGHAN
Notary Public, State of New York
Registration #01AY5014042
Qualified In Queens County
Commission Expires July 15, 2015

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

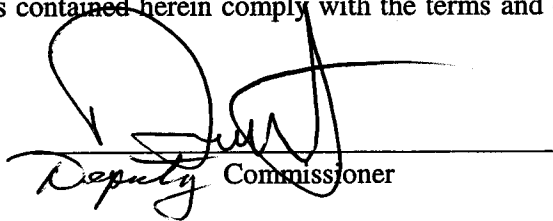
*Five Million One Hundred Nine Thousand
Nine Hundred Eleven and 55/100 —*

Dollars (\$ 5,109,911.55)

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 80 to 83): 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;

CERTIFICATE OF LIABILITY INSURANCE

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).

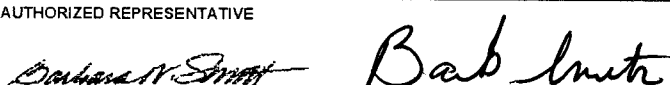
PRODUCER Barney & Barney P.O. Box 85638 CA License #0H18131 San Diego, CA 92122	CONTACT NAME: Barbara Smith
	PHONE (A/C, No, Ext): 858-587-7532 FAX (A/C, No): 858-909-9740 E-MAIL ADDRESS: barbarasm@barneyandbarney.com
INSURED Triton Structural Concrete, Inc. 15435 Innovation Dr., Suite 225 San Diego, CA 92128	INSURER(S) AFFORDING COVERAGE NAIC #
	INSURER A: Starr Indemnity & Liability Com 38318
	INSURER B:
	INSURER C:
	INSURER D:
	INSURER E:

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 LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	GENERAL LIABILITY <input type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC	X		GL1000025214	09/01/2013	09/01/2014	EACH OCCURRENCE \$1,000,000 DAMAGE TO RENTED PREMISES (Ea 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
	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS	X		S1S1PCA08272113	09/01/2013	09/01/2014	COMBINED SINGLE LIMIT (Ea accident) \$1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	UMBRELLA LIAB <input type="checkbox"/> OCCUR EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED RETENTION \$						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		N/A				<input type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTH-ER 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)
 RE: FMS ID: P5SPKHORA, E-PIN: 85013B011901, DDC PIN: 8502013PV0022C, Ocean Breeze Indoor Horse Riding Arena, Construction - Borough Of Staten Island. City of New York, including its officials and employees and Borough of Staten Island are additional insured per attached endorsements.

CERTIFICATE HOLDER City of New York & New York City Dept of Design & Construction Agcy Chief Construction Ofc 30-30 Thompson Ave., 4th Flr 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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COMMERCIAL GENERAL LIABILITY
CG 20 10 07 04

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

**ADDITIONAL INSURED - OWNERS, LESSEES OR
CONTRACTORS - SCHEDULED PERSON OR
ORGANIZATION**

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

**Name Of Additional Insured Person(s)
Or Organization(s):**

Location(s) Of Covered Operations

"Any person or organization for whom you are performing operations when you and such person or organization have agreed in writing in a contract or agreement that such person or organization be added as an additional insured on your policy.

Information required to complete this Schedule, if not shown above, will be shown in the Declarations

A. Section II – Who Is An Insured is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by:

1. Your acts or omissions; or
2. The acts or omissions of those acting on your behalf;

in the performance of your ongoing operations for the additional insured(s) at the location(s) designated above.

B. With respect to the insurance afforded to those additional insureds, the following additional exclusions apply

This insurance does not apply to "bodily injury" or "property damage" occurring after:

1. All work, including materials, parts or equipment furnished in connection with such work, on the project (other than service, maintenance or repairs) to be performed by or on behalf of the additional insured(s) at the location of the covered operations has been completed; or
2. That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as a part of the same project.

INSURED: Triton Structural Concrete, Inc.

POLICY #: GL1000025214

POLICY PERIOD: 09/01/2013

TO 09/01/2014

COMMERCIAL GENERAL LIABILITY
CG 20 37 07 04

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

**ADDITIONAL INSURED – OWNERS, LESSEES OR
CONTRACTORS – COMPLETED OPERATIONS**

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s):	Location And Description Of Completed Operations
Any person or organization for whom you are performing "commercial construction" during the period of his policy and have agreed in a written contract to add as an additional for products - completed operations.	
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.	

Section II – Who Is An Insured is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury" or "property damage" caused, in whole or in part, by "your work" at the location designated and described in the schedule of this endorsement performed for that additional insured and included in the "products-completed operations hazard".

INSURED: Triton Structural Concrete, Inc.

POLICY #: GL1000025214

POLICY PERIOD: 09/01/2013

TO 09/01/2014



Starr Indemnity & Liability Company

Dallas, TX 1-800-519-2522

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – WHERE REQUIRED UNDER CONTRACT OR AGREEMENT

This policy is amended as follows:

BUSINESS AUTO COVERAGE FORM

SCHEDULE

ADDITIONAL INSURED

ANY PERSON OR ORGANIZATION FOR WHOM YOU ARE CONTRACTUALLY BOUND TO PROVIDE ADDITIONAL INSURED STATUS BUT ONLY TO THE EXTENT OF SUCH PERSON OR ORGANIZATION'S LIABILITY ARISING OUT OF THE USE OF A COVERED AUTO.

- SECTION II – LIABILITY COVERAGE A Coverage 1 Who is insured, is amended to read:
- d. Any person or organization shown in the schedule above to whom you become obligated to include as an additional insured under this policy as a result of any contract or agreement you enter into which requires you to furnish insurance to that person or organization of the type provided by this policy but only with respect to liability arising out of use of a covered auto. However, the insurance provided will not exceed the lesser of:
- (1) The coverage and/or limits of this policy, or
 - (2) The coverage and/or limits required by said contract or agreement.



Starr Indemnity & Liability Company

Dallas, TX • 866-519-2522

Signed for STARR INDEMNITY & LIABILITY COMPANY

Charles H. Dangelo, President

Nehemiah E. Ginsburg, General Counsel

STATE OF NEW YORK
WORKERS' COMPENSATION BOARD

CERTIFICATE OF NYS WORKERS' COMPENSATION INSURANCE COVERAGE

<p>1a. Legal Name & Address of Insured (Use street address only)</p> <p>TRITON STRUCTURAL CONCRETE, INC. 15435 INNOVATION DR., SUITE 225 SAN DIEGO, CA 92128</p> <p><i>Work Location of Insured (Only required if coverage is specifically limited to certain locations in New York State, i.e., a Wrap-Up Policy)</i></p>	<p>1b. Business Telephone Number of Insured (347)423-6618</p> <p>1c. NYS Unemployment Insurance Employer Registration Number of Insured 49-33170</p> <p>1d. Federal Employer Identification Number of Insured or Social Security Number 26-0768973</p>
<p>2. Name and Address of the Entity Requesting Proof of Coverage (Entity Being Listed as the Certificate Holder)</p> <p>CITY OF NEW YORK AND NEW YORK CITY DEPARTMENT OF DESIGN AND CONSTRUCTION AGENCY CHIEF CONTRACTING OFFICE - ATTN: RISK MANAGER 30-30 THOMPSON AVENUE, 4TH FLOOR LONG ISLAND CITY, NY 11011</p>	<p>3a. Name of Insurance Carrier STARR INDEMNITY & LIABILITY COMPANY</p> <p>3b. Policy Number of entity listed in box "1a" WC1000001246</p> <p>3c. Policy effective period 09/01/2013 to 09/01/2014</p> <p>3d. The Proprietor, Partners or Executive Officers are <input checked="" type="checkbox"/> included. (Only check box if all partners/officers included) <input type="checkbox"/> all excluded or certain partners/officers excluded.</p>

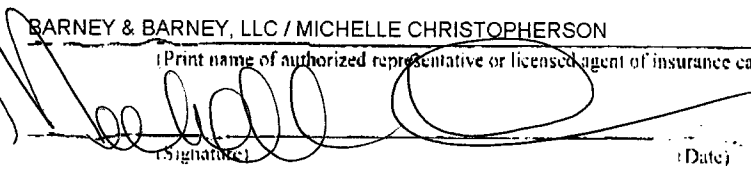
This certifies that the insurance carrier indicated above in box "3" insures the business referenced above in box "1a" for workers' compensation under the New York State Workers' Compensation Law. (To use this form, New York (NY) must be listed under **Item 3A** on the **INFORMATION PAGE** of the workers' 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: BARNEY & BARNEY, LLC / MICHELLE CHRISTOPHERSON
(Print name of authorized representative or licensed agent of insurance carrier)

Approved by: 
(Signature) 3.17.14
(Date)

Title: CLIENT EXECUTIVE

Telephone Number of authorized representative or licensed agent of insurance carrier: _____ (858)550-4964

Please Note: Only insurance carriers and their licensed agents are authorized to issue Form C-105.2. Insurance brokers are NOT authorized to issue it.

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

STATE OF CALIFORNIA

County of San Diego }

On March 17, 2014 before me, Bree Ashley Schuman, Notary Public,
Date Insert Name of Notary exactly as it appears on the official seal

personally appeared Michelle Christopherson

Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

Witness my hand and official seal.

Signature Bree Ashley Schuman
Signature of Notary Public



Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of the form to another document.

Description of Attached Document

Title or Type of Document: Certificate of NYS Workers Compensation Insurance Coverage - Triton Structural

Document Date: 3/17/2014 Number of Pages: 1

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____

- Individual
 Corporate Officer — Title(s): _____
 Partner Limited General
 Attorney in Fact
 Trustee
 Guardian or Conservator
 Other: _____

RIGHT THUMBPRINT
OF SIGNER

Top of thumb here

Signer is Representing: _____

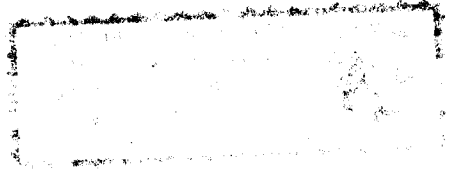
Signer's Name: _____

- Individual
 Corporate Officer — Title(s): _____
 Partner Limited General
 Attorney in Fact
 Trustee
 Guardian or Conservator
 Other: _____

RIGHT THUMBPRINT
OF SIGNER

Top of thumb here

Signer is Representing: _____





CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
3/20/2014

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 Cavnignac & Associates 450 B Street, Suite 1800 San Diego, CA 92101-8005 License No. OA99520	CONTACT NAME: Certificate Department	
	PHONE (A/C, No, Ext): 619-234-6848	FAX (A/C, No): 619-234-8601
E-MAIL ADDRESS: certificates@cavnignac.com		
INSURER(S) AFFORDING COVERAGE		NAIC #
INSURER A: AXIS SURPLUS INS CO		26620
INSURER B:		
INSURER C:		
INSURER D:		
INSURER E:		
INSURER F:		

COVERAGES **CERTIFICATE NUMBER:** 260951 **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 INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	GENERAL LIABILITY <input type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC						EACH OCCURRENCE \$ DAMAGE TO RENTED PREMISES (Ea occurrence) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$ PRODUCTS - COMP/OP AGG \$ \$
	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS						COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
	UMBRELLA LIAB <input type="checkbox"/> OCCUR EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED RETENTION \$						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 <input type="checkbox"/> N <input type="checkbox"/> N/A WC STATUTORY LIMITS OTH-ER E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$
A	Professional Liability			ELZ777936012013	12/3/2013	12/3/2014	Each Claim \$10,000,000 Aggregate \$10,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)
 Re: Project Name: Ocean Breeze Indoor Horse Riding Arena Location: Borough of Staten Island, NY FMS ID: P5SPKHORA
 Triton Project #: 3416-6 Prof. Liab. - Claims made, defense costs included within limit. Contractors Pollution Liability included in policy form.

CERTIFICATE HOLDER City of New York & New York City Department of Design & Construction 30-30 Thomson Ave. 4th Floor Long Island city, NY 11101 United States	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 Jeffrey W. Cavnignac
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STATE OF NEW YORK
WORKERS' 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) TRITON STRUCTURAL CONCRETE INC 15435 INNOVATION DRIVE SUITE 225 SAN DIEGO, CA 92128</p>	<p>1b. Business Telephone Number of Insured (858) 866-2450 1c. NYS Unemployment Insurance Employer Registration Number of Insured 1d. Federal Employer Identification Number of Insured or Social Security Number 260-76-8973</p>
--	--

<p>2. Name and Address of the Entity Requesting Proof of Coverage (Entity Being Listed as the Certificate Holder) NYC Department of Design and Construction 30-30 Thomson Ave., 4th Floor Long Island City, NY 11101</p>	<p>3a. Name of Insurance Carrier NEW YORK STATE INSURANCE FUND 3b. Policy Number of entity listed in box "1a": DBL 5862 83 - 5 3c. Policy effective period: <u>10/21/2013</u> to <u>10/21/2014</u></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 03/20/2014 By Joseph J. Masi Joseph J. Masi
(Signature of insurance carrier's authorized representative of NYS Licensed insurance Agent of that insurance carrier)

Telephone Number (866) 697-4332 Title Director of Disability Benefits Insurance

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 purposes of Section 220, Subd. 8 of the Disability Benefits Law. It must be mailed for completion to the Workers' Compensation Board, DB Plans Acceptance Unit, 20 Park Street, Albany, New York 12207.

PART 2. To be completed by NYS Workers' Compensation Board (Only if box "4b" of Part 1 has been checked)

State Of New York
Workers' Compensation Board

According to information maintained by the NYS Workers' 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 Workers' 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 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 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 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 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.

SCHEDULE A (FOR PUBLICLY BID PROJECTS)

Relating to Article 22 - Insurance

PART II. Broker's Certification

[Pursuant to Article 22.3.1(a) 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 complete copies of all policies referenced in the Certificate of Insurance. In the absence of completed policies, binders are acceptable.]

CERTIFICATION BY BROKER

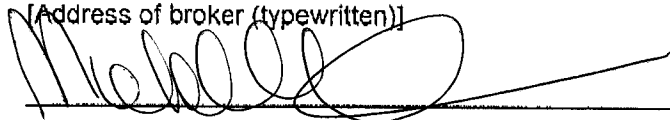
The undersigned insurance broker represents to the City of New York that the attached Certificate of Insurance is accurate in all material respects, and that the described insurance is effective as of the date of this Certification.

BARNEY & BARNEY, LLC

[Name of broker (typewritten)]

9171 Towne Centre Dr., #500, San Diego CA 92122

[Address of broker (typewritten)]



[Signature of authorized official or broker]

MICHELLE CHRISTOPHERSON, CLIENT EXECUTIVE

[Name and title of authorized official (typewritten)]

Sworn to before me this
_____ day of _____, 20__

NOTARY PUBLIC

State of California
County of San Diego

Subscribed and sworn to (or affirmed) before me on this _____
day of 17 March, 2014, by Michelle Christopherson

proved to me on the basis of satisfactory evidence to be the
person(s) who appeared before me.



(Seal)

Signature

Bree Ashley Schuman



Performance Bond #2 (Pages 84 to 87): 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, _____

Triton Structural Concrete, Inc.

3100 47th Avenue, Long Island City, NY 11101

hereinafter referred to as the "Principal", and _____

Liberty Mutual Insurance Company

330 N. Brand Blvd., Suite 500, Glendale, CA 91203

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

Five Million One Hundred Nine Thousand Nine Hundred Eleven and 55/100

(\$ 5,109,911.55) 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 P5SPKHORA, Ocean Breeze Indoor Horse Riding Arena Construction - Borough of Staten Island

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 #2 (Pages 84 to 87): Use if the total contract price is more than \$5 Million.

PERFORMANCE BOND #2 (Page2)

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 84 to 87): 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 17th day of March, 2014.

(Seal)

Triton Structural Concrete, Inc. (L.S.)
Principal

By: [Signature]

(Seal)

Liberty Mutual Insurance Company

Surety
By: [Signature]
Sarah Myers, Attorney-in-Fact

(Seal)

Surety

By: _____

(Seal)

Surety

By: _____

(Seal)

Surety

By: _____

(Seal)

Surety

Bond Premium Rate \$9.90 / \$6.93 / \$5.94 / \$5.28

Bond Premium Cost \$34,240.00

Premium is for Contract Term and Subject to Adjustment Based on Final Contract Price

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 #2 (Pages 84 to 87): Use if the total contract price is more than \$5 Million.

PERFORMANCE BOND #2 (Page 4)

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of New York County of New York ss:

On this 18 day of March, 2014 before me personally came Steve Loran to me known, who, being by me duly sworn did depose and say that he/she resides at 134 Frosty Valley Rd, Bloomburg, PA 17815; that he/she is the Operations Manager 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.

[Signature]
Notary Public or Commissioner of Deeds

KAILLY ANN VAY
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01VA6226642
Qualified in New York County
Commission Expires August 16, 2014

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.

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

STATE OF CALIFORNIA

County of San Diego }

On MAR 17 2014 before me, Jose Lemus, Notary Public,
Date Insert Name of Notary exactly as it appears on the official seal

personally appeared Sarah Myers

Name(s) of Signer(s)



Place Notary Seal Above

who proved to me on the basis of satisfactory evidence to be the person(~~s~~) whose name(~~s~~) is/~~are~~ subscribed to the within instrument and acknowledged to me that ~~he~~/she/~~it~~/~~they~~ executed the same in ~~his~~/her/~~their~~ authorized capacity(~~ies~~), and that by ~~his~~/her/~~their~~ signature(~~s~~) on the instrument the person(~~s~~), or the entity upon behalf of which the person(~~s~~) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

Witness my hand and official seal.

Signature

Signature of Notary Public Jose Lemus

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of the form to another document.

Description of Attached Document

Title or Type of Document: _____

Document Date: _____ Number of Pages: _____

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____

- Individual
- Corporate Officer — Title(s): _____
- Partner Limited General
- Attorney in Fact
- Trustee
- Guardian or Conservator
- Other: _____

RIGHT THUMBPRINT
OF SIGNER

Top of thumb here

Signer is Representing:

Signer's Name: _____

- Individual
- Corporate Officer — Title(s): _____
- Partner Limited General
- Attorney in Fact
- Trustee
- Guardian or Conservator
- Other: _____

RIGHT THUMBPRINT
OF SIGNER

Top of thumb here

Signer is Representing:

2014031003
Commissioner of Public Safety
State of New Jersey
Morristown, NJ 07960



THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 6453678

American Fire and Casualty Company
The Ohio Casualty Insurance Company

Liberty Mutual Insurance Company
West American Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That American Fire & Casualty Company and The Ohio Casualty Insurance Company are corporations duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Charlotte Aquino; James Baldassare, Jr.; Janice Martin; Jennifer L. Clampert; Lawrence F. McMahon; Maria Guise; Sarah Myers

all of the city of San Diego, state of CA each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 19th day of February, 2014.



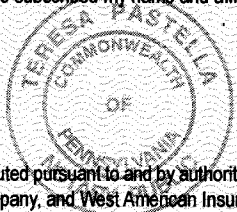
American Fire and Casualty Company
The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
West American Insurance Company

By: David M. Carey
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 19th day of February, 2014, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of American Fire and Casualty Company, Liberty Mutual Insurance Company, The Ohio Casualty Insurance Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Plymouth Twp., Montgomery County
My Commission Expires March 28, 2017
Member, Pennsylvania Association of Notaries

By: Teresa Pastella
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV - OFFICERS - Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

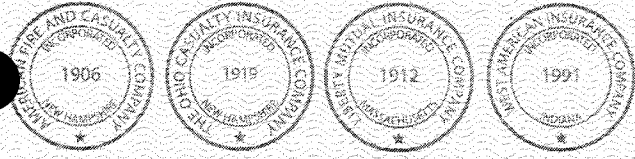
ARTICLE XIII - Execution of Contracts - SECTION 5. Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization - By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Gregory W. Davenport, the undersigned, Assistant Secretary, of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this MAR 17 2014 day of _____, 2014.



By: Gregory W. Davenport
Gregory W. Davenport, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or individual value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

Payment Bond (Pages 88 to 91): 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, _____

Triton Structural Concrete, Inc.

3100 47th Avenue, Long Island City, NY 11101

hereinafter referred to as the "Principal", and _____

Liberty Mutual Insurance Company

330 N. Brand Blvd., Suite 500, Glendale, CA 91203

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

Five Million One Hundred Nine Thousand Nine Hundred Eleven and 55/100

(\$5,109,911.55) 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

P5SPKHORA, Ocean Breeze Indoor Horse Riding Arena Construction - Borough of Staten Island

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 88 to 91): 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 88 to 91): 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 17th day of March, 2014.

(Seal)

Triton Structural Concrete, Inc. (L.S.)

Principal

By: 

(Seal)

Liberty Mutual Insurance Company

Surety

By: 

Sarah Myers, 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 88 to 91): 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 New York ss:

On this 18 day of March, 2014 before me personally came Steve Livan to me known, who, being by me duly sworn did depose and say that he resides at 134 Frosty Valley Rd Blauvelt, PA 17815 that he is the Operations Manager 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.

[Signature]
Notary Public or Commissioner of Deeds

KAILLY ANN VAY
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01VA6226642
Qualified in New York County
Commission Expires August 16, 2014

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

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

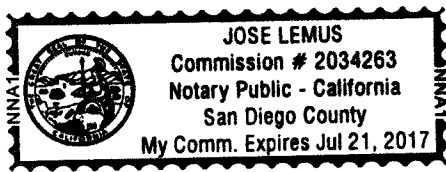
STATE OF CALIFORNIA

County of San Diego }

On MAR 17 2014 before me, Jose Lemus, Notary Public,
Date Insert Name of Notary exactly as it appears on the official seal

personally appeared Sarah Myers

Name(s) of Signer(s)



Place Notary Seal Above

who proved to me on the basis of satisfactory evidence to be the person(~~s~~) whose name(~~s~~) is/~~are~~ subscribed to the within instrument and acknowledged to me that ~~he~~/she/~~they~~ executed the same in ~~his~~/her/~~their~~ authorized capacity(~~ies~~), and that by ~~his~~/her/~~their~~ signature(~~s~~) on the instrument the person(~~s~~), or the entity upon behalf of which the person(~~s~~) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

Witness my hand and official seal

Signature

Signature of Notary Public Jose Lemus

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of the form to another document.

Description of Attached Document

Title or Type of Document: _____

Document Date: _____

Number of Pages: _____

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____

- Individual
- Corporate Officer — Title(s): _____
- Partner Limited General
- Attorney in Fact
- Trustee
- Guardian or Conservator
- Other: _____

RIGHT THUMBPRINT OF SIGNER

Top of thumb here

Signer is Representing: _____

Signer's Name: _____

- Individual
- Corporate Officer — Title(s): _____
- Partner Limited General
- Attorney in Fact
- Trustee
- Guardian or Conservator
- Other: _____

RIGHT THUMBPRINT OF SIGNER

Top of thumb here

Signer is Representing: _____

OFFICE OF THE
ATTORNEY GENERAL
STATE OF TEXAS
AUSTIN, TEXAS



THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 6453679

American Fire and Casualty Company
The Ohio Casualty Insurance Company

Liberty Mutual Insurance Company
West American Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That American Fire & Casualty Company and The Ohio Casualty Insurance Company are corporations duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Charlotte Aquino; James Baldassare, Jr.; Janice Martin; Jennifer L. Clampert; Lawrence F. McMahon; Maria Guise; Sarah Myers

all of the city of San Diego, state of CA each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 19th day of February, 2014.



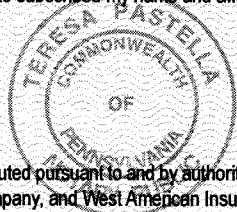
American Fire and Casualty Company
The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
West American Insurance Company

By: David M. Carey
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 19th day of February, 2014, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of American Fire and Casualty Company, Liberty Mutual Insurance Company, The Ohio Casualty Insurance Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Plymouth Twp., Montgomery County
My Commission Expires March 28, 2017
Member, Pennsylvania Association of Notaries

By: Teresa Pastella
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV - OFFICERS - Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

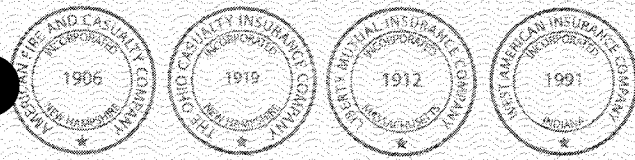
ARTICLE XIII - Execution of Contracts - SECTION 5. Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization - By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Gregory W. Davenport, the undersigned, Assistant Secretary, of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this MAR 17 2014 day of 20.



By: Gregory W. Davenport
Gregory W. Davenport, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or individual value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.



LIBERTY MUTUAL INSURANCE COMPANY
FINANCIAL STATEMENT — DECEMBER 31, 2012

Assets	Liabilities
Cash and Bank Deposits..... \$ 903,711,694	Unearned Premiums..... \$4,205,141,671
*Bonds — U.S Government..... 1,166,929,471	Reserve for Claims and Claims Expense 17,056,420,207
*Other Bonds..... 11,415,194,219	Funds Held Under Reinsurance Treaties..... 1,315,062,091
*Stocks 8,104,853,899	Reserve for Dividends to Policyholders..... 2,455,411
Real Estate..... 255,967,320	Additional Statutory Reserve 49,768,998
Agents' Balances or Uncollected Premiums..... 3,482,069,753	Reserve for Commissions, Taxes and
Accrued Interest and Rents..... 144,016,763	Other Liabilities <u>3,066,051,537</u>
Other Admitted Assets..... <u>14,732,623,458</u>	Total <u>\$25,694,899,915</u>
Total Admitted Assets <u>\$40,205,366,577</u>	Special Surplus Funds..... \$604,621,497
	Capital Stock..... 10,000,000
	Paid in Surplus 7,899,471,886
	Unassigned Surplus..... 5,996,373,279
	Surplus to Policyholders <u>14,510,466,662</u>
	Total Liabilities and Surplus <u>\$40,205,366,577</u>



* Bonds are stated at amortized or investment value; Stocks at Association Market Values.
The foregoing financial information is taken from Liberty Mutual Insurance Company's financial statement filed with the state of Massachusetts Department of Insurance.

I, TIM MIKOLAJEWSKI, Assistant Secretary of Liberty Mutual Insurance Company, do hereby certify that the foregoing is a true, and correct statement of the Assets and Liabilities of said Corporation, as of December 31, 2012, to the best of my knowledge and belief.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said Corporation at Seattle, Washington, this 25th day of March, 2013.

T. Mikolajewski

Assistant Secretary

Performance Bond #1 (Pages 80 to 83): 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 80 to 83): 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 80 to 83): 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 84 to 87): 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;

Performance Bond #2 (Pages 84 to 87): Use if the total contract price is more than \$5 Million.

PERFORMANCE BOND #2 (Page2)

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 84 to 87): 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 #2 (Pages 84 to 87): Use if the total contract price is more than \$5 Million.

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 88 to 91): 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 88 to 91): 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 88 to 91): 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 88 to 91): 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.

Contracting agencies anticipating doing work which requires the employment of a trade or classification not included in this schedule must request the Comptroller to establish a proper classification for the work pursuant to Labor Law §220 (3-a) (a). The prevailing rate schedule as promulgated by the Comptroller, must, in compliance with law, be annexed to and form part of the contract.

Contractors are solely responsible for maintaining original payroll records which delineate, among other things, the hours each employee worked within a given classification. Contractors using rates and/or classifications not promulgated by the Comptroller do so at their own risk. Additionally, prior to bid, Agency Chief Contracting Officers must contact the Bureau of Labor Law when the need arises for a work classification not published in this schedule.

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 for work performed during the effective period, unless otherwise noted. You will be notified of any changes to this schedule by addenda published on our web site at www.comptroller.nyc.gov. The rate of wages and supplemental benefits to be paid or provided are those that prevail at the time the work is being performed. Preliminary schedules for future one-year periods are published annually in the City Record on or about June 1st of each succeeding year. Final schedules are published on or about July 1st in the City Record and on our web site at 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.

Answers to questions concerning prevailing trade practices may be obtained from the Classification Unit by calling (212) 669-7974. 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.

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.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

Contractors are advised to review the applicable Collective Bargaining Agreements and the Comptroller's Prevailing Wage Schedule before bidding on Public Work. If there are any questions concerning prevailing wages, benefits, overtime, Holiday pay, shift differentials or any prevailing practice, please contact this office.

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.

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.

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

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§220 PREVAILING WAGE SCHEDULE

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OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

ASBESTOS HANDLER

(Hazardous Material; Disturbs, removes, encapsulates, repairs, or encloses friable asbestos material)

Asbestos Handler

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$35.90**

Supplemental Benefit Rate per Hour: **\$15.05**

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)

BLASTER

Blaster

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$44.40**

Supplemental Benefit Rate per Hour: **\$38.44**

Blaster (Hydraulic)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$45.17**

Supplemental Benefit Rate per Hour: **\$38.44**

Blaster - Trac Drill Hydraulic

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$40.04
Supplemental Benefit Rate per Hour: \$38.44

Blaster - Wagon: Air Trac: Quarry Bar: Drillrunners

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$39.30
Supplemental Benefit Rate per Hour: \$38.44

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: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$38.32
Supplemental Benefit Rate per Hour: \$38.44

Blaster - Powder Carriers

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$34.66
Supplemental Benefit Rate per Hour: \$38.44

Blaster - Hydraulic Trac Drill Chuck Tender

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$33.46
Supplemental Benefit Rate per Hour: \$38.44

Blaster - Chuck Tender & Nipper

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$32.75
Supplemental Benefit Rate per Hour: \$38.44

Blaster - Magazine Keepers: (Watch Person)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$19.76
Supplemental Benefit Rate per Hour: \$38.44

Overtime Description

Magazine Keepers:

Time and one half for work performed in excess of forty (40) hours per week and for work performed on Saturdays, Sundays and Holidays.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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)

BOILERMAKER

Boilermaker

Effective Period: 7/1/2013 - 12/31/2013

Wage Rate per Hour: **\$49.47**

Supplemental Benefit Rate per Hour: **\$39.78**

Supplemental Note: The above rate applies to repair or maintenance and new construction; For time and one half overtime - \$59.08; For double overtime - \$78.37.

Effective Period: 1/1/2014 - 6/30/2014

Wage Rate per Hour: **\$50.45**

Supplemental Benefit Rate per Hour: **\$41.31**

Supplemental Note: The above rate applies to repair or maintenance and new construction; For time and one half overtime - \$61.37; For double overtime - \$81.43.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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.

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)

BRICKLAYER

Bricklayer

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$46.44

Supplemental Benefit Rate per Hour: \$27.53

Overtime

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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
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)

CARPENTER - BUILDING COMMERCIAL

Building Commercial

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$48.08

Supplemental Benefit Rate per Hour: \$41.10

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)

CARPENTER - HEAVY CONSTRUCTION WORK (Construction of Engineering Structures and Building Foundations)

Heavy Construction Work

Effective Period: 7/1/2013 - 7/17/2013

Wage Rate per Hour: \$46.74

Supplemental Benefit Rate per Hour: \$42.37

Effective Period: 7/18/2013 - 6/30/2014

Wage Rate per Hour: \$46.82

Supplemental Benefit Rate per Hour: \$44.97

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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)

CEMENT & CONCRETE WORKER

Cement & Concrete Worker

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$42.33

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)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

CEMENT MASON

Cement Mason

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$38.63

Supplemental Benefit Rate per Hour: \$39.05

Supplemental Note: Overtime supplemental benefit rate per hour: \$57.55

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)

CORE DRILLER

Core Driller

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$35.44

Supplemental Benefit Rate per Hour: \$19.75

Core Driller Helper

Effective Period: 7/1/2013 - 6/30/2014

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

Wage Rate per Hour: \$28.60
Supplemental Benefit Rate per Hour: \$19.75

Core Driller Helper(Third year in the industry)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$25.74
Supplemental Benefit Rate per Hour: \$19.75

Core Driller Helper (Second year in the industry)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$22.88
Supplemental Benefit Rate per Hour: \$19.75

Core Driller Helper (First year in the industry)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$20.02
Supplemental Benefit Rate per Hour: \$19.75

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)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

DERRICKPERSON AND RIGGER

Derrick Person & Rigger

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$41.00

Supplemental Benefit Rate per Hour: \$46.07

Supplemental Note: The above supplemental rate applies for work performed in Manhattan, Bronx, Brooklyn and Queens. \$47.49 - For work performed in Staten Island.

Derrick Person & Rigger - Site Work

For site work where no rigging is involved.

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$30.00

Supplemental Benefit Rate per Hour: \$31.32

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)

DIVER

Diver (Marine)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$59.40

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

Supplemental Benefit Rate per Hour: \$44.97

Diver Tender (Marine)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$42.05

Supplemental Benefit Rate per Hour: \$44.97

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)

DOCKBUILDER - PILE DRIVER

Dockbuilder - Pile Driver

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$46.82

Supplemental Benefit Rate per Hour: \$44.97

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.

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
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.

(Carpenters District Council)

DRIVER: TRUCK (TEAMSTER)

Driver - Automobile Chauffeur (Dump Truck)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$38.11

Supplemental Benefit Rate per Hour: \$40.20

Driver - Heavy Equipment Trailer Driver

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$39.61

Supplemental Benefit Rate per Hour: \$40.20

Note: For time and one half overtime Wage Rate - \$57.16; for double time overtime Wage Rate - \$76.21

Driver - Euclid & Turnapull Operator

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$38.67

Supplemental Benefit Rate per Hour: \$40.20

Driver - Six Wheeler(3 Axle) Tractors & Trailers

Effective Period: 7/1/2013 - 6/30/2014

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

Wage Rate per Hour: **\$39.11**

Supplemental Benefit Rate per Hour: **\$40.20**

Note: For time and one half overtime Wage Rate - \$58.01; for double time overtime Wage Rate - \$77.34

Driver - Boom Truck

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$39.36**

Supplemental Benefit Rate per Hour: **\$40.20**

Note: For time and one half overtime Wage Rate - \$58.01; for double time overtime Wage Rate - \$77.34

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.

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

Driver - Redi-Mix Driver (Sand & Gravel)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$35.71**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

Supplemental Benefit Rate per Hour: \$37.27

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

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)

ELECTRICIAN

(Including all low voltage cabling carrying data; video; and voice in combination with data and or video.)

Electrician "A" (Regular Day)

Effective Period: 7/1/2013 - 5/13/2014

Wage Rate per Hour: \$52.00

Supplemental Benefit Rate per Hour: \$46.13

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: \$53.00
Supplemental Benefit Rate per Hour: \$47.54

Electrician "A" (Regular Day Overtime)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: \$78.00
Supplemental Benefit Rate per Hour: \$49.39

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: \$79.50
Supplemental Benefit Rate per Hour: \$50.86

Electrician "A" (Day Shift)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: \$52.00
Supplemental Benefit Rate per Hour: \$46.13

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: \$53.00
Supplemental Benefit Rate per Hour: \$47.54

Electrician "A" (Day Shift Overtime After 8 hours)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: \$78.00
Supplemental Benefit Rate per Hour: \$49.39

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: \$79.50
Supplemental Benefit Rate per Hour: \$50.86

Electrician "A" (Swing Shift)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: \$61.01
Supplemental Benefit Rate per Hour: \$52.47

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: \$62.19
Supplemental Benefit Rate per Hour: \$54.07

Electrician "A" (Swing Shift Overtime After 7.5 hours)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: \$91.52
Supplemental Benefit Rate per Hour: \$56.30

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: \$93.29
Supplemental Benefit Rate per Hour: \$57.97

Electrician "A" (Graveyard Shift)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: \$68.34
Supplemental Benefit Rate per Hour: \$57.83

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: \$69.66
Supplemental Benefit Rate per Hour: \$59.59

Electrician "A" (Graveyard Shift Overtime After 7 hours)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: \$102.51
Supplemental Benefit Rate per Hour: \$62.11

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: \$104.49
Supplemental Benefit Rate per Hour: \$63.96

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.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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.

Effective Period: 7/1/2013 - 5/13/2014

Wage Rate per Hour: **\$26.50**

Supplemental Benefit Rate per Hour: **\$19.56**

First and Second Year "M" Wage Rate Per Hour - Hired on or before 5/10/07: **\$25.80**

First and Second Year "M" Supplemental Rate- Hired on or before 5/10/07: **\$19.21**

First and Second Year "M" Wage Rate Per Hour - Hired after 5/10/07: **\$22.00**

First and Second Year "M" Supplemental Rate- Hired after 5/10/07: **\$17.30**

Effective Period: 5/14/2014 - 6/30/2014

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**

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: 7/1/2013 - 5/13/2014

Wage Rate per Hour: **\$39.75**

Supplemental Benefit Rate per Hour: **\$21.23**

First and Second Year "M" Wage Rate Per Hour - Hired on or before 5/10/07: **\$38.70**

First and Second Year "M" Supplemental Rate- Hired on or before 5/10/07: **\$20.83**

First and Second Year "M" Wage Rate Per Hour - Hired after 5/10/07: **\$33.00**

First and Second Year "M" Supplemental Rate- Hired after 5/10/07: **\$18.68**

Effective Period: 5/14/2014 - 6/30/2014

Wage Rate per Hour: **\$40.50**

Supplemental Benefit Rate per Hour: **\$21.01**

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**

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

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
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays

None

(Local #3)

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: 7/1/2013 - 6/30/2014

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

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)

ELECTRICIAN-STREET LIGHTING WORKER

Electrician - Electro Pole Electrician

Effective Period: 7/1/2013 - 5/20/2014
Wage Rate per Hour: \$52.00
Supplemental Benefit Rate per Hour: \$47.90

Effective Period: 5/21/2014 - 6/30/2014
Wage Rate per Hour: \$53.00
Supplemental Benefit Rate per Hour: \$49.34

Electrician - Electro Pole Foundation Installer

Effective Period: 7/1/2013 - 5/20/2014
Wage Rate per Hour: \$39.42
Supplemental Benefit Rate per Hour: \$36.46

Effective Period: 5/21/2014 - 6/30/2014
Wage Rate per Hour: \$40.18
Supplemental Benefit Rate per Hour: \$37.73

Electrician - Electro Pole Maintainer

Effective Period: 7/1/2013 - 5/20/2014

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

Wage Rate per Hour: **\$33.75**
Supplemental Benefit Rate per Hour: **\$32.83**

Effective Period: 5/21/2014 - 6/30/2014
Wage Rate per Hour: **\$34.40**
Supplemental Benefit Rate per Hour: **\$34.00**

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)

ELEVATOR CONSTRUCTOR

Elevator Constructor

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: **\$57.01**
Supplemental Benefit Rate per Hour: **\$34.48**

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.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

Overtime

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)

ELEVATOR REPAIR & MAINTENANCE

Elevator Service/Modernization Mechanic

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$45.14

Supplemental Benefit Rate per Hour: \$33.02

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
Labor Day
Columbus Day
Veteran's Day

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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)

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: 7/1/2013 - 6/30/2014

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: 7/1/2013 - 6/30/2014

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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: 7/1/2013 - 6/30/2014

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: 7/1/2013 - 6/30/2014

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: 7/1/2013 - 6/30/2014

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: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$39.10

Supplemental Benefit Rate per Hour: \$31.93

Supplemental Note: \$57.46 on overtime

Shift Wage Rate: \$62.56

Engineer - Heavy Construction Maintenance Engineer IV

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

On Pumps and Mixers including mud sucking

Effective Period: 7/1/2013 - 6/30/2014

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: 7/1/2013 - 6/30/2014

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: 7/1/2013 - 6/30/2014

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: 7/1/2013 - 6/30/2014

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: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$53.43

Supplemental Benefit Rate per Hour: \$31.93

Supplemental Note: \$57.46 on overtime

Shift Wage Rate: \$85.49

Engineer - Steel Erection Oiler II

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

On a Crawler Crane

Effective Period: 7/1/2013 - 6/30/2014

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

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: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$54.04**

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
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Effective Period: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
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
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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

Off Shift: double time the regular hourly rate.

(Local #15)

ENGINEER - CITY SURVEYOR AND CONSULTANT

Party Chief

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$35.55**

Supplemental Benefit Rate per Hour: **\$17.65**

Instrument Person

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$29.41**

Supplemental Benefit Rate per Hour: **\$17.65**

Rodperson

Effective Period: 7/1/2013 - 6/30/2014

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

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)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

ENGINEER - FIELD (BUILDING CONSTRUCTION)
(Construction of Building Projects, Concrete Superstructures, etc.)

Field Engineer - BC Party Chief

Effective Period: 7/1/2013 - 6/30/2014

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: 7/1/2013 - 6/30/2014

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: 7/1/2013 - 6/30/2014

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

(Operating Engineer Local #15-D)

ENGINEER - FIELD (HEAVY CONSTRUCTION)
(Construction of Roads, Tunnels, Bridges, Sewers, Building Foundations,
Engineering Structures etc.)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

Field Engineer - HC Party Chief

Effective Period: 7/1/2013 - 6/30/2014

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: 7/1/2013 - 6/30/2014

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: 7/1/2013 - 6/30/2014

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

(Operating Engineer Local #15-D)

ENGINEER - FIELD (STEEL ERECTION)

Field Engineer - Steel Erection Party Chief

Effective Period: 7/1/2013 - 6/30/2014

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
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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: 7/1/2013 - 6/30/2014

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: 7/1/2013 - 6/30/2014

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

(Operating Engineer Local #15-D)

ENGINEER - OPERATING

Operating Engineer - Road & Heavy Construction I

Back Filling Machines, Cranes, Mucking Machines and Dual Drum Paver.

Effective Period: 7/1/2013 - 6/30/2014

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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: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
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

Pile Drivers & Rigs (employing Dock Builder foreperson): Derrick Boats, Tunnel Shovels.

Effective Period: 7/1/2013 - 6/30/2014
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).

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Effective Period: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$62.53
Supplemental Benefit Rate per Hour: \$28.60
Supplemental Note: \$51.75 overtime hours
Shift Wage Rate: \$100.05

Operating Engineer - Road & Heavy Construction X

Elevators (manually operated as personnel hoist).

Effective Period: 7/1/2013 - 6/30/2014
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.

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Effective Period: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
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

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Concrete Breaking Machines, Hoists (Single Drum), Load Masters, Locomotives (over ten tons) and Dinkies over ten tons, Hydraulic Crane-Second Engineer.

Effective Period: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
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 - Paving II

Asphalt Roller

Effective Period: 7/1/2013 - 6/30/2014
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

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Asphalt Plants

Effective Period: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$56.16
Supplemental Benefit Rate per Hour: \$28.60
Supplemental Note: \$51.75 overtime hours

Operating Engineer - Steel Erection I

Three Drum Derricks

Effective Period: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$70.50

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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: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$65.83

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§220 PREVAILING WAGE SCHEDULE

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: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$63.58
Supplemental Benefit Rate per Hour: \$28.60
Supplemental Note: \$51.75 overtime hours

Operating Engineer - Building Work VII

Rack & Pinion and House Cars

Effective Period: 7/1/2013 - 6/30/2014
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).

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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)

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

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$46.15

Supplemental Benefit Rate per Hour: \$38.50

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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)

GLAZIER (New Construction, Remodeling, and Alteration)

Glazier

Effective Period: 7/1/2013 - 10/31/2013

Wage Rate per Hour: **\$42.00**

Supplemental Benefit Rate per Hour: **\$33.24**

Supplemental Note: Supplemental Benefit Overtime Rate: **\$41.24**

Effective Period: 11/1/2013 - 6/30/2014

Wage Rate per Hour: **\$42.00**

Supplemental Benefit Rate per Hour: **\$34.09**

Supplemental Note: Supplemental Benefit Overtime Rate: **\$42.59**

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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)

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: 7/1/2013 - 4/30/2014

Wage Rate per Hour: **\$23.50**

Supplemental Benefit Rate per Hour: **\$18.54**

Effective Period: 5/1/2014 - 6/30/2014

Wage Rate per Hour: **\$23.60**

Supplemental Benefit Rate per Hour: **\$19.04**

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)

HEAT AND FROST INSULATOR

Heat & Frost Insulator

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$56.48

Supplemental Benefit Rate per Hour: \$33.31

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

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)

HOUSE WRECKER (TOTAL DEMOLITION)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

House Wrecker - Tier A

On all work sites the first, second, eleventh and every third House Wrecker thereafter shall be Tier A House Wreckers (i.e. 1st, 2nd, 11th, 14th etc). The 10th and 20th House Wrecker shall be apprentices. Other House Wreckers shall be Tier B House Wreckers.

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$34.01**

Supplemental Benefit Rate per Hour: **\$25.14**

House Wrecker - Tier B

On all work sites the first, second, eleventh and every third House Wrecker thereafter shall be Tier A House Wreckers (i.e. 1st, 2nd, 11th, 14th etc). The 10th and 20th House Wrecker shall be apprentices. Other House Wreckers shall be Tier B House Wreckers.

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$23.75**

Supplemental Benefit Rate per Hour: **\$18.62**

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

Paid Holidays

None

(Mason Tenders District Council)

IRON WORKER - ORNAMENTAL

Iron Worker - Ornamental

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$42.30**

Supplemental Benefit Rate per Hour: **\$43.54**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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)

IRON WORKER - STRUCTURAL

Iron Worker - Structural

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$46.75

Supplemental Benefit Rate per Hour: \$62.48

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.

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.

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)

LABORER

(Foundation, Concrete, Excavating, Street Pipe Layer and Common)

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: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$39.25**

Supplemental Benefit Rate per Hour: **\$33.25**

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).

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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)

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)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$24.25
Supplemental Benefit Rate per Hour: \$12.30

Landscaper (3 - 6 years experience)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$23.25
Supplemental Benefit Rate per Hour: \$12.30

Landscaper (up to 3 years experience)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$20.75
Supplemental Benefit Rate per Hour: \$12.30

Groundperson

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$20.75
Supplemental Benefit Rate per Hour: \$12.30

Tree Remover / Pruner

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$29.25
Supplemental Benefit Rate per Hour: \$12.30

Landscaper Sprayer (Pesticide Applicator)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$19.25
Supplemental Benefit Rate per Hour: \$12.30

Watering - Plant Maintainer

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$14.25
Supplemental Benefit Rate per Hour: \$12.30

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.

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)

MARBLE MECHANIC

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

Marble Setter

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$49.19
Supplemental Benefit Rate per Hour: \$32.24

Marble Finisher

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$39.05
Supplemental Benefit Rate per Hour: \$31.43

Marble Polisher

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$34.73
Supplemental Benefit Rate per Hour: \$24.60

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)

MASON TENDER

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

Mason Tender

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$35.00**

Supplemental Benefit Rate per Hour: **\$25.74**

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

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)

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: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$34.07**

Supplemental Benefit Rate per Hour: **\$19.77**

Mason Tender Tier B

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$23.27**

Supplemental Benefit Rate per Hour: **\$14.08**

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

President's Day

Memorial Day

Independence Day

Labor Day

Thanksgiving Day

Christmas Day

Paid Holidays

None

(Local #79)

METALLIC LATHER

Metallic Lather

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$41.43**

Supplemental Benefit Rate per Hour: **\$40.15**

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).

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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

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 (1/2) 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)

MILLWRIGHT

Millwright

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$47.69**

Supplemental Benefit Rate per Hour: **\$48.87**

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
\$220 PREVAILING WAGE SCHEDULE

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: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$44.39**

Supplemental Benefit Rate per Hour: **\$35.11**

Supplemental Note: Supplemental benefits for overtime to be paid at the rate of \$46.08 per hour.

Mosaic Mechanic - Mosaic & Terrazzo Finisher

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$42.78**

Supplemental Benefit Rate per Hour: **\$35.11**

Supplemental Note: Supplemental benefits for overtime to be paid at the rate of \$46.08 per hour.

Mosaic Mechanic - Machine Operator Grinder

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$42.78**

Supplemental Benefit Rate per Hour: **\$35.11**

Supplemental Note: Supplemental benefits for overtime to be paid at the rate of \$46.08 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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays

None

(Local #7)

PAINTER

Painter - Brush & Roller

Effective Period: 7/1/2013 - 4/30/2014

Wage Rate per Hour: **\$37.50**

Supplemental Benefit Rate per Hour: **\$25.62**

Supplemental Note: \$30.25 on overtime

Effective Period: 5/1/2014 - 6/30/2014

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: 7/1/2013 - 4/30/2014

Wage Rate per Hour: **\$40.50**

Supplemental Benefit Rate per Hour: **\$25.62**

Supplemental Note: \$30.25 on overtime

Effective Period: 5/1/2014 - 6/30/2014

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

Labor Day
Columbus Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

(District Council of Painters #9)

PAINTER - SIGN

Designer

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: **\$36.15**
Supplemental Benefit Rate per Hour: **\$9.66**

Journey person

Effective Period: 7/1/2013 - 6/30/2014
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)

PAINTER - STRIPER

Striper (paint)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$33.50**

Supplemental Benefit Rate per Hour: **\$11.62**

Supplemental Note: Overtime Supplemental Benefit rate - \$7.42; New Hire Rate (0-3 months) - \$0.00

Lineperson (thermoplastic)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$37.50**

Supplemental Benefit Rate per Hour: **\$11.62**

Supplemental Note: Overtime Supplemental Benefit rate - \$7.42; 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.

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)

PAINTER - STRUCTURAL STEEL

Painters on Structural Steel

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$47.00**

Supplemental Benefit Rate per Hour: **\$32.08**

Painter - Power Tool

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$53.00**

Supplemental Benefit Rate per Hour: **\$32.08**

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)

PAPERHANGER

Paperhanger

Effective Period: 7/1/2013 - 4/30/2014

Wage Rate per Hour: **\$39.00**

Supplemental Benefit Rate per Hour: **\$29.23**

Supplemental Note: Supplemental benefits are to be paid at the appropriate straight time and overtime rate.

Effective Period: 5/1/2014 - 6/30/2014

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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

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)

PAVER AND ROADBUILDER

Paver & Roadbuilder - Formsetter

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$43.54**

Supplemental Benefit Rate per Hour: **\$33.55**

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: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$39.67**

Supplemental Benefit Rate per Hour: **\$33.55**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$45.12

Supplemental Benefit Rate per Hour: \$33.55

Production Paver & Roadbuilder - Raker

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$44.61

Supplemental Benefit Rate per Hour: \$33.55

Production Paver & Roadbuilder - Shoveler

General laborer (except removal of surfaces - see Paver and Roadbuilder-Laborer) including but not limited to tamper, AC paint and liquid tar work.

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$41.32

Supplemental Benefit Rate per Hour: \$33.55

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.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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 20% 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)

PLASTERER

Plasterer

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$41.13

Supplemental Benefit Rate per Hour: \$24.95

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)

PLASTERER - TENDER

Plasterer - Tender

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$35.00**

Supplemental Benefit Rate per Hour: **\$25.74**

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

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)

PLUMBER

Plumber

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$52.36**

Supplemental Benefit Rate per Hour: **\$37.34**

Supplemental Note: Overtime supplemental benefit rate per hour: \$74.40

Overtime Description

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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)

PLUMBER (MECHANICAL EQUIPMENT AND SERVICE)

(Mechanical Equipment and Service work shall include any repair and/or replacement of the present plumbing system.)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$33.46**

Supplemental Benefit Rate per Hour: **\$16.93**

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

Memorial Day
Independence Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays

None

(Plumbers Local # 1)

**PLUMBER (RESIDENTIAL RATES FOR 1, 2 AND 3 FAMILY HOME
CONSTRUCTION)**

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$37.11

Supplemental Benefit Rate per Hour: \$25.56

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.

(Plumbers Local #1)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

**PLUMBER: PUMP & TANK
(Installation and Maintenance)**

Plumber - Pump & Tank

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$53.01

Supplemental Benefit Rate per Hour: \$31.86

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)

**POINTER - WATERPROOFER, CAULKER MECHANIC (EXTERIOR BUILDING
RENOVATION)**

Pointer - Waterproofer, Caulker Mechanic

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$45.41

Supplemental Benefit Rate per Hour: \$23.29

Overtime

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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)

ROOFER

Roofer

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: **\$39.00**
Supplemental Benefit Rate per Hour: **\$27.37**

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
Presidential Election Day
Thanksgiving Day
Christmas Day

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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)

**SANDBLASTER - STEAMBLASTER
(Exterior Building Renovation)**

Sandblaster / Steamblaster

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$45.41

Supplemental Benefit Rate per Hour: \$23.29

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)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

SHEET METAL WORKER

Sheet Metal Worker

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$45.96

Supplemental Benefit Rate per Hour: \$43.19

Supplemental Note: Supplemental benefit contributions are to be made at the applicable overtime rates.

Sheet Metal Worker - Duct Cleaner

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$12.90

Supplemental Benefit Rate per Hour: \$8.07

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: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$36.77

Supplemental Benefit Rate per Hour: \$43.19

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

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.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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)

**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: 7/1/2013 - 7/31/2013

Wage Rate per Hour: \$41.28

Supplemental Benefit Rate per Hour: \$22.88

Supplemental Note: Supplemental benefit contributions are to be made at the applicable overtime rates.

Effective Period: 8/1/2013 - 6/30/2014

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

None

(Local #28)

SIGN ERECTOR
(Sheet Metal, Plastic, Electric, and Neon)

Sign Erector

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$42.80

Supplemental Benefit Rate per Hour: \$42.17

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

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)

STEAMFITTER

Steamfitter I

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$52.50

Supplemental Benefit Rate per Hour: \$50.54

Supplemental Note: Overtime supplemental benefit rate: \$100.34

Overtime

Double time the regular rate after a 7 hour day.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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.

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.

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$52.50**

Supplemental Benefit Rate per Hour: **\$50.54**

Supplemental Note: Overtime supplemental benefit rate: \$100.34

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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

**STEAMFITTER - REFRIGERATION AND AIR CONDITIONER
(Maintenance and Installation Service Person)**

Refrigeration and Air Conditioner Mechanic

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$38.05**

Supplemental Benefit Rate per Hour: **\$12.26**

Refrigeration and Air Conditioner Service Person V

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$31.26**

Supplemental Benefit Rate per Hour: **\$11.13**

Refrigeration and Air Conditioner Service Person IV

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$25.90**

Supplemental Benefit Rate per Hour: **\$10.16**

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: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$22.23**

Supplemental Benefit Rate per Hour: **\$9.44**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$18.44

Supplemental Benefit Rate per Hour: \$8.78

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: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$13.48

Supplemental Benefit Rate per Hour: \$8.10

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

Independence Day

Labor Day

Veteran's Day

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)

STONE MASON - SETTER

Stone Mason - Setters

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$47.72

Supplemental Benefit Rate per Hour: \$35.28

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.

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)

TAPER

Drywall Taper

Effective Period: 7/1/2013 - 12/31/2013

Wage Rate per Hour: \$44.32

Supplemental Benefit Rate per Hour: \$21.66

Effective Period: 1/1/2014 - 6/24/2014

Wage Rate per Hour: \$44.82

Supplemental Benefit Rate per Hour: \$21.66

Effective Period: 6/25/2014 - 6/30/2014

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

Wage Rate per Hour: **\$45.32**

Supplemental Benefit Rate per Hour: **\$21.66**

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)

**TELECOMMUNICATION WORKER
(Voice Installation Only)**

Telecommunication Worker

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$35.94**

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
\$220 PREVAILING WAGE SCHEDULE

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.

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.)

TILE FINISHER

Tile Finisher

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: **\$38.49**
Supplemental Benefit Rate per Hour: **\$27.40**

Overtime

Time and one half the regular rate after a 7 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.

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)

TILE LAYER - SETTER

Tile Layer - Setter

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$48.35

Supplemental Benefit Rate per Hour: \$31.44

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING WAGE SCHEDULE

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)

TIMBERPERSON

Timberperson

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$42.63**

Supplemental Benefit Rate per Hour: **\$44.54**

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

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)

TUNNEL WORKER

Blasters, Mucking Machine Operators (Compressed Air Rates)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$54.20

Supplemental Benefit Rate per Hour: \$48.20

Tunnel Workers (Compressed Air Rates)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$52.31

Supplemental Benefit Rate per Hour: \$46.59

Top Nipper (Compressed Air Rates)

Effective Period: 7/1/2013 - 6/30/2014

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: 7/1/2013 - 6/30/2014

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: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$50.42

Supplemental Benefit Rate per Hour: \$44.92

Changehouse Attendant: Powder Watchperson (Compressed Air Rates)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$43.94

Supplemental Benefit Rate per Hour: \$42.55

Blasters (Free Air Rates)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$51.72

Supplemental Benefit Rate per Hour: \$46.03

Tunnel Workers (Free Air Rates)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$49.48

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Supplemental Benefit Rate per Hour: \$44.06

All Others (Free Air Rates)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$45.73

Supplemental Benefit Rate per Hour: \$40.75

Microtunneling (Free Air Rates)

Effective Period: 7/1/2013 - 6/30/2014

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
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)

WELDER

**TO BE PAID AT THE RATE OF THE JOURNEYPERSON IN THE TRADE
PERFORMING THE WORK.**

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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: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 78% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$15.05

Asbestos Handler (Second 1000 Hours)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$15.05

Asbestos Handler (Third 1000 Hours)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 83% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$15.05

Asbestos Handler (Fourth 1000 Hours)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 89% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$15.05

(Local #78)

BOILERMAKER

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Boilermaker (First Year)

Effective Period: 7/1/2013 - 12/31/2013
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$28.75

Effective Period: 1/1/2014 - 6/30/2014
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$29.74

Boilermaker (Second Year: 1st Six Months)

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Effective Period: 7/1/2013 - 12/31/2013
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$30.33

Effective Period: 1/1/2014 - 6/30/2014
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$31.40

Boilermaker (Second Year: 2nd Six Months)

Effective Period: 7/1/2013 - 12/31/2013
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$31.91

Effective Period: 1/1/2014 - 6/30/2014
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$33.05

Boilermaker (Third Year: 1st Six Months)

Effective Period: 7/1/2013 - 12/31/2013
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$33.49

Effective Period: 1/1/2014 - 6/30/2014
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$34.69

Boilermaker (Third Year: 2nd Six Months)

Effective Period: 7/1/2013 - 12/31/2013
Wage Rate Per Hour: 85% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$35.05

Effective Period: 1/1/2014 - 6/30/2014
Wage Rate Per Hour: 85% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$36.34

Boilermaker (Fourth Year: 1st Six Months)

Effective Period: 7/1/2013 - 12/31/2013
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$36.63

Effective Period: 1/1/2014 - 6/30/2014
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$38.00

Boilermaker (Fourth Year: 2nd Six Months)

Effective Period: 7/1/2013 - 12/31/2013

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§220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Wage Rate Per Hour: 95% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$38.19

Effective Period: 1/1/2014 - 6/30/2014
Wage Rate Per Hour: 95% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$39.65

(Local #5)

BRICKLAYER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Bricklayer (First 750 Hours)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$16.60

Bricklayer (Second 750 Hours)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$16.60

Bricklayer (Third 750 Hours)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$16.60

Bricklayer (Fourth 750 Hours)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$16.60

Bricklayer (Fifth 750 Hours)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$16.60

Bricklayer (Sixth 750 Hours)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 95% of Journeyperson's rate

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Supplemental Benefit Rate Per Hour: \$16.60

(Bricklayer District Council)

CARPENTER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Carpenter (First Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 40% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$30.29

Carpenter (Second Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$30.29

Carpenter (Third Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 65% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$30.29

Carpenter (Fourth Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 80% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$30.29

(Carpenters District Council)

CEMENT MASON

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Cement Mason (First Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage and Supplemental Rate Per Hour: 50% of Journeyman's Rate

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§220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

Cement Mason (Second Year)

Effective Period: 7/1/2013 - 6/30/2014

Wage and Supplemental Rate Per Hour: 60% of Journeyperson's Rate

Cement Mason (Third Year)

Effective Period: 7/1/2013 - 6/30/2014

Wage and Supplemental Rate Per Hour: 70% of Journeyperson's Rate

(Local #780)

CEMENT AND CONCRETE WORKER

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Cement & Concrete Worker (0 - 500 hours)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate Per Hour: 50% of Journeyperson's rate

Supplemental Benefit Rate Per Hour: \$18.04

Cement & Concrete Worker (501 - 1000 hours)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate Per Hour: 65% of Journeyperson's rate

Supplemental Benefit Rate Per Hour: \$18.87

Cement & Concrete Worker (1001 - 2000 hours)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate Per Hour: 65% of Journeyperson's rate

Supplemental Benefit Rate Per Hour: \$24.25

Cement & Concrete Worker (2001 - 4000 hours)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate Per Hour: 80% of Journeyperson's rate

Supplemental Benefit Rate Per Hour: \$25.07

(Cement Concrete Workers District Council)

DERRICKPERSON & RIGGER (STONE)
(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 6)

Derrickperson & Rigger (stone) - First Year

Effective Period: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
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: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 90% of Journeyman's rate
Supplemental Benefit Rate Per Hour: 75% of Journeyman's rate

(Local #197)

DOCKBUILDER/PILE DRIVER
(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 6)

Dockbuilder/Pile Driver (First Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 40% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$30.29

Dockbuilder/Pile Driver (Second Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Benefit Rate Per Hour: \$30.29

Dockbuilder/Pile Driver (Third Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$30.29

Dockbuilder/Pile Driver (Fourth Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: \$30.29

(Carpenters District Council)

ELECTRICIAN

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Electrician (First Term: 0-6 Months)

Effective period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: \$12.50
Supplemental Benefit Rate per Hour: \$10.86
Overtime Supplemental Rate per Hour: \$11.68

Effective period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: \$12.50
Supplemental Benefit Rate per Hour: \$11.10
Overtime Supplemental Rate per Hour: \$11.93

Electrician (First Term: 7-12 Months)

Effective period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: \$13.50
Supplemental Benefit Rate per Hour: \$11.37
Overtime Supplemental Rate per Hour: \$12.26

Effective period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: \$13.50
Supplemental Benefit Rate per Hour: \$11.62
Overtime Supplemental Rate per Hour: \$12.51

Electrician (Second Term: 0-6 Months)

Effective period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: \$14.50

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Supplemental Benefit Rate per Hour: \$11.88
Overtime Supplemental Rate per Hour: \$12.83

Effective period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: \$14.50
Supplemental Benefit Rate per Hour: \$12.13
Overtime Supplemental Rate per Hour: \$13.08

Electrician (Second Term: 7-12 Months)

Effective period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: \$15.50
Supplemental Benefit Rate per Hour: \$12.39
Overtime Supplemental Rate per Hour: \$13.41

Effective period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: \$15.50
Supplemental Benefit Rate per Hour: \$12.64
Overtime Supplemental Rate per Hour: \$13.66

Electrician (Third Term: 0-6 Months)

Effective period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: \$16.50
Supplemental Benefit Rate per Hour: \$12.90
Overtime Supplemental Rate per Hour: \$13.98

Effective period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: \$16.50
Supplemental Benefit Rate per Hour: \$13.15
Overtime Supplemental Rate per Hour: \$14.23

Electrician (Third Term: 7-12 Months)

Effective period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: \$17.50
Supplemental Benefit Rate per Hour: \$13.40
Overtime Supplemental Rate per Hour: \$14.56

Effective period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: \$17.50
Supplemental Benefit Rate per Hour: \$13.65
Overtime Supplemental Rate per Hour: \$14.81

Electrician (Fourth Term: 0-6 Months - Hired on or after 5/10/07)

Effective period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: \$18.50
Supplemental Benefit Rate per Hour: \$13.91
Overtime Supplemental Rate per Hour: \$15.13

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Effective period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: \$18.50
Supplemental Benefit Rate per Hour: \$14.16
Overtime Supplemental Rate per Hour: \$15.38

Electrician (Fourth Term: 7-12 Months - Hired on or after 5/10/07)

Effective period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: \$20.25
Supplemental Benefit Rate per Hour: \$14.80
Overtime Supplemental Rate per Hour: \$16.14

Effective period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: \$20.50
Supplemental Benefit Rate per Hour: \$15.18
Overtime Supplemental Rate per Hour: \$16.53

Electrician (Fifth Term: 0-12 Months - Hired on or after 5/10/07)

Effective period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: \$22.00
Supplemental Benefit Rate per Hour: \$17.30
Overtime Supplemental Rate per Hour: \$18.68

Effective period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: \$22.50
Supplemental Benefit Rate per Hour: \$18.06
Overtime Supplemental Rate per Hour: \$19.47

Electrician (Fifth Term: 13-18 Months - Hired on or after 5/10/07)

Effective period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: \$26.50
Supplemental Benefit Rate per Hour: \$19.56
Overtime Supplemental Rate per Hour: \$21.23

Effective period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: \$27.00
Supplemental Benefit Rate per Hour: \$20.32
Overtime Supplemental Rate per Hour: \$22.01

Electrician (Fourth Term: 0-6 Months - Hired before 5/10/07)

Effective period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: \$22.10
Supplemental Benefit Rate per Hour: \$15.74
Overtime Supplemental Rate per Hour: \$17.20

Effective period: 5/14/2014 - 6/30/2014

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Wage Rate per Hour: \$22.10
Supplemental Benefit Rate per Hour: \$15.99
Overtime Supplemental Rate per Hour: \$17.45

Electrician (Fourth Term: 7-12 Months - Hired before 5/10/07)

Effective period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: \$23.95
Supplemental Benefit Rate per Hour: \$16.69
Overtime Supplemental Rate per Hour: \$18.26

Effective period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: \$24.20
Supplemental Benefit Rate per Hour: \$17.06
Overtime Supplemental Rate per Hour: \$18.66

Electrician (Fifth Term: 0-18 Months - Hired before 5/10/07)

Effective period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: \$25.80
Supplemental Benefit Rate per Hour: \$19.21
Overtime Supplemental Rate per Hour: \$20.83

Effective period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: \$26.30
Supplemental Benefit Rate per Hour: \$19.96
Overtime Supplemental Rate per Hour: \$21.61

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)

ELEVATOR CONSTRUCTOR

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 2)

Elevator (Constructor) - First Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: \$26.87

Elevator (Constructor) - Second Year

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Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: \$27.92

Elevator (Constructor) - Third Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: \$29.38

Elevator (Constructor) - Fourth Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: \$30.84

(Local #1)

**ELEVATOR REPAIR & MAINTENANCE
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 2)**

Elevator Service/Modernization Mechanic (First Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Per Hour: \$26.79

Elevator Service/Modernization Mechanic (Second Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Benefit Per Hour: \$27.12

Elevator Service/Modernization Mechanic (Third Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Per Hour: \$28.43

Elevator Service/Modernization Mechanic (Fourth Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Per Hour: \$29.74

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(Local #1)

ENGINEER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 5)

Engineer - First Year

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$22.49

Supplemental Benefit Rate per Hour: \$20.68

Engineer - Second Year

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$28.11

Supplemental Benefit Rate per Hour: \$20.68

Engineer - Third Year

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$20.92

Supplemental Benefit Rate per Hour: \$20.68

Engineer - Fourth Year

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$33.73

Supplemental Benefit Rate per Hour: \$20.68

(Local #15)

ENGINEER - OPERATING

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 5)

Operating Engineer - First Year

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate Per Hour 40% of Journeyman's Rate

Supplemental Benefit Per Hour: \$18.60

Operating Engineer - Second Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 50% of Journeyman's Rate
Supplemental Benefit Per Hour: \$18.60

Operating Engineer - Third Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 60% of Journeyman's Rate
Supplemental Benefit Per Hour: \$18.60

(Local #14)

FLOOR COVERER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Floor Coverer (First Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 40% of Journeyman's rate
Supplemental Rate Per Hour: \$25.75

Floor Coverer (Second Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Rate Per Hour: \$25.75

Floor Coverer (Third Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 65% of Journeyman's rate
Supplemental Rate Per Hour: \$25.75

Floor Coverer (Fourth Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 80% of Journeyman's rate
Supplemental Rate Per Hour: \$25.75

(Carpenters District Council)

GLAZIER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

Glazier (First Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 40% of Journeyman's rate
Supplemental Rate Per Hour: \$11.97

Glazier (Second Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Rate Per Hour: \$21.13

Glazier (Third Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 60% of Journeyman's rate
Supplemental Rate Per Hour: \$23.54

Glazier (Fourth Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 80% of Journeyman's rate
Supplemental Rate Per Hour: \$28.34

(Local #1281)

HEAT & FROST INSULATOR

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Heat & Frost Insulator (First Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage and Supplemental Rate Per Hour: 40% of Journeyman's rate

Heat & Frost Insulator (Second Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage and Supplemental Rate Per Hour: 60% of Journeyman's rate

Heat & Frost Insulator (Third Year)

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Effective Period: 7/1/2013 - 6/30/2014
Wage and Supplemental Rate Per Hour: 70% of Journeyperson's rate

Heat & Frost Insulator (Fourth Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate

(Local #12)

**HOUSE WRECKER
(TOTAL DEMOLITION)
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)**

House Wrecker - First Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: **\$20.36**
Supplemental Benefit Rate per Hour: **\$16.35**

House Wrecker - Second Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: **\$21.46**
Supplemental Benefit Rate per Hour: **\$16.35**

House Wrecker - Third Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: **\$23.01**
Supplemental Benefit Rate per Hour: **\$16.35**

House Wrecker - Fourth Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: **\$25.36**
Supplemental Benefit Rate per Hour: **\$16.35**

(Local #79)

IRON WORKER - ORNAMENTAL

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Iron Worker (Ornamental) - 1st Four Months - Hired on or Before 8/1/08

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 60% of Journeyman's rate
Supplemental Rate Per Hour: \$35.78

Iron Worker (Ornamental) 5 - 10 Months - Hired on or Before 8/1/08

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 65% of Journeyman's rate
Supplemental Rate Per Hour: \$36.75

Iron Worker (Ornamental) 11 - 16 Months - Hired on or Before 8/1/08

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 70% of Journeyman's rate
Supplemental Rate Per Hour: \$37.72

Iron Worker (Ornamental) 17 - 22 Months - Hired on or Before 8/1/08

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 80% of Journeyman's rate
Supplemental Rate Per Hour: \$39.66

Iron Worker (Ornamental) 23 - 28 Months - Hired on or Before 8/1/08

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 85% of Journeyman's rate
Supplemental Rate Per Hour: \$40.63

Iron Worker (Ornamental) 29 - 36 Months - Hired on or Before 8/1/08

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 95% of Journeyman's rate
Supplemental Rate Per Hour: \$42.57

Iron Worker (Ornamental) - 1st Ten Months - Hired After 8/1/08

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Rate Per Hour: \$33.84

Iron Worker (Ornamental) - 11 - 16 Months - Hired After 8/1/08

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 55% of Journeyman's rate

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Supplemental Rate Per Hour: \$34.81

Iron Worker (Ornamental) - 17 - 22 Months - Hired After 8/1/08

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: \$35.78

Iron Worker (Ornamental) - 23 - 28 Months - Hired After 8/1/08

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: \$37.72

Iron Worker (Ornamental) - 29 - 36 Months - Hired After 8/1/08

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: \$39.66

(Local #580)

IRON WORKER - STRUCTURAL
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6)

Iron Worker (Structural) - 1st Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$24.48
Supplemental Benefit Rate per Hour: \$43.87

Iron Worker (Structural) - 7- 18 Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$25.08
Supplemental Benefit Rate per Hour: \$43.87

Iron Worker (Structural) - 19 - 36 months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$25.68
Supplemental Benefit Rate per Hour: \$43.87

(Local #40 and #361)

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: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 50% of Journeyman's rate
Supplemental Rate Per Hour: \$33.25

Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - Second 1000 hours

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 60% of Journeyman's rate
Supplemental Rate Per Hour: \$33.25

Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - Third 1000 hours

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 75% of Journeyman's rate
Supplemental Rate Per Hour: \$33.25

Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - Fourth 1000 hours

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 90% of Journeyman's rate
Supplemental Rate Per Hour: \$33.25

(Local #731)

MARBLE MECHANICS

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Cutters & Setters - First 750 Hours

Effective Period: 7/1/2013 - 6/30/2014

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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: 7/1/2013 - 6/30/2014

Wage and Supplemental Rate Per Hour: 55% of Journeyperson's rate

Cutters & Setters - Third 750 Hours

Effective Period: 7/1/2013 - 6/30/2014

Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate

Cutters & Setters - Fourth 750 Hours

Effective Period: 7/1/2013 - 6/30/2014

Wage and Supplemental Rate Per Hour: 75% of Journeyperson's rate

Cutters & Setters - Fifth 750 Hours

Effective Period: 7/1/2013 - 6/30/2014

Wage and Supplemental Rate Per Hour: 85% of Journeyperson's rate

Cutters & Setters - Sixth 750 Hours

Effective Period: 7/1/2013 - 6/30/2014

Wage and Supplemental Rate Per Hour: 95% of Journeyperson's rate

Polishers & Finishers - First 750 Hours

Effective Period: 7/1/2013 - 6/30/2014

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: 7/1/2013 - 6/30/2014

Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Polishers & Finishers - Third 750 Hours

Effective Period: 7/1/2013 - 6/30/2014

Wage and Supplemental Rate Per Hour: 75% of Journeyperson's rate

Polishers & Finishers - Fourth 750 Hours

Effective Period: 7/1/2013 - 6/30/2014

Wage and Supplemental Rate Per Hour: 90% of Journeyperson's rate

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(Local #7)

MASON TENDER
(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

Mason Tender - First Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: **\$20.63**
Supplemental Benefit Rate per Hour: **\$17.06**

Mason Tender - Second Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: **\$21.73**
Supplemental Benefit Rate per Hour: **\$17.06**

Mason Tender - Third Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: **\$23.33**
Supplemental Benefit Rate per Hour: **\$17.06**

Mason Tender - Fourth Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: **\$25.93**
Supplemental Benefit Rate per Hour: **\$17.06**

(Local #79)

METALLIC LATHER
(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

Metallic Lather (First Year -Called Prior to 6/29/11)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: **\$28.11**

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Supplemental Benefit Rate per Hour: \$22.79

Metallic Lather (Second Year - Called Prior to 6/29/11)

Effective Period: 7/1/2013 - 6/30/2014

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: 7/1/2013 - 6/30/2014

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: 7/1/2013 - 6/30/2014

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: 7/1/2013 - 6/30/2014

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: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$27.91

Supplemental Benefit Rate per Hour: \$19.85

(Local #46)

MILLWRIGHT

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Millwright (First Year)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$26.23

Supplemental Benefit Rate per Hour: \$31.51

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Millwright (Second Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$31.00
Supplemental Benefit Rate per Hour: \$34.77

Millwright (Third Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$35.77
Supplemental Benefit Rate per Hour: \$39.19

Millwright (Fourth Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$45.30
Supplemental Benefit Rate per Hour: \$44.63

(Local #740)

PAVER AND ROADBUILDER
(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

Paver and Roadbuilder - First Year (Minimum 1000 hours)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$26.19
Supplemental Benefit Rate per Hour: \$16.20

Paver and Roadbuilder - Second Year (Minimum 1000 hours)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$27.77
Supplemental Benefit Rate per Hour: \$16.20

(Local #1010)

PAINTER
(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

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Painter - Brush & Roller - First Year

Effective Period: 7/1/2013 - 4/30/2014
Wage Rate per Hour: **\$15.00**
Supplemental Benefit Rate per Hour: **\$11.38**

Effective Period: 5/1/2014 - 6/30/2014
Wage Rate per Hour: **\$15.80**
Supplemental Benefit Rate per Hour: **\$11.88**

Painter - Brush & Roller - Second Year

Effective Period: 7/1/2013 - 4/30/2014
Wage Rate per Hour: **\$18.75**
Supplemental Benefit Rate per Hour: **\$15.23**

Effective Period: 5/1/2014 - 6/30/2014
Wage Rate per Hour: **\$19.75**
Supplemental Benefit Rate per Hour: **\$15.73**

Painter - Brush & Roller - Third Year

Effective Period: 7/1/2013 - 4/30/2014
Wage Rate per Hour: **\$22.50**
Supplemental Benefit Rate per Hour: **\$18.14**

Effective Period: 5/1/2014 - 6/30/2014
Wage Rate per Hour: **\$23.70**
Supplemental Benefit Rate per Hour: **\$18.64**

Painter - Brush & Roller - Fourth Year

Effective Period: 7/1/2013 - 4/30/2014
Wage Rate per Hour: **\$30.00**
Supplemental Benefit Rate per Hour: **\$23.52**

Effective Period: 5/1/2014 - 6/30/2014
Wage Rate per Hour: **\$31.60**
Supplemental Benefit Rate per Hour: **\$24.02**

(District Council of Painters)

PAINTER - STRUCTURAL STEEL
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

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Painters - Structural Steel (First Year)

Effective Period: 7/1/2013 - 6/30/2014

Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

Painters - Structural Steel (Second Year)

Effective Period: 7/1/2013 - 6/30/2014

Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Painters - Structural Steel (Third Year)

Effective Period: 7/1/2013 - 6/30/2014

Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate

(Local #806)

PLASTERER

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Plasterer - First Year: 1st Six Months

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate Per Hour: 40% of Journeyperson's rate

Supplemental Rate Per Hour: \$12.76

Plasterer - First Year: 2nd Six Months

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate Per Hour: 45% of Journeyperson's rate

Supplemental Rate Per Hour: \$13.24

Plasterer - Second Year: 1st Six Months

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate Per Hour: 55% of Journeyperson's rate

Supplemental Rate Per Hour: \$15.21

Plasterer - Second Year: 2nd Six Months

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate Per Hour: 60% of Journeyperson's rate

Supplemental Rate Per Hour: \$16.29

Plasterer - Third Year: 1st Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: \$18.46

Plasterer - Third Year: 2nd Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: \$19.54

(Local #530)

PLUMBER

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Plumber - First Year: 1st Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$14.00
Supplemental Benefit Rate per Hour: \$0.71

Plumber - First Year: 2nd Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$14.00
Supplemental Benefit Rate per Hour: \$2.96

Plumber - Second Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$18.26
Supplemental Benefit Rate per Hour: \$16.32

Plumber - Third Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$20.36
Supplemental Benefit Rate per Hour: \$16.32

Plumber - Fourth Year

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Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$23.21
Supplemental Benefit Rate per Hour: \$16.32

Plumber - Fifth Year: 1st Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$24.61
Supplemental Benefit Rate per Hour: \$16.32

Plumber - Fifth Year: 2nd Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$36.68
Supplemental Benefit Rate per Hour: \$16.32

(Plumbers Local #1)

**POINTER - WATERPROOFER, CAULKER MECHANIC (EXTERIOR BUILDING
RENOVATION)**

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Pointer - Waterproofer, Caulker Mechanic - First Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$25.00
Supplemental Benefit Rate per Hour: \$3.64

Pointer - Waterproofer, Caulker Mechanic - Second Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$27.25
Supplemental Benefit Rate per Hour: \$8.59

Pointer - Waterproofer, Caulker Mechanic - Third Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$32.23
Supplemental Benefit Rate per Hour: \$11.34

Pointer - Waterproofer, Caulker Mechanic - Fourth Year

Effective Period: 7/1/2013 - 6/30/2014

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Wage Rate per Hour: \$38.66
Supplemental Benefit Rate per Hour: \$11.34

(Bricklayer District Council)

ROOFER
(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 2)

Roofer - First Year

Effective Period: 7/1/2013 - 6/30/2014
Wage and Supplemental Rate Per Hour: 35% of Journeyman's Rate

Roofer - Second Year

Effective Period: 7/1/2013 - 6/30/2014
Wage and Supplemental Rate Per Hour: 50% of Journeyman's Rate

Roofer - Third Year

Effective Period: 7/1/2013 - 6/30/2014
Wage and Supplemental Rate Per Hour: 60% of Journeyman's Rate

Roofer - Fourth Year

Effective Period: 7/1/2013 - 6/30/2014
Wage and Supplemental Rate Per Hour: 75% of Journeyman's Rate

(Local #8)

SHEET METAL WORKER
(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3)

Sheet Metal Worker - First Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 30% of Journeyman's rate
Supplemental Rate Per Hour: \$15.37

Sheet Metal Worker - Second Year

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Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 35% of Journeyperson's rate
Supplemental Rate Per Hour: \$18.24

Sheet Metal Worker - Third Year (1st Six Months)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Rate Per Hour: \$20.06

Sheet Metal Worker - Third Year (2nd Six Months)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 45% of Journeyperson's rate
Supplemental Rate Per Hour: \$21.87

Sheet Metal Worker - Fourth Year (1st Six Months)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: \$23.69

Sheet Metal Worker - Fourth Year (2nd Six Months)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: \$25.33

Sheet Metal Worker - Fifth Year (1st Six Months)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: \$27.47

Sheet Metal Worker - Fifth Year(2nd Six Months)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: \$31.23

(Local #28)

SIGN ERECTOR

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Sign Erector - First Year: 1st Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 35% of Journeyperson's rate
Supplemental Rate Per Hour: \$5.96

Sign Erector - First Year: 2nd Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Rate Per Hour: \$6.75

Sign Erector - Second Year: 1st Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 45% of Journeyperson's rate
Supplemental Rate Per Hour: \$7.55

Sign Erector - Second Year: 2nd Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: \$8.34

Sign Erector - Third Year: 1st Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: \$9.13

Sign Erector - Third Year: 2nd Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: \$9.92

Sign Erector - Fourth Year: 1st Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: \$10.72

Sign Erector - Fourth Year: 2nd Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: \$11.51

Sign Erector - Fifth Year

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Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: \$12.30

Sign Erector - Sixth Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: \$12.30

(Local #137)

STEAMFITTER

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Steamfitter - First Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate and Supplemental Per Hour: 40% of Journeyperson's rate

Steamfitter - Second Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate and Supplemental Rate Per Hour: 50% of Journeyperson's rate.

Steamfitter - Third Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate and Supplemental Rate per Hour: 65% of Journeyperson's rate.

Steamfitter - Fourth Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate and Supplemental Rate Per Hour: 80% of Journeyperson's rate.

Steamfitter - Fifth Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate and Supplemental Rate Per Hour: 85% of Journeyperson's rate.

(Local #638)

STONE MASON - SETTER

(Ratio Apprentice of Journeyman: 1 to 1, 1 to 2)

Stone Mason - Setters - First 750 Hours

Effective Period: 7/1/2013 - 6/30/2014

Wage and Supplemental Rate Per Hour: 50% of Journeyman's rate

Stone Mason - Setters - Second 750 Hours

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate Per Hour: 60% of Journeyman's rate

Supplemental Rate Per Hour: 50% of Journeyman's rate

Stone Mason - Setters - Third 750 Hours

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate Per Hour: 70% of Journeyman's rate

Supplemental Rate Per Hour: 50% of Journeyman's rate

Stone Mason - Setters - Fourth 750 Hours

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate Per Hour: 80% of Journeyman's rate

Supplemental Rate Per Hour: 50% of Journeyman's rate

Stone Mason - Setters - Fifth 750 Hours

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate Per Hour: 90% of Journeyman's rate

Supplemental Rate Per Hour: 50% of Journeyman's rate

Stone Mason - Setters - Sixth 750 Hours

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate Per Hour: 100% of Journeyman's rate

Supplemental Rate Per Hour: 50% of Journeyman's rate

(Bricklayers District Council)

TAPER

(Ratio of Apprentice to Journeyman: 1 to 1, 1 to 4)

Drywall Taper - First Year

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Effective Period: 7/1/2013 - 6/30/2014

Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

Drywall Taper - Second Year

Effective Period: 7/1/2013 - 6/30/2014

Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Drywall Taper - Third Year

Effective Period: 7/1/2013 - 6/30/2014

Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate

(Local #1974)

TILE LAYER - SETTER

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Tile Layer - Setter - First 750 Hours

Effective Period: 7/1/2013 - 6/30/2014

Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Tile Layer - Setter - Second 750 Hours

Effective Period: 7/1/2013 - 6/30/2014

Wage and Supplemental Rate Per Hour: 55% of Journeyperson's rate

Tile Layer - Setter - Third 750 Hours

Effective Period: 7/1/2013 - 6/30/2014

Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate

Tile Layer - Setter - Fourth 750 Hours

Effective Period: 7/1/2013 - 6/30/2014

Wage and Supplemental Rate Per Hour: 75% of Journeyperson's rate

Tile Layer - Setter - Fifth 750 Hours

Effective Period: 7/1/2013 - 6/30/2014

Wage and Supplemental Rate Per Hour: 85% of Journeyperson's rate

Tile Layer - Setter - Sixth 750 Hours

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Effective Period: 7/1/2013 - 6/30/2014
Wage and Supplemental Rate Per Hour: 95% of Journeyperson's rate

(Local #7)

TIMBERPERSON
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6)

Timberperson - First Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Rate Per Hour: \$30.04

Timberperson - Second Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: \$30.04

Timberperson - Third Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: \$30.04

Timberperson - Fourth Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: \$30.04

(Local #1536)

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OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§230 PREVAILING WAGE SCHEDULE

LABOR LAW § 230 AND NYC ADMINISTRATIVE CODE § 6-130
BUILDING SERVICE EMPLOYEES

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).

Contracting agencies that anticipate doing work that may require building service trades or classifications not included in this schedule may request the Comptroller to establish a proper classification and wage determination for the work. Contractors using trades and/or classifications for which the Comptroller has not promulgated wages and benefits do so at their own risk.

Contractors are advised to review the applicable Comptroller's Prevailing Wage Schedule before bidding on public work. Any Prevailing Wage Rate error made by the Contracting Agency, whether in a contract document or other communication, will not preclude a finding against the contractor of a prevailing-wage violation.

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 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.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§230 PREVAILING WAGE SCHEDULE

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.

Labor Law § 231 (6) and NYC Administrative Law §6-130 require 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. 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.

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.

Answers to questions concerning prevailing trade practices may be obtained from the Classification Unit by calling (212) 669-7974. Please direct all other compliance issues to: Bureau of Labor Law, Attn: Wasyf Kinach, P.E., Office of the Comptroller, 1 Centre Street, Room 1122, New York, N.Y. 10007; Fax (212) 669-4002.

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.

Benefits are paid for **EACH HOUR WORKED** unless otherwise noted.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§230 PREVAILING WAGE SCHEDULE



Office of the Comptroller
BUREAU OF LABOR LAW

CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
JOHN C. LIU

BUREAU OF LABOR LAW

MUNICIPAL BUILDING
ONE CENTRE STREET, ROOM 1120
NEW YORK, N.Y. 10007-2341

TEL: (212) 669-4443
FAX: (212) 669-4002

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 (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 (opreme "Oficina de Derecho Laboral").

Wasył Kinach, P.E.
Director of Classifications
Bureau of Labor Law

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§230 PREVAILING WAGE SCHEDULE

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OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§230 PREVAILING WAGE SCHEDULE

BOILER SERVICE PERSON/TANK CLEANER MECHANIC (LOW PRESSURE)

Boiler Service Person/Tank Cleaner Mechanic (Low Pressure)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$11.37

Supplemental Benefit Rate per Hour: \$5.57

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)

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: 7/1/2013 - 12/31/2013

Wage Rate per Hour: **\$25.10**

Supplemental Benefit Rate per Hour: **\$9.51**

Effective Period: 1/1/2014 - 6/30/2014

Wage Rate per Hour: **\$25.55**

Supplemental Benefit Rate per Hour: **\$9.91**

Office Building Class "A" Foreperson, Starter (Over 280,000 square feet gross area)

Effective Period: 7/1/2013 - 12/31/2013

Wage Rate per Hour: **\$24.99**

Supplemental Benefit Rate per Hour: **\$9.51**

Effective Period: 1/1/2014 - 6/30/2014

Wage Rate per Hour: **\$25.44**

Supplemental Benefit Rate per Hour: **\$9.91**

Office Building Class "A" Cleaner/Porter, Elevator Operator, Exterminator, Fire Safety Director (Over 280,000 square feet gross area)

Effective Period: 7/1/2013 - 12/31/2013

Wage Rate per Hour: **\$22.97**

Supplemental Benefit Rate per Hour: **\$9.51**

Supplemental Note: for new employee 0-12 months of employment - \$6.92; for new employee 13-24 months of employment - \$9.18

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: 1/1/2014 - 6/30/2014

Wage Rate per Hour: **\$23.42**

Supplemental Benefit Rate per Hour: **\$9.91**

Supplemental Note: for new employee 0-12 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.

Office Building Class "B" Handyperson (Over 120,000 and less than 280,000 square feet gross area)

Effective Period: 7/1/2013 - 12/31/2013
Wage Rate per Hour: \$25.07
Supplemental Benefit Rate per Hour: \$9.51

Effective Period: 1/1/2014 - 6/30/2014
Wage Rate per Hour: \$25.52
Supplemental Benefit Rate per Hour: \$9.91

Office Building Class "B" Foreperson, Starter (Over 120,000 and less than 280,000 square feet gross area)

Effective Period: 7/1/2013 - 12/31/2013
Wage Rate per Hour: \$24.95
Supplemental Benefit Rate per Hour: \$9.51

Effective Period: 1/1/2014 - 6/30/2014
Wage Rate per Hour: \$25.40
Supplemental Benefit Rate per Hour: \$9.91

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: 7/1/2013 - 12/31/2013
Wage Rate per Hour: \$22.94
Supplemental Benefit Rate per Hour: \$9.51
Supplemental Note: for new employee 0-12 months of employment - \$6.92; for new employee 13-24 months of employment - \$9.18

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: 1/1/2014 - 6/30/2014
Wage Rate per Hour: \$23.39
Supplemental Benefit Rate per Hour: \$9.91
Supplemental Note: for new employee 0-12 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.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
\$230 PREVAILING WAGE SCHEDULE

Office Building Class "C" Handyman (Less than 120,000 square feet gross area)

Effective Period: 7/1/2013 - 12/31/2013
Wage Rate per Hour: \$25.02
Supplemental Benefit Rate per Hour: \$9.51

Effective Period: 1/1/2014 - 6/30/2014
Wage Rate per Hour: \$25.47
Supplemental Benefit Rate per Hour: \$9.91

Office Building Class "C" Foreperson, Starter (Less than 120,000 square feet gross area)

Effective Period: 7/1/2013 - 12/31/2013
Wage Rate per Hour: \$24.91
Supplemental Benefit Rate per Hour: \$9.51

Effective Period: 1/1/2014 - 6/30/2014
Wage Rate per Hour: \$25.36
Supplemental Benefit Rate per Hour: \$9.91

Office Building Class "C" Cleaner/Porter, Elevator Operator, Exterminator, Fire Safety Director (Less than 120,000 square feet gross area)

Effective Period: 7/1/2013 - 12/31/2013
Wage Rate per Hour: \$22.90
Supplemental Benefit Rate per Hour: \$9.51
Supplemental Note: for new employee 0-12 months of employment - \$6.92; for new employee 13-24 months of employment - \$9.18

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: 1/1/2014 - 6/30/2014
Wage Rate per Hour: \$23.35
Supplemental Benefit Rate per Hour: \$9.91
Supplemental Note: for new employee 0-12 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.

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 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 Class "A" Handyperson

Residential Buildings Class "A": buildings where the assessed value of the land and building, based upon the 1935 assessment, divided by the number of rooms in the building, gives an assessed value of over \$4000.00 a room.

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$23.57

Supplemental Benefit Rate per Hour: \$9.43

Supplemental Note: Effective 1/1/2014 - \$9.83

Residential Building Class "A" Cleaner/Porter

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§230 PREVAILING WAGE SCHEDULE

Residential Buildings Class "A": buildings where the assessed value of the land and building, based upon the 1935 assessment, divided by the number of rooms in the building, gives an assessed value of over \$4000.00 a room.

Effective Period: 7/1/2013 - 12/31/2013

Wage Rate per Hour: \$21.34

Supplemental Benefit Rate per Hour: \$9.43

Supplemental Note: for new employee 0-12 months of employment - \$6.92; for new employee 13-24 months of employment - \$9.18

NEW HIRE: Porter/Cleaner, 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: 1/1/2014 - 6/30/2014

Wage Rate per Hour: \$21.34

Supplemental Benefit Rate per Hour: \$9.83

Supplemental Note: for new employee 0-12 months of employment - \$7.22; for new employee 13-24 months of employment - \$9.58

NEW HIRE: Porter/Cleaner, 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.

Residential Building Class "B" Handy person

Residential Building Class "B": buildings where the assessed value of the land and building, based upon the 1935 assessment, divided by the number of rooms in the building, gives an assessed value of over \$2000.00 a room and not over \$4000.00 a room.

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$23.51

Supplemental Benefit Rate per Hour: \$9.43

Supplemental Note: Effective 1/1/2014 - \$9.83

Residential Building Class "B" Cleaner/Porter

Residential Building Class "B": buildings where the assessed value of the land and building, based upon the 1935 assessment, divided by the number of rooms in the building, gives an assessed value of over \$2000.00 a room and not over \$4000.00 a room.

Effective Period: 7/1/2013 - 12/31/2013

Wage Rate per Hour: \$21.28

Supplemental Benefit Rate per Hour: \$9.43

Supplemental Note: for new employee 0-12 months of employment - \$6.92; for new employee 13-24 months of employment - \$9.18

NEW HIRE: Porter/Cleaner, 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: 1/1/2014 - 6/30/2014

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§230 PREVAILING WAGE SCHEDULE

Wage Rate per Hour: \$21.28

Supplemental Benefit Rate per Hour: \$9.83

Supplemental Note: for new employee 0-12 months of employment - \$7.22; for new employee 13-24 months of employment - \$9.58

NEW HIRE: Porter/Cleaner, 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.

Residential Building Class "C" Handyperson

Residential Building Class "C": buildings where the assessed value of the land and building, based upon the 1935 assessment, divided by the number of rooms in the building, gives an assessed value of \$2000.00 or less a room.

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$23.45

Supplemental Benefit Rate per Hour: \$9.43

Supplemental Note: Effective 1/1/2014 - \$9.83

Residential Building Class "C" Cleaner/Porter

Residential Building Class "C": buildings where the assessed value of the land and building, based upon the 1935 assessment, divided by the number of rooms in the building, gives an assessed value of \$2000.00 or less a room.

Effective Period: 7/1/2013 - 12/31/2013

Wage Rate per Hour: \$21.23

Supplemental Benefit Rate per Hour: \$9.43

Supplemental Note: for new employee 0-12 months of employment - \$6.92; for new employee 13-24 months of employment - \$9.18

NEW HIRE: Porter/Cleaner, 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: 1/1/2014 - 6/30/2014

Wage Rate per Hour: \$21.23

Supplemental Benefit Rate per Hour: \$9.83

Supplemental Note: for new employee 0-12 months of employment - \$7.22; for new employee 13-24 months of employment - \$9.58

NEW HIRE: Porter/Cleaner, 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.

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§230 PREVAILING WAGE SCHEDULE

New Year's Day
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)

BUILDING HVAC SERVICES OPERATOR

Engineer (Refrigeration)

Effective Period: 7/1/2013 - 12/31/2013
Wage Rate per Hour: **\$35.18**
Supplemental Benefit Rate per Hour: **\$15.78**

Effective Period: 1/1/2014 - 6/30/2014
Wage Rate per Hour: **\$36.73**
Supplemental Benefit Rate per Hour: **\$16.35**

Fireperson

Fireperson (Helper): Assist the Engineer

Effective Period: 7/1/2013 - 12/31/2013
Wage Rate per Hour: **\$27.39**
Supplemental Benefit Rate per Hour: **\$15.41**

Effective Period: 1/1/2014 - 6/30/2014
Wage Rate per Hour: **\$28.60**

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§230 PREVAILING WAGE SCHEDULE

Supplemental Benefit Rate per Hour: \$15.97

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.

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)

CLEANER (PARKING GARAGE)

Garage Cleaner

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$11.20

Supplemental Benefit Rate per Hour: \$1.72

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)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§230 PREVAILING WAGE SCHEDULE

FUEL OIL

Fuel Oil, Coal, Fuel Gas, Petroleum Product Chauffeur (5th Year and above)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$30.61

Supplemental Benefit Rate per Hour: \$20.42

Fuel Oil, Coal, Fuel Gas, Petroleum Product Chauffeur (4th Year)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$28.00

Supplemental Benefit Rate per Hour: \$20.42

Fuel Oil, Coal, Fuel Gas, Petroleum Product Chauffeur (3rd Year)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$26.00

Supplemental Benefit Rate per Hour: \$20.42

Fuel Oil, Coal, Fuel Gas, Petroleum Product Chauffeur (2nd Year)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$24.00

Supplemental Benefit Rate per Hour: \$20.42

Fuel Oil, Coal, Fuel Gas, Petroleum Product Chauffeur (1st Year)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$22.00

Supplemental Benefit Rate per Hour: \$20.42

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§230 PREVAILING WAGE SCHEDULE

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)

GARDENER

Gardener

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: \$17.16
Supplemental Benefit Rate per Hour: \$1.72

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)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§230 PREVAILING WAGE SCHEDULE

LOCKSMITH

Locksmith

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$19.63

Supplemental Benefit Rate per Hour: \$6.20

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)

MEDICAL WASTE REMOVAL

Driver

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$18.00

Supplemental Benefit Rate per Hour: \$9.34

Helper

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$14.25

Supplemental Benefit Rate per Hour: \$9.34

Tractor Trailer Driver

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$20.50

Supplemental Benefit Rate per Hour: \$9.34

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§230 PREVAILING WAGE SCHEDULE

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)

MOVER - OFFICE FURNITURE AND EQUIPMENT

Heavy and Tractor Trailer Truck Driver

Tractor-trailer combination or a truck with a capacity of at least 26,000 pounds Gross Vehicle Weight (GVW)

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$22.57

Supplemental Benefit Rate per Hour: \$4.49

Light Truck Driver

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$19.81

Supplemental Benefit Rate per Hour: \$4.49

Laborer and Freight, Stock, and Material Movers, Hand

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: \$17.51

Supplemental Benefit Rate per Hour: \$4.49

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)

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
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REFUSE REMOVER

Refuse Remover

Effective Period: 7/1/2013 - 6/30/2014

Wage Rate per Hour: **\$29.27**

Supplemental Benefit Rate per Hour: **\$4.49**

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)

SECURITY GUARD (ARMED)

Security Guard (Armed)

Effective Period: 7/1/2013 - 12/31/2013

Wage Rate per Hour: **\$28.00**

Supplemental Benefit Rate per Hour: **\$4.90**

Supplemental Note: for new employee 0-30 days of employment - \$4.26; for new employee 31-120 days of employment - \$4.43; for new employee 121 days - 2 years of employment - \$4.54

Effective Period: 1/1/2014 - 6/30/2014

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

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

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§230 PREVAILING WAGE SCHEDULE

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: 7/1/2013 - 12/31/2013

Wage Rate per Hour: \$12.85

Supplemental Benefit Rate per Hour: \$4.54

Supplemental Note: for new employee 0-30 days of employment - \$4.26; for new employee 31-120 days of employment - \$4.43

Effective Period: 1/1/2014 - 6/30/2014

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

Security Guard (Unarmed) 7 - 12 months

Effective Period: 7/1/2013 - 12/31/2013

Wage Rate per Hour: \$13.35

Supplemental Benefit Rate per Hour: \$4.54

Effective Period: 1/1/2014 - 6/30/2014

Wage Rate per Hour: \$13.60

Supplemental Benefit Rate per Hour: \$4.63

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§230 PREVAILING WAGE SCHEDULE

Security Guard (Unarmed) 13 - 18 months

Effective Period: 7/1/2013 - 12/31/2013

Wage Rate per Hour: **\$13.85**

Supplemental Benefit Rate per Hour: **\$4.54**

Effective Period: 1/1/2014 - 6/30/2014

Wage Rate per Hour: **\$14.10**

Supplemental Benefit Rate per Hour: **\$4.63**

Security Guard (Unarmed) 19 - 24 months

Effective Period: 7/1/2013 - 12/31/2013

Wage Rate per Hour: **\$14.35**

Supplemental Benefit Rate per Hour: **\$4.54**

Effective Period: 1/1/2014 - 6/30/2014

Wage Rate per Hour: **\$14.60**

Supplemental Benefit Rate per Hour: **\$4.63**

Security Guard (Unarmed) 25 - 30 months

Effective Period: 7/1/2013 - 12/31/2013

Wage Rate per Hour: **\$14.85**

Supplemental Benefit Rate per Hour: **\$4.90**

Effective Period: 1/1/2014 - 6/30/2014

Wage Rate per Hour: **\$15.10**

Supplemental Benefit Rate per Hour: **\$5.02**

Security Guard (Unarmed) 31 months or more

Effective Period: 7/1/2013 - 12/31/2013

Wage Rate per Hour: **\$15.15**

Supplemental Benefit Rate per Hour: **\$4.90**

Effective Period: 1/1/2014 - 6/30/2014

Wage Rate per Hour: **\$15.60**

Supplemental Benefit Rate per Hour: **\$5.02**

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.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
\$230 PREVAILING WAGE SCHEDULE

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: 7/1/2013 - 12/31/2013

Wage Rate per Hour: \$26.44

Supplemental Benefit Rate per Hour: \$9.51

Effective Period: 1/1/2014 - 6/30/2014

Wage Rate per Hour: \$26.90

Supplemental Benefit Rate per Hour: \$9.91

Power Operated Scaffolds, Manual Scaffolds, and Boatswain Chairs

Effective Period: 7/1/2013 - 12/31/2013

Wage Rate per Hour: \$28.69

Supplemental Benefit Rate per Hour: \$9.51

Effective Period: 1/1/2014 - 6/30/2014

Wage Rate per Hour: \$29.27

Supplemental Benefit Rate per Hour: \$9.91

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§230 PREVAILING WAGE SCHEDULE

Window Cleaner Apprentice (0 - 3 months)

Effective Period: 7/1/2013 - 12/31/2013

Wage Rate per Hour: **\$19.59**

Supplemental Benefit Rate per Hour: None

Effective Period: 1/1/2014 - 6/30/2014

Wage Rate per Hour: **\$19.92**

Supplemental Benefit Rate per Hour: None

Window Cleaner Apprentice (4 - 7 months)

Employee must be a registered apprentice with the New York State Department of Labor

Effective Period: 7/1/2013 - 12/31/2013

Wage Rate per Hour: **\$21.18**

Supplemental Benefit Rate per Hour: **\$9.51**

Effective Period: 1/1/2014 - 6/30/2014

Wage Rate per Hour: **\$21.54**

Supplemental Benefit Rate per Hour: **\$9.91**

Window Cleaner Apprentice (8 - 11 months)

Effective Period: 7/1/2013 - 12/31/2013

Wage Rate per Hour: **\$22.44**

Supplemental Benefit Rate per Hour: **\$9.51**

Effective Period: 1/1/2014 - 6/30/2014

Wage Rate per Hour: **\$22.82**

Supplemental Benefit Rate per Hour: **\$9.91**

Window Cleaner Apprentice (12 - 15 months)

Effective Period: 7/1/2013 - 12/31/2013

Wage Rate per Hour: **\$23.72**

Supplemental Benefit Rate per Hour: **\$9.51**

Effective Period: 1/1/2014 - 6/30/2014

Wage Rate per Hour: **\$24.12**

Supplemental Benefit Rate per Hour: **\$9.91**

Window Cleaner Apprentice (16 - 17 months)

Effective Period: 7/1/2013 - 12/31/2013

Wage Rate per Hour: **\$25.01**

Supplemental Benefit Rate per Hour: **\$9.51**

Effective Period: 1/1/2014 - 6/30/2014

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§230 PREVAILING WAGE SCHEDULE

Wage Rate per Hour: \$25.44

Supplemental Benefit Rate per Hour: \$9.91

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

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)

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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.



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 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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Division 01 – DDC STANDARD GENERAL CONDITIONS
SINGLE CONTRACT PROJECTS
Issue Date - June 01, 2013

No Text



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



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 33 00
SUBMITTAL 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 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



NEW YORK CITY DEPARTMENT OF
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Division 01 – DDC STANDARD GENERAL CONDITIONS
SINGLE CONTRACT PROJECTS
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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- $\frac{1}{4}$ 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 si



- 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. f

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 1/2



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 Lamicoide 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.



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



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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



NEW YORK CITY DEPARTMENT OF
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Division 01 – DDC STANDARD GENERAL CONDITIONS
SINGLE CONTRACT PROJECTS
Issue Date - June 01, 2013

No Text

GENERAL ELECTRICAL REQUIREMENTS
01 35 06 - 16



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 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.



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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



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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 Article 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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No Text

QUALITY REQUIREMENTS
01 40 00 - 8



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



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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)



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



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)



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



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Division 01 – DDC STANDARD GENERAL CONDITION
SINGLE CONTRACT PROJECTS
Issue Date - June 01, 2013

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	Window Covering Safety Council (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

REFERENCES
01 42 00 -11



NEW YORK CITY DEPARTMENT OF
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Division 01 – DDC STANDARD GENERAL CONDITION
SINGLE CONTRACT PROJECTS
Issue Date - June 01, 2013

No Text

REFERENCES
01 42 00 -12



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:
- a. When approved by the Commissioner, electrical power service for the Temporary Lighting System and for the operation of small tools and equipment less than 1/4 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.
 - b. There will be no charge to the Contractor for the electrical energy consumed.
 - c. 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:
- a. 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.
 - b. Pay for all energy consumed in the progress of the Work, exclusive of that available from the existing facility or Utility Company.
 - c. Provide for control of noise from the generators.
 - d. 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:

1. 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.
2. 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.
3. The requirements for temporary electric power service specified herein shall be adhered to after change over of service until final acceptance of the project.
4. 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:

1. 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 Paragraph (c) below.
 - 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 15th to April 15th.

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.



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- 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 Electrical Work for the duration the Contractor is required to provide Temporary Heat, as set forth in Paragraph D above.
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.



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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.



- 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.

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 herein, required 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 one complete computer workstation, in quantities specified in Sub-Section 3.8.B.4, 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,



- 5 that would cause breeding of rodents or the insects herein specified.
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 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.



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- 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:

NO TRESPASSING

AUTHORIZED PERSONNEL ONLY

- 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 41st 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 sheave 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

TEMPORARY SCAFFOLDING AND PLATFORMS
01 54 23 - 4



**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:
- a. Delivery of Materials
 - b. Contractor's Superintendent
 - c. Surveys
 - d. Borings
 - e. Examination
 - f. Environmental Assessment
 - g. Preparation
 - h. Deferred Construction
 - i. Installation
 - j. Permits
 - k. Transportation
 - l. Sleeves and Hangers
 - m. Sleeve and Hanger Drawings
 - n. Cutting and Patching
 - o. Location of Partitions
 - p. Furniture and Equipment
 - q. Removal of Rubbish and Surplus Material
 - r. Cleaning
 - s. Security And Protection of Work Site
 - t. Maintenance of Site and Adjoining Property
 - u. Maintenance of Project Site
 - v. Safety Precautions for Control Circuits
 - w. 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 article 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) foot 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.



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 DDC 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 Dept. of Buildings, Bureau of Electrical Control 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.

REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 1.5 C

- 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 salvage 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 This includes a manual on Construction and Demolition Waste Reduction and Recycling, a Sample Waste Management Plan and sample C&D Waste Management log. Standard forms for a Waste Management Plan and a C&D Waste Management Log are included at the end of this section.
 2. Web Resources
(Information only; no warranty or endorsement is implied.)
www.wastematch.org Site of New York Waste Match, a materials exchange database and service
www.bignyc.org Site of Build It Green NYC, a non profit outlet for salvaged and surplus building materials
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 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.



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



NEW YORK CITY DEPARTMENT OF
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CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT LOG

Project Name: _____ For Month: _____
 Contractor: _____
 Prepared by: _____

Project I.D.: _____

Haul Date	Ticket #	Hauling Company	*Material Category ²	Material Quantity (tons or cubic yards) ¹				*Material Recipient
				*Total Weight	Excluded Material ³	*Diverted Material ⁴	*Landfilled Material	
Monthly Totals				*Total		*Diverted	*Landfilled	
% Diverted this Month*								
Cumulative Totals								
% Diverted to Date								

- Notes:
- Volume (cubic yards) may be used instead of weight if used for ALL amounts and ALL materials.
 - 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.
 - Excluded material includes soil or land clearing debris.
 - 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.



NEW YORK CITY DEPARTMENT OF
DESIGN + CONSTRUCTION

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



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.



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.



NEW YORK CITY DEPARTMENT OF
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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.



NEW YORK CITY DEPARTMENT OF
DESIGN + CONSTRUCTION

Division 01 – DDC STANDARD GENERAL CONDITIONS
SINGLE CONTRACT PROJECTS
Issue Date - June 01, 2013

No Text

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,



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

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 Consulting. 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 Consulting. 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:



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.



- 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 Training 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



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 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 training 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 training, submit three (3) complete training 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 training.
- 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 training 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, 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,
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.



- 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 (1st edition, May 1993)
 - b. Anti-corrosive and Anti-rust paints: refer to Green Seal standard GC-03 (2nd Edition, January 1997)
 - c. Aerosol Adhesives: refer to Green Seal standard GS-36 (1st 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.



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 contract 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 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 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



NEW YORK CITY DEPARTMENT OF
DESIGN + CONSTRUCTION

ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM



Date: _____
 Project Name: _____
 Project I.D.: _____
 Project Location: _____

Contractor Name: _____
 Contractor Contact: _____
 Telephone Number: _____

Product/Manufacturer	Material Cost ¹	Recycled Content		Regional ⁴		Rapidly Renewable ⁷		VOC content ⁸ allowed	Flooring ⁹ *Green Label or FloorScore	Wood *Added urea formaldehyde (Yes/No) ¹⁰	FSC Certified ¹¹ (% by wt)	
		Pre-Consumer (% by wt) ²	Post-Consumer (% by wt) ³	Total % (1/2 Pre + Post)	Location & Distance to Manufacture ⁵	Location & Distance to Manufacture ⁶	Material % by wt					*VOC content listed

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/untreated 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 agrifiber 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:
 I, _____ a duly authorized representative of _____ (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 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 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
- B. Rule 1113 - “Architectural Coatings”, amended 9 July 2004: South Coast Air Quality Management District (SCAQMD), State of California, www.aqmd.gov
- C. Green Seal Standard GS-11- “Paints”, of Green Seal, Inc., Washington, DC, www.greenseal.org
- D. Green Seal Standard GC-03- “Anti-Corrosive Paints”, of Green Seal, Inc., Washington, DC, 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
 - 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:

a. Architectural Applications:

i.	Indoor carpet adhesive	50
ii.	Carpet pad adhesive	50
iii.	Wood flooring adhesive	100
iv.	Rubber floor adhesive	60
v.	Subfloor adhesive	50
vi.	Ceramic tile adhesive	65
vii.	VCT and asphalt tile adhesive	50
viii.	Drywall and panel adhesive	50
ix.	Cove base adhesive	50
x.	Multipurpose construction adhesive	70
xi.	Structural glazing adhesive	100

b. Specialty Applications:

a.	PVC welding	510
b.	CPVC welding	490
c.	ABS welding	325
d.	Plastic cement welding	250



- | | | |
|----|--|-----|
| 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 |
- c. Substrate Specific Applications:
- | | | |
|----|-------------------------------|----|
| a. | Metal to metal | 30 |
| b. | Plastic foams | 50 |
| c. | Porous material (except wood) | 50 |
| d. | Wood | 30 |
| e. | Fiberglass | 80 |
- d. 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:
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.

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): 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 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 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.
- B. ANSI/ASHRAE 52.2-1999, “Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size”, 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 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”, First Edition, 1995.
 - 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



- 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.



- 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 Contactor'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.



- 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 training 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 (Architect, Engineer, 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.



NEW YORK CITY DEPARTMENT OF
DESIGN + CONSTRUCTION

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

FMS ID: P5SPKHORA



**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

Contract for Furnishing all Labor and Material Necessary and Required for:

CONTRACT NO. 1 GENERAL CONSTRUCTION WORK

Ocean Breeze Indoor Horse Riding Arena Construction

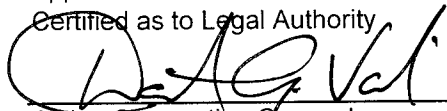
LOCATION: 621 Father Capodanno Boulevard
BOROUGH: Staten Island 10305
CITY OF NEW YORK

TRITON STRUCTURAL CONCRETE, INC.

Contractor

Dated MARCH 25th, 20 14

Approved as to Form
Certified as to Legal Authority


Acting Corporation Counsel



Dated July 25, 20 13

Entered in the Comptroller's Office

First Assistant Bookkeeper

Dated _____, 20 _____





PROJECT ID:

P5SPKHORA

**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
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LAW

VOLUME 3 OF 3

**ADDENDUM TO THE GENERAL
CONDITIONS**

SPECIFICATIONS

FOR FURNISHING ALL LABOR AND MATERIALS
NECESSARY AND REQUIRED FOR:

**Ocean Breeze Indoor Horse Riding
Arena Construction**

LOCATION:
BOROUGH:
CITY OF NEW YORK

621 Father Capodanno Boulevard
Staten Island 10305

CONTRACT NO. 1

GENERAL CONSTRUCTION WORK

Department of Parks and Recreation

Department of Design and Construction

Date:

June 13, 2013



13-065

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

September 12, 2013

ADDENDUM No. # 1

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

P-5SPKHORA

Ocean Breeze Indoor Horse Riding Arena Construction

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 September 17, 2013, at 2:00pm is rescheduled to September 19, 2013 at 2:00pm.

2. Questions from Bidders and Responses to Questions:

See Attachment A.

3. Revisions to the Specifications:

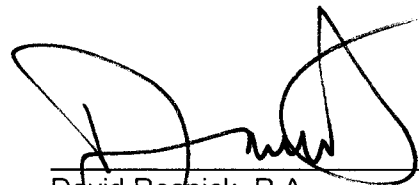
See Attachment B.

4. Revisions to the Drawings:

See Attachment C.

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) 391-2200, (718) 391-1727, or by fax at (718) 391-2615.



David Resnick, R.A.
Deputy Commissioner

Name of Bidder

By: _____

DDC PROJECT #: P-5SPKHORA

PROJECT NAME: Ocean Breeze Indoor Horse Riding Arena Construction

ATTACHMENT A - BIDDERS QUESTIONS AND DDC RESPONSES

No.	Bidders Questions	DDC Responses
1	Drawing A-703 Elevation 3 shows a recessed hand dryer. Specification calls for a surface mounted unit. Please clarify.	Xlerator Excel Dryer model XL-C has a "Recess Kit" ADA option, as indicated in Item 76 and drawing A-703 Elevation 3.
2	Prefab Steel Manufacturers specified will not install (will not join PLA). Please provide other suppliers who will install. Please provide steel drawings, so we can solicit prices to install.	See Attachment B, Revisions to Specifications for revised section Item 77: Metal Building Systems for updated steel building manufacturer list.
3	There is no specification section for the fire alarm system. Please provide a specification section with a list of approved vendors.	The Fire Alarm requirements are on drawing FA-100. Edwards, Firecom and Notifier are the approved vendors.
4	On drawing E-200, under General Notes, note 6 states that the smallest size wire permitted is #10 AWG. However, this conflicts with drawing E-400, where the majority of ground wires are labeled as #12 AWG. Please clarify which wire size to use.	Use #10 AWG wire per Note 6.
5	Section drawings A-401 thru A-403 call for High Rib insulated panels. However, Item 77, Metal Building Systems calls for the siding to be Lokseam which is a non-insulated roofing panel. Please Clarify.	Drawings notes in A-401 thru A-403 calling for High-Rib insulated metal panels are correct. See Attachment B, Revisions to Specifications for revised Item 77: Metal Building Systems.
6	Can the Riding Arena Bid be specified for a PVC fabric structure?	Contractor to bid on items specified in drawings and specifications.
7	The specifications call for GRC inside of the building. Drawings E-200 & E-300 Note #7 states that all conduits inside the building shall be PVC coated GRC. E-201 & E-202 Note 7 states that the conduit inside the building to be GRC. Which is correct?	E-200 & E-300 Note #7 is correct; all conduits inside the building shall be PVC coated GRC. See Attachment C, Revision to Drawings.
8	Is it possible to use helical piles in lieu of timber piles?	Contractor to bid on items specified in drawings and specifications.
9	Please provide the bid breakdown form in Excel spreadsheet format to ease completion for the bid.	Bid Breakdown is only available to bidders in PDF format.
10	Drawing A -104 calls for this to be on 2" insulation and drawing A-401 calls for 3". Please clarify.	Notes on drawing A-401 are correct; 3" of insulation between slab and Dry-Vit. See Attachment C, Revisions to Drawings.
11	Re: A-505, Please confirm the spacing of the metal studs for the gypsum boards located on one side of the masonry walls (i.e. P5, P7, P11 & P12).	Metal stud spacing for all gypsum board walls shall be 16" on center.

ODC PROJECT #: P-5SPKHORA

PROJECT NAME: Ocean Breeze Indoor Horse Riding Arena Construction

ATTACHMENT B – REVISIONS TO THE SPECIFICATIONS

1. Refer to Item 77: Metal Building Systems
Delete and replace with revised specification Item 77: Metal Building System (attached)

2. Specification Item No. 79 "Plumbing Work," "HOT/COLD WATER, WASTE, AND VENT PIPING (GENERAL)" section, "Valves" subsection, is revised to include item 6, "Thermostatic Mixing Valve," which will read as follows:
"Thermostatic tempering valve shall be constructed using Lead Free brass material which shall comply with state codes and standards, where applicable, requiring reduced lead content. The valve shall feature advanced paraffin-based actuation technology and union connections for ease of maintenance. All internal components shall be corrosion-resistant. Valve shall feature integral checks to prevent cross-flow and inlet screens to filter out debris. The valve shall be CSA B125 certified and ASSE 1017 and IAPMO UPC listed. Capacity of the valve shall be 23.0 gpm (87.0 lpm) at 45psi (310 kPa) differential. Valve shall perform to a minimum flow of 0.5 gpm (2 lpm) to ASSE 1017-2003. Control temperature shall be adjustable between 90 - 160°F (32 - 71°C) for LFLM490 and 60 - 120°F (16 - 49°C) for LFLM490-10 Series. The valve shall feature a vandal-resistant lockable handle to prevent tampering. The valve shall be a Powers HydroGuard LFLM492-5 (1", 25mm) or LFLM492-10 (1", 25mm), or equal approved in writing by Commissioner."

DDC PROJECT #: P-5SPKHORA

PROJECT NAME: Ocean Breeze Indoor Horse Riding Arena Construction

ATTACHMENT C – REVISIONS TO THE DRAWINGS

1. A-104: Revised "Dry-Vit Stucco Over 2" Rigid Insulation" note to read "Dry-Vit Sandpebble Fine finish over 3" rigid insulation"
2. A-105: Revised "2'x 2' Acoustic Ceiling Tile" note in Ceiling Legend to include "Armstrong Brighton Series or approved equal."
3. A-703: Revised detail 6, "Solid plywood cabinetry with Plastic Laminate Finish" note to include "Formica Laminate 8839: Ashen Ribbonwood or approved equal." "Corian countertop" note to include "Color: Graylite."
4. E-201 & E-202 Note 7 is revised to state that the conduit inside the building to be PVC coated GRC.

ITEM NO. 77 METAL BUILDING SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Structural-steel framing.
2. Metal wall and roof panels: Kingspan 900 Series High-Rib Insulated Metal Panel
3. Cold Form Metal Framing.
4. BI Fold Sectional Hanger Doors and required structural steel framing attached to the building framing.
5. Doors and frames.
6. Accessories.
7. Coordinate ITEM NOS. 65-67 Window fabrication and installation into the Metal Building System.

1.2 REFERENCES

A. American Architectural Manufacturers Association (AAMA)

1. AAMA 501.2: Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls and Sloped Glazing Systems.

B. American Society of Civil Engineers (ASCE)

1. ASCE 7: Minimum Design Loads for Buildings and Other Structures.

C. ASTM International

1. ASTM A755: Standard Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products
2. ASTM A792: Standard Specification for Steel Sheet, 55 percent Aluminum-Zinc Alloy-Coated by the Hot-Dip Process
3. ASTM A924: Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process
4. ASTM B117: Standard Practice for Operating Salt Spray (Fog) Apparatus Project Name/Project
5. ASTM C273: Standard Test Method for Shear Properties of Sandwich Core Materials.
6. ASTM C518: Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
7. ASTM D522: Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings
8. ASTM D523: Standard Test Method for Specular Gloss
9. ASTM D714: Standard Test Method for Evaluating Degree of Blistering of Paints

10. ASTM D968: Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
11. ASTM D1308: Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes
12. ASTM D1621: Standard Test Method for Compressive Properties of Rigid Cellular Plastics
13. ASTM D1622: Standard Test Method for Apparent Density of Rigid Cellular Plastics
14. ASTM D1623: Standard Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics
15. ASTM D1654: Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.
16. ASTM D1929: Standard Test Method for Determining Ignition Temperature of Plastics
17. ASTM D2126: Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.
18. ASTM D2244: Standard practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates
19. ASTM D2247: Standard Practice for Testing Water Resistance of Coatings in 100 percent Relative Humidity
20. ASTM D2794: Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
21. ASTM D3359: Standard Test Methods for Measuring Adhesion by Tape Test
22. ASTM D3363: Standard Test Method for Film Hardness by Pencil Test
23. ASTM D4145: Standard Test Method for Coating Flexibility of Prepainted Sheet
24. ASTM D4214: Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films
25. ASTM D5894: Standard Practice for Cyclic Salt Fog/UV Exposure of Painted Metal, (Alternating Exposures in a Fog/Dry Cabinet and a UV Condensation Cabinet)
26. ASTM D6226: Standard Test Method for Open Cell Content of Rigid Cellular Plastics.
27. ASTM E72: Standard Test Methods of Conducting Strength Tests of Panels for Building Construction
28. ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials
29. ASTM E90: Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
30. ASTM E283: Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
31. ASTM E331: Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
32. ASTM E413: Classification for Rating Sound Insulation
33. ASTM G153: Standard Practice for Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials
34. ASTM G154: Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials

D. FM Global (FM)

1. FM 4471; Approval Standard for Class 1 Panel Roofs

2. Approval Standard 4880; Class 1 Fire Rating of Insulated Wall or Wall and Roof/Ceiling Panels, Interior Finish Materials or Coatings, and Exterior Wall Systems.

E. International Building Code (IBC): current edition

F. National Fire Protection Agency (NFPA)

1. NFPA 259: Standard Test Method for Potential Heat of Building Materials.
2. NFPA 285: Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components.

G. Underwriters Laboratories

1. UL 580; Tests for Uplift Resistance of Roof Assemblies

H. UL Canada (ULC) Approvals:

1. ULC-S102: Standard Method of Test for Surface Building Characteristics of Building Materials and Assemblies
2. ULC-S126: Standard Method of Test for Fire Spread Under Roof Deck Assemblies

1.3 SUBMITTALS

A. Refer to General Conditions

B. Product Data: Submit manufacturer current technical literature for each type of product.

C. Shop Drawings: Submit detailed drawings and panel analysis showing:

1. Profile
2. Gauge of both exterior and interior sheet
3. Location, layout and dimensions of panels
4. Location and type of fasteners
5. Shape and method of attachment of all trim
6. Locations and type of joints and sealants
7. Installation sequence
8. Coordination Drawings: Provide elevation drawings and building sections which show panels in relationship to required locations for structural support. Include panel details and details showing attachment to structural support.
9. Other details as may be required for a weathertight installation

D. Panel Analysis: Provide panel calculations to verify panels will withstand the design wind loads indicated without detrimental effects or deflection exceeding $L/180$. Include effects of thermal differential between the exterior and interior panel facings and resistance to fastener pullout.

E. Samples: Provide nominal 3 x 5 inch of each color indicated.

F. LEED Submittals:

1. Sustainable Sites (SS)
 - a. Product Test Reports or current product listing on <http://www.energystar.gov> for Credit SS 7.2: For insulated metal roof panels, indicating that panels comply with Solar Reflectance Index (SRI) requirement.

2. Energy and Atmosphere (EA)
 - a. Energy Analysis for Credit EA 1: Demonstrating percentage of performance improvement compared with the baseline building performance rating.
3. Material and Resources (MR)
 - a. Product Certificates for Credit **MR 4**: For products having recycled content, documentation indicating percentages by weight of postconsumer and pre-consumer recycled content.
 - b. Product Certificates for Credit **MR 5**: For products and materials required to comply with requirements for regionally manufactured materials. Include statement indicating cost, location of manufacturer, and distance to Project for each regionally manufactured material.
4. Indoor Environmental Quality (IEQ)
 - a. Product Data for Credit **IEQ 4.1**: For sealants, including printed statement of VOC content
 - b. Product Data for Credit **IEQ 4.2**: For paints and coatings, including printed statement of VOC content
5. Pilot Credit 61: Certified Products
 - a. Material Disclosure Assessment

G. Miscellaneous Certifications:

1. Submit documentation that products have been certified in accordance with ISO 14025.

H. Quality Assurance Submittals

1. Design Data, Test Reports: Provide manufacturer test reports indicating product compliance with requirements.
2. Manufacturer Erection Instructions: Provide manufacturer's written installation instructions including proper material storage, material handling, installation sequence, panel location(s), and attachment methods, details and required trim and accessories

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Pre-installation meeting: Conduct a pre-installation meeting at the job site attended by Owner, Architect, Manufacturer's Technical Representative, Panel Installer, and Contractors of related trades. Coordinate structural support requirements in relation to insulated roof and wall panel system, installation of any separate air/water barriers, treatment of fenestration, and other requirements specific to the project.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. Manufacturer shall have a minimum of three (3) years' experience in the production of insulated roof and wall panels. Manufacturer shall demonstrate past experience with examples of projects of similar type and exposure.
2. Manufacturer to be registered with a Program Operator with a Certified, Environmental Product Declaration, in conformance with ISO 14025, for Insulated Metal Panels.

- B. Installer Qualifications: Authorized by the manufacturer and the work shall be supervised by an installer having a minimum of three (3) years' experience installing insulated roof and wall panels on similar type and size projects.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Refer to General Condition
- B. Deliver panel materials and components in manufacturer's original, unopened, undamaged packaging with identification labels intact.
- C. Store roof and wall panel materials on dry, level, firm, and clean surface. Stack no more than two bundles high. Elevate one end of bundle to allow moisture run-off, cover and ventilate to allow air to circulate and moisture to escape.

1.7 WARRANTY

- A. Limited Warranty: Standard form in which manufacturer agrees to repair or replace items that fail in materials or workmanship within specified warranty period. The items covered by the warranty include structural performance, bond integrity, deflection and buckling.
 - 1. Warranty Period: Two (2) years from date of Substantial Completion, or 2 years and 3 months from the date of shipment from manufacturer's plant, whichever occurs first.
- B. Finish Warranty: Standard form in which manufacturer agrees to repair or replace metal panels that evidence deterioration of fluoropolymer finish, including flaking or peeling from approved primed metal substrate, chalk in excess of 8 when tested in accordance with ASTM D4214, Method A, and /or color fading in excess of 5 ΔE Hunter units on panels when tested in accordance with ASTM D2244.
 - 1. Warranty Period: Twenty (20) years from date of Substantial Completion, or 20 years and 3 months from the date of shipment from manufacturer's plant, whichever occurs first.

PART 2 – PRODUCTS

2.1 MANUFACTURER

- A. Structural-Steel Framing:
 - 1. Allied Steel
 - 2. AmeriBuilt Steel
 - 3. Steel Structures America, Inc.
 - 4. Commissioner-Approved Equal
- B. Metal Panels
 - 1. Kingspan Insulated Panels Ltd.
 - 2. Mesco Building Solutions; Division of NCI Building Systems, L.P.
 - 3. Nucor Building Systems

4. Or Approved Equal

C. Substitution Limitations:

1. Submit written request for approval of equals to the Commissioner. Include the following information:
 - a. Name of the materials and description of the proposed equal.
 - b. Drawings, cut sheets, performance and test data.
 - c. List of projects similar scope and photographs of existing installations.
 - d. Test reports indicating compliance with the performance criteria.
 - e. Other information necessary for evaluation.
2. After evaluation by Commissioner, approval will be issued in writing. No verbal approval will be given.

2.2 EXTERIOR WALL AND ROOF PANELS

A. Design Criteria – Wall Panels:

1. Wind Rating
 - a. Design criteria shall be [L/180 for walls]

B. Design Criteria – Roof Panels:

1. Uplift Rating
 - a. Design criteria shall be L/240 for roof.
 - b. Units shall be rated and carry the following listings:
 - 1) Factory Mutual 1-105 uplift rating for 5 foot spans with minimum 14 gauge purlins
 - 2) Factory Mutual 4471 – Class 1 Approval
 - 3) UL 580, Class 90 uplift ratings for 5 foot spans with minimum 14 gauge purlins
2. Fire Classifications
 - a. Factory Mutual Class 1A Approval when installed at a maximum roof slope of 5:12.

C. Performance Criteria – Wall and Roof Panels:

1. Structural Test: Structural performance shall be verifiable by witnessed structural testing for simulated wind loads in accordance with ASTM E72.
2. Fatigue Test: There shall be no evidence of metal/insulation interface delamination when the panel is tested by simulated wind loads (positive and negative loads), when applied for two million alternate cycles of L/180 deflection.
3. Freeze / Heat Cycling Test: Panels shall exhibit no delamination, surface blisters, permanent bowing or deformation when subjected to cyclic temperature extremes of negative 20 deg. F to positive 180 deg. F temperatures for twenty one, eight-hour cycles.
4. Water Penetration: There shall be no uncontrolled water penetration through the panel joints at a pressure differential of 20 psf, when tested in accordance with ASTM E331.
5. Air Infiltration: Air infiltration through the panel shall not exceed 0.01 cfm/sf at 20 psf air pressure differential when tested in accordance with ASTM E283.
6. Panels shall have a minimum sound transmission coefficient (STC) of 22 when tested in accordance with ASTM E90 and rated in accordance with ASTM E413.

7. Humidity Test: Panels shall exhibit no delamination or metal interface corrosion when subjected to +140 deg. F temperature and 100 percent relative humidity for a total of 1200 hours (50 days).
8. Autoclave Test: Panels shall exhibit no delamination or shrinkage/melting of the foam core from the metal skins after being subjected in an autoclave to a pressure of 2psig (13.8kPa) at a temperature of +218 deg. F (+103 deg. C) for a period of 2 1/2 hours.
9. Thermal Properties: The panel shall provide a nominal R-value of 7.5 per inch thickness when tested in accordance with ASTM C518 at a mean temperature of 75 deg. F.
10. Hailstorm Rating for roof panels: Factory Mutual 1 SH hailstorm rating
11. Flame Spread and Smoke Developed Tests on exposed Insulating Core:
 - a. Flame Spread: Less than 25
 - b. Smoke Developed: Less than 450
 - c. Tests performed in accordance with ASTM E84
12. Fire Test Response Characteristics for panels: Steel-faced panels with polyisocyanurate (ISO) core shall fully comply with Chapter 26 of International Building Code regarding the use of Foam Plastic.
 - a. FM 4880: Class I rated per FM Global, panels are approved for use without a thermal barrier and do not create a requirement for automatic sprinkler protection.
 - b. UL 263 Fire Resistive Rating; classified as a component of a fire-rated wall assembly for 1-hour and 2-hour rating Design No. U053 (rated assemblies include appropriate layers of fire-rated Type X Gypsum board).
 - c. ASTM D1929 Minimum Flash and Self Ignition; established for foam core.
 - d. NFPA 259 Potential Heat Content; established for foam core.
 - e. NFPA 285 Multi-story; successfully passed.
 - f. S102, S126 UL Canada fire test standards; successfully passed.
13. Insulating Core: Polyisocyanurate (ISO) core, ASTM C591 Type IV, CFC and HCFC free, compliant with Montreal Protocol and Clean Air Act, with the following minimum physical properties:
 - a. Core is minimum 88 percent closed cell when tested in accordance with ASTM D6226
 - b. Foam has a density of 2.3 to 2.6 pounds per cubic foot when tested in accordance with ASTM D1622
 - c. Compressive Stress when tested in accordance with ASTM D1621:
 - 1) Parallel to Rise: minimum of 23 psi
 - 2) Perpendicular to Rise: 23 psi
 - d. Shear Stress: Minimum of 25 psi when tested in accordance with ASTM C273
 - e. Tensile Stress: Minimum of 19 psi when tested in accordance with ASTM D1623
 - f. Dimensional stability when tested in accordance with ASTM D2126:
 - 1) High Temperature Aging at 158 deg. F and 97% plus relative humidity for 28 days: less than 6 percent volume change
 - 2) High Temperature Aging at 200 deg. F and ambient humidity for 28 days: less than 4 percent volume change
 - 3) Low Temperature Aging at -10 deg. F and ambient humidity at 28 days: less than 1 percent volume change

D. Paint Finish Characteristics:

1. Gloss: 15 plus or minus 5 measured at 60 degree angle tested in accordance with ASTM D523.

2. Pencil Hardness: HB-H minimum tested in accordance with ASTM D3363.
3. Flexibility, T-Bend: 1-2T bend with no adhesion loss when tested in accordance with ASTM D4145.
4. Flexibility, Mandrel: No cracking when bent 180 degree around a 1/8 mandrel as tested in accordance with ASTM D522.
5. Adhesion: No adhesion loss tested in accordance with ASTM D3359.
6. Reverse Impact: No cracking or adhesion loss when impacted 3000 x inches of metal thickness (lb-in), tested in accordance with ASTM D2794.
7. Abrasion Resistance: Nominal 65 liters of falling sand to expose 5/32 inch diameter of metal substrate when tested in accordance with ASTM D968.
8. Graffiti Resistance: Minimal effect.
9. Acid Pollutant Resistance: No effect when subjected to 30 percent sulfuric acid for 18 hours, or 10 percent muriatic acid for 15 minutes when tested in accordance with ASTM D1308.
10. Salt Fog Resistance: Passes 1000 hours, when tested in accordance with ASTM B117 (5 percent salt fog @ 95 deg. F).
11. Cyclic Salt Fog and UV Exposure: Passes 2016 hours when tested in accordance with ASTM D5894.
12. Humidity Resistance: Passes 1500 hours at 100 percent relative humidity and 95 deg. F, with a test rating of 10 when tested in accordance with ASTM D2247, and D714.
13. Color Retention: Passes 5000 hours when tested in accordance with ASTM G153 and G154.
14. Chalk Resistance: Maximum chalk is a rating of 8 when tested in accordance with ASTM D4214, Method A.
15. Color Tolerances: Maximum of 5ΔE Hunter units on panels when tested in accordance with ASTM D2244.

E. Panel Assembly:

1. Panel thickness: 2 ½ inches thick.
2. Panel width: 39 3/8 inches.
3. Panel Lengths: 25 Feet unless smaller on drawings
4. Panel Attachment: Shall consist of exposed fasteners and saddle clips.
5. Exterior Face of Panel:
 - a. Material:
 - 1) Steel coil material shall be in accordance with ASTM A755: (55 percent aluminum, 45 percent zinc) in accordance with ASTM A792.
 - 2) Gauge: 24 gauge
 - b. Profile description – High Rib: 1 1/2 inch high linear ribs at 13 1/8 inches on center across panel face with 1/2 inch high intermediate ribs centered between high ribs.
 - c. Texture: Non-directional stucco embossed.
 - d. Exterior Paint Finish Color:
 - 1) RAL 7035.
 - 2) Location: Panels.
 - 3) Finish System:

- a) 2.4 mil. Fluoropolymer (PVDF) Three Coat system: 0.8 mil primer with 0.8 mil Kynar 500 (70 percent) SOLID color coat and 0.8 mil clear coat.
- e. SRI: Minimum of 78
- 6. Interior Face of Panel:
 - a. Material:
 - 1) Steel coil material shall be in accordance with ASTM A755: [AZ50 Galvalume®/ Zinalume® (55 percent aluminum, 45 percent zinc) in accordance with ASTM A792 .
 - b. Profile:
 - 1) Profile description - Shadow Line: Linear striations nominal 0.094 inches deep "V" grooves at 2 1/2 inches on center.
 - c. Texture: Non-directional stucco embossed.
 - d. Gauge: 22 gauge.
 - e. Interior Finish: Vinyl Plastisol, 4.0 mil including primer.
 - 1) Color: same as exterior finish.

2.3 ACCESSORIES

- A. Fasteners:
 - 1. Structural fasteners shall be hex-head type, cadmium plated steel with neoprene washer, or as recommended by manufacturer.
 - 2. Saddle clip for panel attachment shall be 16 gauge with integral self-sealing gasket supplied by the manufacturer.
 - 3. Stitch fasteners for roof panel sidelaps and endlaps shall be vibration resistant type (anti-backout thread), self-drilling low profile screws with sealing washers, designed to resist back out by increasing thread friction as screw loosens.
 - 4. Size and spacing: As recommended by manufacturer.
- B. Perimeter Trim and Penetration Treatments:
 - 1. Fabricated perimeter trim, penetration treatments and metal flashing: Shall be same gauge, material and coating color as exterior face of insulated metal roof and wall panel.
- C. Sealants: Butyl, non-skinning/curing type as recommended by manufacturer.
- D. Butyl Tape: As recommended by manufacturer.

2.8 DOORS AND FRAMES

- A. Swinging Personnel Doors and Frames: Metal building system manufacturer's standard doors and frames; prepared and reinforced at strike and at hinges to receive factory- and field-applied hardware according to BHMA A156 Series.
1. Steel Doors: 1-3/4 inches (44 mm) thick; fabricated from 0.040-inch (1.02-mm) nominal-thickness, metallic-coated steel face sheets; of seamless, hollow-metal construction; with 0.064-inch (1.63-mm) nominal-thickness, inverted metallic-coated steel channels welded to face sheets at top and bottom of door.
 - a. Design: Flush panel
 - b. Core: Polyurethane foam with U-factor rating of at least 0.07 Btu/sq. ft. x h x deg F (0.40 W/sq. m x K).
 - c. Glazing Frames: Steel frames to receive field-installed laminated safety glazing.
 2. Steel Frames: Fabricate 2-inch- (51-mm-) wide face frames from 0.064-inch (1.63-mm) nominal-thickness, metallic-coated steel sheet.
 - a. Type: Factory welded.
 3. Fabricate concealed stiffeners, reinforcement, edge channels, and moldings from either cold- or hot-rolled steel sheet.
 4. Hardware:
 - a. Provide hardware for each door leaf, as follows:
 - 1) Hinges: BHMA A156.1. Three antifriction-bearing, standard-weight, full-mortise, stainless-steel or bronze, template-type hinges; 4-1/2 by 4-1/2 inches (114 by 114 mm), with nonremovable pin.
 - 2) Exit Device: BHMA A156.3. Touch- or push-bar type.
 - 3) Threshold: BHMA A156.21. Extruded aluminum.
 - 4) Silencers: Pneumatic rubber; three silencers on strike jambs of single door frames and two silencers on heads of double door frames.
 - 5) Closer: BHMA A156.4. Surface-applied, standard-duty hydraulic type.
 - 6) Weather Stripping: Vinyl applied to head and jambs, with vinyl sweep at sill.
 5. Anchors and Accessories: Manufacturer's standard units, galvanized according to ASTM A 123/A 123M.
 6. Fabrication: Fabricate doors and frames to be rigid; neat in appearance; and free from defects, warp, or buckle. Provide continuous welds on exposed joints; grind, dress, and make welds smooth, flush, and invisible.
 7. Provide metallic-coated steel handle for each leaf, and slide bolt or padlock hasp. Flash top of track with metallic-coated steel sheet hood.

8. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with G60 (Z180) zinc (galvanized) coating designation.

B. Finishes for Personnel Doors and Frames:

1. Prime Finish: Factory-apply manufacturer's standard primer immediately after cleaning and pretreating.
 - a. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.
2. Factory-Applied Paint Finish: Manufacturer's standard, complying with SDI A250.3 for performance and acceptance criteria.
 - a. Color and Gloss: As selected by Architect from manufacturer's full range of colors and gloss.

2.9 BI-FOLD SECTION HANGER DOORS

- A. Two Leaf Hinged Stacking Overhead Doors: Two horizontal panels hinged together, weather lapped at horizontal joint; rising vertically on roller and track system fixed to building structure to stack in a folded position under lintel.
- B. Basis of Design Product: S-3000, Foldaway Doors.
- C. Framework: Welded construction fabricated from rolled hollow section steel members with minimum wall thickness of 0.125 inch (3.1 mm). Beams shall be designed for maximum dead load deflection of 1/300th part of the span.
- D. Operating Channels fabricated from carbon steel hot rolled sheet to comply with ASTM A-36. Final finish on track in accordance with Part 2.4.
- E. Counter Balancing: Counterweight system with enclosed counterweights suspended by 7/19 flexible multi-strand steel cables with minimum safety factor of 6:1. Cable shall be guided in steel sheaves with a minimum sheave to cable diameter ratio of 19:1. Sheaves shall be capable of carrying design loads.
- F. Construct steel door sections from carbon steel hot rolled tube complying with ASTM A-513 Type 1 and ASTM A-36.
- G. Counterweight Covers: Counterweights shall be protected and covered with a removable pressed sheet (aluminum or steel).
- H. Manual Operation: As indicated on the Drawings and Door Schedule.

1. Provide a manual operating handle and safety device to be used to manually open/close the door and to be stored in operating channel when door is in open position acting as a safety device preventing accidental closure of the door.
 2. Door shall be equipped with keyed slide bar locking device located at lower panel adjacent to operating channel.
- I. Size: As indicated on Drawings.
- J. Locking:
1. Internal slide locks, unless otherwise specified.
- K. Glazing and Cladding
1. Panels: Metal – Insulated metal panel to match metal panel façade system.
- L. Finish, Ferrous Metals: All surfaces except working machine parts shall receive the following factory applied finish:
1. Powder coating.
 2. Abrasive clean to SSP-SP6
- M. Finish, Aluminum: Provide the following factory applied finish:
1. Clear anodized aluminum.
 2. Powder coating.
- N. Finish, Color:
1. As designated in Door Schedule
 2. As selected from manufacturer's full range of available colors.
 3. Custom color.
 4. Manufacturer/Color: Silver.
- O. Motors: Basis of design product - Industrial Jackshaft Operator: Chamberlain Liftmaster Series J Industrial Jackshaft Operator, or approved equal.
1. Maintenance warning system notifies users when scheduled maintenance is due.
 2. Motor: 1/2 HP switchless motor with the following:
 3. 208/230 volt.

4. Three phase.
 5. Separated high voltage wiring.
 6. Diagnostic LEDs.
 7. Photo eye safety sensors.
 8. Biometric Keyless Entry System: Finger print keypad operates motor.
 9. Warranty: 2 years.
- P. Doors shall be electronically operated with control systems as specified in Item 81: Electrical Work
- Q. Provide electrical service and wiring connection as specified in Item 81 for future electric operation.

2.10 ACCESSORIES

- A. General: Provide accessories as standard with metal building system manufacturer and as specified. Fabricate and finish accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes. Comply with indicated profiles and with dimensional and structural requirements.
1. Form exposed sheet metal accessories that are without excessive oil-canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
- B. Roof Panel Accessories: Provide components required for a complete metal roof panel assembly including copings, fasciae, corner units, ridge closures, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal roof panels unless otherwise indicated.
1. Closures: Provide closures at eaves and ridges, fabricated of same material as metal roof panels.
 2. Clips: Manufacturer's standard, formed from stainless-steel sheet, designed to withstand negative-load requirements.
 3. Cleats: Manufacturer's standard, mechanically seamed cleats formed from stainless-steel sheet.
 4. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
 5. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible closure strips; cut or premolded to match metal roof panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.

6. Thermal Spacer Blocks: Where metal panels attach directly to purlins, provide thermal spacer blocks of thickness required to provide 1-inch (25-mm) standoff; fabricated from extruded polystyrene.
- C. Wall Panel Accessories: Provide components required for a complete metal wall panel assembly including copings, fasciae, mullions, sills, corner units, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal wall panels unless otherwise indicated.
1. Closures: Provide closures at eaves and rakes, fabricated of same material as metal wall panels.
 2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
 3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible closure strips; cut or premolded to match metal wall panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
- D. Flashing and Trim: Formed from 0.022-inch (0.56-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match adjacent metal panels.
1. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers.
 2. Opening Trim: Formed from 0.034-inch (0.86-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating. Trim head and jamb of door openings, and head, jamb, and sill of other openings.
- E. Gutters: Formed from 0.022-inch (0.56-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match roof fascia and rake trim. Match profile of gable trim, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch- (2438-mm-) long sections, sized according to SMACNA's "Architectural Sheet Metal Manual."
1. Gutter Supports: Fabricated from same material and finish as gutters.
 2. Strainers: Bronze, copper, or aluminum wire ball type at outlets.
- F. Downspouts: Formed from 0.022-inch (0.56-mm) nominal-thickness, zinc-coated (galvanized) steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match metal wall panels. Fabricate in minimum 10-foot- (3-m-) long sections, complete with formed elbows and offsets.
- G. Pipe Flashing: Premolded, EPDM pipe collar with flexible aluminum ring bonded to base.
- H. Materials:
1. Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets and bolts, end-welded studs, and other suitable fasteners designed to withstand design loads. Provide fasteners

with heads matching color of materials being fastened by means of plastic caps or factory-applied coating.

- a. Fasteners for Metal Roof Panels: Self-drilling, Type 410 stainless-steel or self-tapping, Type 304 stainless-steel or zinc-alloy-steel hex washer head, with EPDM washer under heads of fasteners bearing on weather side of metal panels.
 - b. Fasteners for Metal Wall Panels: Self-drilling, Type 410 stainless-steel or self-tapping, Type 304 stainless-steel or zinc-alloy-steel hex washer head, with EPDM sealing washers bearing on weather side of metal panels.
 - c. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws with hex washer head.
 - d. Blind Fasteners: High-strength aluminum or stainless-steel rivets.
2. Corrosion-Resistant Coating: Cold-applied asphalt mastic, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.
 3. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.
 4. Metal Panel Sealants:
 - a. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene-compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape of manufacturer's standard size.
 - b. Joint Sealant: ASTM C 920; one-part elastomeric polyurethane or polysulfide; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended by metal building system manufacturer.

2.11 SOURCE QUALITY CONTROL

- A. Testing Agency: City of New York will engage a qualified testing agency to evaluate product.
- B. Special Inspector: City of New York will engage a qualified special inspector to perform the following tests and inspections and to submit reports. Special inspector will verify that manufacturer maintains detailed fabrication and quality-control procedures and will review the completeness and adequacy of those procedures to perform the Work.
 1. Special inspections will not be required if fabrication is performed by manufacturer registered and approved by authorities having jurisdiction to perform such Work without special inspection.
 - a. After fabrication, submit copy of certificate of compliance to authorities having jurisdiction, certifying that Work was performed according to Contract requirements.
- C. Testing: Test and inspect shop connections for metal buildings according to the following:
 1. Bolted Connections: Shop-bolted connections shall be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

2. Welded Connections: In addition to visual inspection, shop-welded connections shall be tested and inspected according to AWS D1.1/D1.1M and the following inspection procedures, at inspector's option:
 - a. Liquid Penetrant Inspection: ASTM E 165.
 - b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
 - c. Ultrasonic Inspection: ASTM E 164.
 - d. Radiographic Inspection: ASTM E 94.
- D. Product will be considered defective if it does not pass tests and inspections.
- E. Prepare test and inspection reports.

2.12 FABRICATION

- A. General: Design components and field connections required for erection to permit easy assembly.
 1. Mark each piece and part of the assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.
 2. Fabricate structural framing to produce clean, smooth cuts and bends. Punch holes of proper size, shape, and location. Members shall be free of cracks, tears, and ruptures.
- B. Tolerances: Comply with MBMA's "Metal Building Systems Manual" for fabrication and erection tolerances.
- C. Primary Framing: Shop fabricate framing components to indicated size and section, with baseplates, bearing plates, stiffeners, and other items required for erection welded into place. Cut, form, punch, drill, and weld framing for bolted field assembly.
 1. Make shop connections by welding or by using high-strength bolts.
 2. Join flanges to webs of built-up members by a continuous, submerged arc-welding process.
 3. Brace compression flange of primary framing with steel angles or cold-formed structural tubing between frame web and purlin web or girt web, so flange compressive strength is within allowable limits for any combination of loadings.
 4. Weld clips to frames for attaching secondary framing.
 5. Shop Priming: Prepare surfaces for shop priming according to SSPC-SP 2. Shop prime primary framing with specified primer after fabrication.
- D. Secondary Framing: Shop fabricate framing components to indicated size and section by roll-forming or break-forming, with baseplates, bearing plates, stiffeners, and other plates required for erection welded into place. Cut, form, punch, drill, and weld secondary framing for bolted field connections to primary framing.
 1. Make shop connections by welding or by using non-high-strength bolts.

2. Shop Priming: Prepare uncoated surfaces for shop priming according to SSPC-SP 2. Shop prime uncoated secondary framing with specified primer after fabrication.
- E. Metal Panels: Fabricate and finish metal panels at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements.
1. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of metal panel.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Provide field measurements to manufacturer as required to achieve proper fit of the preformed roof and wall panel envelope. Measurements shall be provided in a timely manner so that there is no impact to construction or manufacturing schedule.
- B. Supporting Steel: All structural supports required for installation of panels shall be by approved Structural Steel Framing manufacturers as listed in Article 2.1. Support members shall be installed within the following tolerances:
1. Roof Panels:
 - a. Structural Tolerance: In the plane of the roof $\leq \frac{1}{2}$ inches outward, 0 inches inward.
 - b. Verify that bearing support has been provided perpendicular to the orientation of the panels. Width of support shall be as recommended by manufacturer.
 2. Wall Panels:
 - a. Plus or minus $\frac{1}{8}$ inch in 5 feet in any direction along plane of framing.
 - b. Plus or minus $\frac{3}{8}$ inch cumulative in 20 feet in any direction along plane of framing.
 - c. Plus or minus $\frac{3}{4}$ inch from framing plane on any elevation.
 - d. Verify that bearing support has been provided behind lap joints of vertical panel systems. Width of support shall be as recommended by manufacturer.
- C. Examine individual panels upon removing from the bundle; notify manufacturer of panel defects. Do not install defective panels
- D. Examine substrates, areas, and conditions, with erector present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- E. Before erection proceeds, survey elevations and locations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments to receive structural framing, with erector present, for compliance with requirements and metal building system manufacturer's tolerances.
1. Engage land surveyor to perform surveying.

- F. Proceed with erection only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition.
- B. Provide temporary shores, guys, braces, and other supports during erection to keep structural framing secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural framing, connections, and bracing are in place unless otherwise indicated.

3.3 ERECTION OF STRUCTURAL FRAMING

- A. Erect metal building system according to manufacturer's written erection instructions and erection drawings.
- B. Do not field cut, drill, or alter structural members without written approval from metal building system manufacturer's professional engineer.
- C. Set structural framing accurately in locations and to elevations indicated, according to AISC specifications referenced in this Section. Maintain structural stability of frame during erection.
- D. Base and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.
 - 1. Set plates for structural members on wedges, shims, or setting nuts as required.
 - 2. Tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
 - 3. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.
- E. Align and adjust structural framing before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with framing. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
 - 1. Level and plumb individual members of structure.
 - 2. Make allowances for difference between temperature at time of erection and mean temperature when structure will be completed and in service.
- F. Primary Framing and End Walls: Erect framing level, plumb, rigid, secure, and true to line. Level baseplates to a true even plane with full bearing to supporting structures, set with double-nutted anchor bolts. Use grout to obtain uniform bearing and to maintain a level base-line elevation. Moist-cure grout for not less than seven days after placement.

1. Make field connections using high-strength bolts installed according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for bolt type and joint type specified.
 - a. Joint Type: Snug tightened or pretensioned.
 - G. Secondary Framing: Erect framing level, plumb, rigid, secure, and true to line. Field bolt secondary framing to clips attached to primary framing.
 1. Provide rake or gable purlins with tight-fitting closure channels and fasciae.
 2. Locate and space wall girts to suit openings such as doors and windows.
 3. Locate canopy framing as indicated.
 4. Provide supplemental framing at entire perimeter of openings, including doors, windows, louvers, ventilators, and other penetrations of roof and walls.
 - H. Bracing: Install bracing in roof and sidewalls where indicated on erection drawings.
 1. Tighten rod and cable bracing to avoid sag.
 2. Locate interior end-bay bracing only where indicated.
 - I. Framing for Openings: Provide shapes of proper design and size to reinforce openings and to carry loads and vibrations imposed, including equipment furnished under mechanical and electrical work. Securely attach to structural framing.
 - J. Erection Tolerances: Maintain erection tolerances of structural framing within AISC 303.
- 3.4 DOOR AND FRAME, BI FOLD SECTIONAL HANGER DOORS INSTALLATION
- A. General: Install doors and frames plumb, rigid, properly aligned, and securely fastened in place according to manufacturers' written instructions. Coordinate installation with wall flashings and other components. Seal perimeter of each door frame with elastomeric sealant used for metal wall panels.
 - B. Personnel Doors and Frames: Install doors and frames according to SDI A250.8. Fit non-fire-rated doors accurately in their respective frames, with the following clearances:
 1. Between Doors and Frames at Jambs and Head: 1/8 inch (3 mm).
 2. Between Edges of Pairs of Doors: 1/8 inch (3 mm).
 3. At Door Sills with Threshold: 3/8 inch (9.5 mm).
 4. At Door Sills without Threshold: 3/4 inch (19.1 mm).
 5. At fire-rated openings, install frames according to, and doors with clearances specified in, NFPA 80.
 - C. BI Fold Sectional Hanger Door: Provide the necessary structural framing system attached to the Metal Build Framing to support the load and forces applied to the framing systems as provided by the BI Fold Door manufacture. Set doors and operating equipment with necessary hardware, jamb and head mold stops, continuous hood flashing, anchors, inserts, hangers, and equipment supports.

- D. Field Glazing: Comply with installation requirements in "Glazing" Items.
- E. Door Hardware: Mount units at heights indicated in DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 - 1. Install surface-mounted items after finishes have been completed on substrates involved.
 - 2. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
 - 3. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
 - 4. Set thresholds for exterior doors in full bed of butyl-rubber sealant complying with requirements specified in "Joint Sealants."

3.5 ACCESSORY INSTALLATION

- A. General: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
 - 1. Install components required for a complete metal roof panel assembly, including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
 - 2. Install components for a complete metal wall panel assembly, including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
 - 3. Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by manufacturer.
- B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
 - 1. Install exposed flashing and trim that is without excessive 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 and to result in waterproof and weather-resistant performance.
 - 2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).
- C. Gutters: Join sections with riveted-and-soldered or lapped-and-sealed joints. Attach gutters to eave with gutter hangers spaced as required for gutter size, but not more than 36 inches (914 mm) o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.

- D. Downspouts: Join sections with 1-1/2-inch (38-mm) telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1524 mm) o.c. in between.
1. Provide elbows at base of downspouts to direct water away from building.
 2. Tie downspouts to underground drainage system indicated.
- E. Circular Roof Ventilators: Set ventilators complete with necessary hardware, anchors, dampers, weather guards, rain caps, and equipment supports. Mount ventilators on flat level base. Install preformed filler strips at base to seal ventilator to metal roof panels.
- F. Continuous Roof Ventilators: Set ventilators complete with necessary hardware, anchors, dampers, weather guards, rain caps, and equipment supports. Join sections with splice plates and end-cap skirt assemblies where required to achieve indicated length. Install preformed filler strips at base to seal ventilator to metal roof panels.
- G. Louvers: Locate and place louver units level, plumb, and at indicated alignment with adjacent work.
1. 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.
 2. Provide perimeter reveals and openings of uniform width for sealants and joint fillers.
 3. Protect galvanized- and nonferrous-metal surfaces from corrosion or galvanic action by applying a heavy coating of corrosion-resistant paint on surfaces that will be in contact with concrete, masonry, or dissimilar metals.
 4. Install concealed gaskets, flashings, joint fillers, and insulation as louver installation progresses, where weathertight louver joints are required. Comply with Division 07 Section "Joint Sealants" for sealants applied during louver installation.
- H. Roof Curbs: Install curbs at locations indicated on Drawings. Install flashing around bases where they meet metal roof panels.
- I. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to panel as recommended by manufacturer.

3.6 FIELD QUALITY CONTROL

- A. Special Inspections: City of New York will engage a qualified special inspector to perform the following special inspections:
1. Inspection of fabricators.
 2. Steel construction.
- B. Testing Agency: C will engage a qualified testing agency to perform tests and inspections.
- C. Tests and Inspections:

1. High-Strength, Field-Bolted Connections: Connections shall be tested and inspected during installation according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
2. Welded Connections: In addition to visual inspection, field-welded connections shall be tested and inspected according to AWS D1.1/D1.1M and the following inspection procedures, at inspector's option:
 - a. Liquid Penetrant Inspection: ASTM E 165.
 - b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
 - c. Ultrasonic Inspection: ASTM E 164.
 - d. Radiographic Inspection: ASTM E 94.

D. Product will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

3.7 ADJUSTING

- A. Doors: After completing installation, test and adjust doors to operate easily, free of warp, twist, or distortion.
- B. Door Hardware: Adjust and check each operating item of door hardware and each door to ensure proper operation and function of every unit. Replace units that cannot be adjusted to operate as intended.
- C. Windows: Adjust operating sashes and ventilators, screens, hardware, and accessories for a tight fit at contact points and at weather stripping to ensure smooth operation and weathertight closure. Lubricate hardware and moving parts.

3.8 CLEANING AND PROTECTION

- A. Repair damaged galvanized coatings on galvanized items with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- B. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.
- C. Touchup Painting: After erection, promptly clean, prepare, and prime or reprime field connections, rust spots, and abraded surfaces of prime-painted structural framing bearing plates, and accessories.
 1. Clean and prepare surfaces by SSPC-SP 2, "Hand Tool Cleaning," or by SSPC-SP 3, "Power Tool Cleaning."
 2. Apply a compatible primer of same type as shop primer used on adjacent surfaces.

- D. Touchup Painting: Cleaning and touchup painting are specified in Division 09 painting Sections.
- E. Metal Panels: Remove temporary protective coverings and strippable films, if any, as metal panels are installed. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.
 - 1. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.
- F. Doors and Frames: Immediately after installation, sand rusted or damaged areas of prime coat until smooth and apply touchup of compatible air-drying primer.
 - 1. Immediately before final inspection, remove protective wrappings from doors and frames.
- G. Windows: Clean metal surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances. Clean factory-glazed glass immediately after installing windows.
- H. Louvers: Clean exposed surfaces that are not protected by temporary covering, to remove fingerprints and soil during construction period. Do not let soil accumulate until final cleaning.
 - 1. Restore louvers damaged during installation and construction period so no evidence remains of corrective work. If results of restoration are unsuccessful, as determined by Architect, remove damaged units and replace with new units.
 - a. Touch up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating.

PART 4 - MEASUREMENT AND PAYMENT

MEASUREMENT AND PAYMENT: For purchasing and installing/erecting the **METAL BUILDING SYSTEMS** the contractor shall receive a **LUMP SUM** price and shall include the cost of material, shop fabrication, equipment, components, accessories, shipping, storage, site required equipment, and labor to install/erect the Metal Building Systems in accordance with the plans, specifications, and to the satisfaction of the Engineer.

END OF SECTION

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

September 16, 2013

ADDENDUM No. # 2

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

P-5SPKHORA

Ocean Breeze Indoor Horse Riding Arena Construction

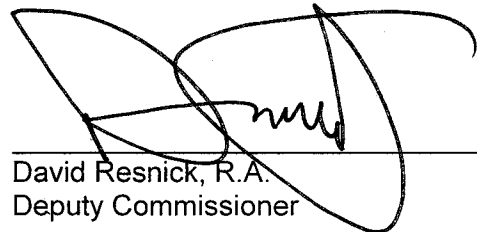
This addendum is issued for the purpose of amending the requirements of the Bid and Contract Documents and is hereby made a part of said Bid and Contract Documents to the same extent as though it were originally included therein.

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

1. **Questions from Bidders and Responses to Questions:**
See Attachment A.
2. **Revisions to the Bid Booklet:**
See Attachment B.
3. **Revisions to the Specifications:**
See Attachment C.
4. **Revisions to the Drawings:**
See Attachment D.

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) 391-2200, (718) 391-1727, or by fax at (718) 391-2615.



David Resnick, R.A.
Deputy Commissioner

Name of Bidder

By: _____

DC PROJECT #: P-5SPKHORA

PROJECT NAME: Ocean Breeze Indoor Horse Riding Arena Construction

ATTACHMENT A - BIDDERS QUESTIONS AND DDC RESPONSES

No.	Bidders Questions	DDC Responses
1	The specs call for 14" diameter piles, but as per item 51 on the breakdown calls for 12" diameter piles. Please advise.	Piles shall be 14" in diameter. See Attachment B, Revisions to Bid Booklet.
2	Do all the pull boxes and junction boxes now need to be weather proof, NEMA3R, NEMA4X or can we use standard boxes?	Exposed pull boxes and junction boxes shall be NEMA4X.
3	Do we need to use stainless steel hardware for mounting the conduit?	Yes.
4	Do we need to use stainless steel kindorf or PVC coated kindorf with the conduit?	Use PVC coated kindorf with the conduit.
5	The specifications seem to indicate a change in the roof and wall panel, but do not specifically and clearly call out a different roof and wall system. Are the Roof AND Wall panels- insulated metal panels with a rigid foam core and exterior and interior skins? Please clarify.	Specified product serves as both Wall and Roof system.
6	There is no detail for the attachment for the posts of the flex fence in the arena. This system is a tension type system, and the post must withstand the fence tension. Please provide details for the fence system.	Use manufacturer's details for In-Line Pull Panel Kit installation.
7	Please identify the dotted line running around the building?	Dotted line indicates line of sloped roof above.
8	Please provide details and inverts for the drywells.	Refer to Drawings L-104 and L-105
9	Please provide inverts for connections to existing utility lines. (Sewer, Water, Gas)	Refer to Drawings P-303, P-501 and P-702
10	Please provide inverts for all new drainage piping.	Refer to Drawings P-303, P-501 and P-703
11	A-600 Barn Door Schedule - Please provide an approved manufacturer for the rolling barn door. Also, please confirm which bid item it will be bid through.	See Attachment C, Revisions to Specifications for attached specification item 88: Interior Finish Carpentry and Attachment B, Revisions to Bid Booklet for revised Bid Breakdown form.

DC PROJECT #: P-5SPKHORA

PROJECT NAME: Ocean Breeze Indoor Horse Riding Arena Construction

ATTACHMENT B – REVISIONS TO THE BID BOOKLET

Reference Bid Breakdown Form:

Delete Bid Booklet page 21-2 and replace with revised page 21-2-R included with this Addendum.

Delete Bid Booklet page 21-4 and replace with revised page 21-4-R included with this Addendum.

DC PROJECT #: P-5SPKHORA

PROJECT NAME: Ocean Breeze Indoor Horse Riding Arena Construction

ATTACHMENT C – REVISIONS TO THE SPECIFICATIONS

1. Refer to Item 88: Interior Finish Carpentry
Insert new specification Item 88: Interior Finish Carpentry (attached)

DDC PROJECT #: P-5SPKHORA

PROJECT NAME: Ocean Breeze Indoor Horse Riding Arena Construction

ATTACHMENT D – REVISIONS TO THE DRAWINGS

1. A-200: Revised "Louver Panel to Match Finish of Clerestory Frame" note in Detail 2 to read "Louver Panel to Match Finish of Clerestory Frame, Architectural Louvers or approved equal."
2. A-500: Revised "Fixed Polycarbonate" note in Detail 4 to include "Lexan LTC40/4X 4.0, 40 mm, Clear 112 or approved equal."

CONTRACTOR BID BREAKDOWN FORM

TITLE: Ocean Breeze Indoor Horse Riding Arena
 LOCATION: 621 Father Capodanno Boulevard, Staten Island NY 10305
 BIDDER:

CONTRACT 1 - GENERAL CONSTRUCTION WORK

FMS PROJECT ID# P55PKHORA

CLIENT AGENCY: DPR

Item No.	Item Description	Qty	Unit Type	Unit Price	Total Price
23	Double Gate for CLF 8'-0" HT.		EA		
24	Native Seed Mix		SY		
25	Preparatory Pruning of Tree Over 6" to 12" DBH		EA		
26	Temporary Sheeting		SF		
27	Item Deleted		LF		
28	Ductile Iron Sewer Pipe - 12" Dia.		LF		
29	Service Weight Cast Iron Soil Pipe - 6" Dia.		LF		
30	Polyethylene Corrugated 4" Dia.		LF		
31	Polyethylene Corrugated 8" Dia.		LF		
32	Polyethylene Corrugated 12" Dia.		LF		
33	Slotted Polyethylene Pipe 18" Dia.		LF		
34	19" Dia. Manhole with H-20 Rated 18" Solid Cover		EA		
35	Broken Stone - Loose Measure		CY		
36	Item Deleted		--		
37	Precast Concrete Drywell		EA		
38	Allowance for DEP Sewer Review Fee		\$800.00		
39	Miscellaneous Iron & Steel		LB		
40	Galvanized Steel Fence		LF		
41	Type K Copper Tubing 1" Dia.		LF		
42	Type K Copper Tubing 1 1/2" Dia.		LF		
43	Plug Valve 1" Dia.		EA		
44	Cast Iron Valve Box - 5 1/4" Dia		EA		
45	Ground Hydrant - 1" Dia		EA		
46	Irrigation Accessories - Type A		SET		
47	Borrowed Fill (Truck Measured)		CY		
48	Controlled Concrete		CY		
49	Steel Bar Reinforcement		LB		
50	Item Deleted		--		
51	Vertical Timber Piles - 14" Dia.		LF		
52	Item Deleted		--		

CONTRACTOR BID BREAKDOWN FORM

CONTRACT 1 - GENERAL CONSTRUCTION WORK

TITLE: Ocean Breeze Indoor Horse Riding Arena

LOCATION: 621 Father Capodanno Boulevard, Staten Island NY 10305

FMS PROJECT ID# P5SPKHORA

BIDDER:

CLIENT AGENCY: DPR

Item No.	Item Description	Qty	Unit Type	Unit Price	Total Price
83	Item Deleted		--		
84	Item Deleted		--		
85	Item Deleted		--		
86	Item Deleted		--		
87	Dry Pipe Sprinkler System		LS		
88	Interior Finish Carpentry		LS		
89	Horse Stalls		LS		
90	Corner Hay Racks		EA		
91	Wall Feed Pans		EA		
92	Feed Storage Bins		EA		
93	Bridle Racks		EA		
94	Saddle Racks		EA		
95	Flexible Fence and Gates		LS		
96	Full Depth Asphalt Pavement		SY		
97	Cement Concrete Pavement		SY		
98	Item Deleted		--		
99	Pipe Handrail		LF		
100	Item Deleted		--		
101	Equestrian Fence		LF		
102	Steel Faced Concrete Curb		LF		
103	Remove and Reset Concrete Wheel Stop		EA		
104	Precast Concrete Wheelstop		EA		
105	Thermoplastic HRPRM - Arrow		EA		
106	Item Deleted		--		
107	Bicycle Rack		EA		
108	Thermoplastic HRPRM - ADA Parking Symbol		EA		
109	Thermoplastic HRPRM - Parking Lines - 4" Width		LF		
110	ADA Signs		EA		
111	Steel Drive Rail		LF		
112	Item Deleted		--		

ITEM NO. 88

INTERIOR FINISH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Tongue and groove (T&G) vee-groove siding for rolling barn door.

1.2 SUBMITTALS

- A. Shop Drawings: Submit carpenter's drawings of rolling barn door.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Lumber: DOC PS 20 and applicable grading rules of inspection agencies certified by ALSC's Board of Review.

2.2 LUMBER SIDING

- A. Provide kiln-dried lumber siding complying with DOC PS 20.
- B. Species and Grade: Grade A Yellow Pine siding 2 inches thick and 6 inch wide nominal.
- C. Tongue and groove board with a center line "V" groove.

2.3 MISCELLANEOUS MATERIALS

- A. Glue: Aliphatic-resin, polyurethane, or resorcinol wood glue.
 - 1. Use wood glue that has a VOC content of 30 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before installing interior finish carpentry, condition materials to average prevailing humidity in installation areas for a minimum of 24 hours.

3.2 INSTALLATION, GENERAL

- A. Install interior finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.
 1. Countersink fasteners, fill surface flush, and sand where face fastening is unavoidable.
 2. Install to tolerance of 1/8 inch in 96 inches (3 mm in 2438 mm) for level and plumb. Install adjoining interior finish carpentry with 1/32-inch (0.8-mm) maximum offset.
 3. Provide for parallel and cross grain expansion at perimeter of the siding field.
 4. Scribe and cut exterior finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.
 5. Conceal fasteners toe nail to furring through tongue edge. For face nailing place nails in grooves of siding pattern if necessary add additional nails across face of board. Face nail last perimeter board only.

PART 4 - MEASUREMENT AND PAYMENT

For furnishing and installing **INTERIOR FINISH CARPENTRY**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.



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

The General Conditions are hereby amended in accordance
with the terms and conditions set forth in this Addendum.

I. PROJECT DESCRIPTION

FMS #: **P5SPKHORA**

PROJECT NAME: ***Ocean Breeze Indoor Horse Riding Arena***

PROJECT DESCRIPTION: This Project consists of the construction of a new indoor horse riding arena on Father Capodanno Boulevard in Staten Island.

PROJECT LOCATION: ***621 Father Capodanno Boulevard***
BOROUGH: ***Staten Island***
CITY OF NEW YORK
ZIP CODE: ***10305***
COMMUNITY BOARD #: ***2***

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: **NO**

If this is a Landmark Quality Structure, Section 01 3591, Historic Treatment Procedures applies to this project.

II. LEED GREEN BUILDING REQUIREMENTS

This project must achieve a **Silver** LEED Green Building Rating. A certain number of credits are required for this rating and are detailed in the Project Specifications. Sections 01 8113 Sustainable Design Requirements for LEED Buildings, 01 8113.13 VOC Limits for Adhesives, Sealants, Paints and Coatings for LEED Buildings, 01 8119 Indoor Air Quality Requirements for LEED Buildings, and 01 9113 General Commissioning Requirements of the DDC Standard General Conditions shall apply to this project.

III. COMMISSIONING REQUIREMENTS

This project includes Commissioning Requirements. The General Commissioning Requirements are found in Section 01 9113 of the DDC Standard General Conditions. Other specific Commissioning Requirements can be found in the Project Specification Sections.

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

The Contractor is advised that various Sections/Sub-Sections in the General Conditions may not apply to this Project or may apply as amended. Such Sections/Sub-Sections advise the Contractor to "Refer to the Addendum for the applicability of this Section/Sub-Section." Such Sections/Sub-Sections are set forth below. A check mark indicates whether the Section/Sub-Section (1) applies to the Project, (2) does not apply to the Project, or (3) applies to the Project as amended. If no box is checked, the Section/Sub-Section, as set forth in the General Conditions, applies to the Project. Amended Sections/Sub-Sections, if any, are set forth following this list of Sections.

<u>Section</u>	<u>Sub-Section</u>	<u>Sub-Section</u>	Applies	Does not Apply	Applies as Amended
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		

AMENDED SECTIONS/SUB-SECTIONS

The Contractor is advised that the amended Sub-Sections set forth below are included in the General Conditions and apply to the Project.

SECTION 01 81 13 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS

In Section 1.3 RELATED SECTIONS, add new sub-section E:

- E. All sections of the Specifications related to construction within the weather barrier of the building

SECTION 01 81 13.13 VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES, SEALANTS, PAINTS AND COATINGS FOR LEED BUILDINGS

In Section 1.3 RELATED SECTIONS, add new sub-section I:

- I. All sections of the Specifications related to construction within the weather barrier of the building, including the piping, ductwork, and other paintable surfaces of MEP systems.

VIII. SPECIAL EXPERIENCE REQUIREMENTS FOR THE PROJECT

NOT USED

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)

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
Article 14 Contract	Time of Completion	Consecutive Calendar Days	365 ccd
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 \$500,000 10% If 100% bonds are not required, and Contract Price is more than \$500,000 10%
Article 24 Contract	Maintenance & Guaranty	Percent of Contract Price	1%
Article 76 Contract	MWBE Program		See Subcontractor Utilization Plan In the Bid Booklet

SCHEDULE A (FOR PUBLICLY BID PROJECTS)

Relating to Article 22 - Insurance

PART I. 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
<p>■ Commercial General Liability Art. 22.1.1</p>	<p>\$ 1,000,000 per occurrence</p> <p>\$ 2,000,000 aggregate (applicable separately to this Project)</p> <p>Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____</p>
<p>■ Workers' Compensation Art. 22.1.2</p> <p>■ Disability Benefits Insurance Art. 22.1.2</p> <p>■ Employers' Liability Art. 22.1.3</p> <p><input type="checkbox"/> Jones Act Art. 22.1.4</p> <p><input type="checkbox"/> U.S. Longshoremen's and Harbor Workers Compensation Act Art. 22.1.4</p>	<p>Workers' Compensation: Statutory per New York State law without regard to jurisdiction</p> <p>Disability Benefits Insurance: Statutory per New York State law without regard to jurisdiction</p> <p>Employers' Liability: \$1,000,000 each accident</p>
<p>■ Builders' Risk Art. 22.1.5</p> <p><input type="checkbox"/> Installation Floater</p>	<p>_____ 100 _____ % of total value of Work</p> <p>City of New York and the Contractor named as Loss Payee for the Work in order of precedence, as their interests may appear.</p> <p><u>Note:</u> Article 22.1.5 is revised by deleting the following sentence: "Such policy shall name as insureds the City, the Contractor, and its Subcontractors". This deletion applies to Builders' Risk and Installation Floater.</p>

SCHEDULE A (FOR PUBLICLY BID PROJECTS)

Relating to Article 22 - Insurance

PART I. 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 checked="" type="checkbox"/> Comprehensive Business Auto Coverage Art. 22.1.6	\$ <u>1,000,000</u> per accident If vehicles are used for transporting hazardous materials, the Contractor shall provide pollution liability broadened coverage for covered autos (endorsement CA 99 48) as well as proof of MCS 90 Additional Insured: 1. City of New York, including its officials and employees
<input type="checkbox"/> Pollution/Environmental Liability Art. 22.1.7	\$ _____ per occurrence \$ _____ aggregate Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____
<input type="checkbox"/> Marine Protection and Indemnity Art. 22.1.8(a)	\$ _____ 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 I. 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.

<input type="checkbox"/> Ship Repairers Legal Liability Art. 22.1.8(b)	\$ _____ each occurrence [Contracting agency to fill in total value of City vessels involved]
<input type="checkbox"/> Collision Liability/Towers Liability Art. 22.1.8(c)	\$ _____ 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. 22.1.8(d)	\$ _____ each occurrence Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____
[OTHER] Art. 22.1.9 <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 I. 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] Art. 22.1.9</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] Art. 22.1.9</p> <p>■ Boiler Insurance _____</p>	<p>\$200,000</p>
<p>[OTHER] Art. 22.1.9</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 II. Broker's Certification

[Pursuant to Article 22.3.1(a) 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 complete copies of all policies referenced in the Certificate of Insurance. In the absence of completed policies, binders are acceptable.]

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.

[Name of broker (typewritten)]

[Address of broker (typewritten)]

[Signature of authorized official or broker]

[Name and title of authorized official (typewritten)]

Sworn to before me this
____ day of _____, 20__

NOTARY PUBLIC

SCHEDULE A (FOR PUBLICLY BID PROJECTS)

Relating to Article 22 - Insurance

PART III. 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

30-30 Thomson Avenue, 4th Floor

Long Island City, New York 11101

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.

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:

ITEM #	ITEM OR MATERIAL NAME	WARRANTY LENGTH (YEARS)	Comments
62	Joint Sealants	3	Manufacturer agrees to furnish, repair, replace
63	Exterior Doors	5	
63	Interior Doors	5	
64	Aluminum Frames	2	Defects in manufacturing
64	Aluminum Frames	5	Defects in finish (cracking, peeling fading, chalking, etc.)
64	Insulating Glass Vision Panels	5	
65	Aluminum Framed Entrances and Storefront	2	Manufacturer agrees to repair or replace
66,67	Aluminum Windows - Fixed, Aluminum Windows - Casement	2	

68	Door Hardware	3	Manufacturer agrees to repair or replace
68	Door Hardware	1	
68	Mortise Locks and Latches	10	
68	Exit Hardware	5	
68	Manual Door Closers	10	
69	Glazing	5	Manufacturer agrees to replace
70	Plastic Glazing	5	"
77	Metal Building Systems	2	"
77	Metal Building Systems	20	manufacturer agrees to repair or replace metal panels that evidence deterioration of fluoropolymer finish
77	Overhead Doors and Bi-Fold Doors	1	
77	Overhead Doors and Bi-Fold Doors	2	Manufacturer warrants the steel frame against rust, in painted non-damaged condition
77	Jackshaft Operator	5	
77	Industrial Jackshaft Operator	2	
77	Superdrive	2	
79	Square Indirect Water Heater	20	Limited lifetime warranty designed for a useful life of 20 years
80	Heat Exchanger Assembly	12	
80	Compressors	7	
80	Inline Pumps	3	
87	Dry Pipe Sprinkler System	1	

(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.

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.

Page Number	Sheet Number	Sheet Name
1	G-100	Title Page
2	G-101	General Notes, Zoning and Building Code Calculations
3	G-102	ADA Notes
4	G-103	Topographic Survey
5	B-100	Boring Logs
6	B-101	Boring Logs
7	B-102	Boring Logs
8	L-100	Tree Protection - Staging and Access Plan
9	L-101	Site Removals Plan
10	L-102	Layout Plan
11	L-103	Grading Plan
12	L-104	Materials and Planting Plan
13	L-105	Construction Details
14	A-100	Parking Level Plan
15	A-101	First Floor Plan / Mezzanine Plan
16	A-102	Detail Plan
17	A-103	Roof Plan
18	A-104	Parking Level Reflected Ceiling Plan
19	A-105	Main Level and Mezzanine Reflected Ceiling Plan
20	A-200	Exterior Elevations
21	A-300	Building Sections
22	A-301	Building Sections
23	A-400	Finish Floor
24	A-401	Exterior Wall Sections
25	A-402	Exterior Wall Sections
26	A-403	Exterior Wall Sections
27	A-500	Window Types
28	A-501	Window Details
29	A-502	Door Types and Details
30	A-503	Stair Details
31	A-504	Typical Details
32	A-505	Partition Details
33	A-506	Horse Stall Details
34	A-600	Selected Schedules
35	A-700	Interior Elevations
36	A-701	Interior Elevations

37	A-702	Interior Elevations
38	A-703	Bathroom Plan and Elevations
39	A-900	Exploded Axonometric Structural Diagram
40	A-901	Renderings
41	A-902	Renderings
42	SN-001	Structural Notes
43	FO-100	Foundation Plan
44	FO-101	Main Level Framing Plan & Mezzanine Plan
45	FO-102	Pedestrian Ramp & Details
46	FO-110	Parking (Lower Level) Slab Reinforcing
47	FO-111	Main Level Slab Reinforcing
48	FO-200	Typical Details 1
49	FO-201	Typical Details 2
50	FO-202	Typical Details 3
51	FO-203	Typical Masonry Wall Details
52	FO-300	Sections & Details 1
53	FO-301	Sections & Details 2
54	FO-302	Sections & Details 3
55	M-101	Mechanical Legend and Notes
56	M-301	Mechanical First Floor and Mezzanine Part Plans
57	M-401	Mechanical Schedule Sheet
58	M-402	Mechanical Details
59	M-501	Mechanical Riser Diagram
60	M-601	Mechanical Schedule Sheet
61	E-100	Electrical Site Plan
62	E-200	Electrical Lighting Plan
63	E-201	Soffit Lighting
64	E-202	Parking Lighting
65	E-300	Electrical Power Plan
66	E-400	Panel Schedule and Details
67	FA-100	Fire Alarm System
68	P-101	Plumbing Legend and Notes
69	P-301	Plumbing First Floor Plan / Mezzanine Part Plan
70	P-302	Plumbing Parking Level Plan
71	P-303	Plumbing Foundation Plan
72	P-401	Plumbing Detail Sheet
73	P-501	Plumbing Water Riser Diagrams
74	P-701	Plumbing First Floor Part Plan
75	P-702	Plumbing Sections
76	SP-101	Sprinkler Legend and Notes
77	SP-301	Sprinkler First Floor and Mezzanine Part Plan
78	SP-302	Sprinkler Parking Level Plan
79	SP-401	Sprinkler Detail Sheet
80	SP-501	Sprinkler Riser Diagram

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.

DB Disconnect Circuit Breaker (Switch)	P Pilot Light	BG Break Glass Station
TS Thermal Switch	F Firestat	HOA Hand-Off Auto.
MS Magnetic Starter	T Thermostat	PB Push Button Station
CMS Comb. Mag. Starter	AL Alternator	RO Remote "off"

Equip. Ident.	Location	# of Units	HP or KW	Volts and Phase	Control Type: See legend above	Remarks:
AHU-1	Utility Room	1	1	115/ 1	T	
ACCU-1	Outdoor	1	5.6	208/1	T	
AC-1	Observation Area	1	.008kw	115/ 1	T	
AC-2	Observation Area	1	.008kw	115/ 1	T	
AC-3	Office	1	.008kw	115/ 1	T	
OAF-1	Observation Area	1	.17	115/ 1	MS	
OAF -2	Observation Area	1	.17	115/ 1	MS	
OAF -3	Office	1	.17	115/ 1	MS	
WF-1-2	Stall	2	1/2	115/ 1	MS/T	
WF-3-6	Arena	4	1/2	115/ 1	MS/T	
EF-1	TX/J-C	1	.4	115/ 1	TC	
EF-2	Storage	1	.4	115/ 1	TC	

Boiler	Mezzanine	1	.5	115/ 1	TS	
P-1, 2+3	Mezzanine	3	.12	115/ 1	TS	

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: DDC Architecture + Engineering DATE: _____
TELEPHONE NUMBER: (718) 391-2085 – Omar Morales-Armstrong
DDC PROJECT MANAGER: Michael Fox APPROVED: _____
TELEPHONE NUMBER: (718) 391-2844 (DDC RESIDENT ENGINEER/CPM)

Table with columns: REPORT DATE, SPEC. SECT. #, DESCRIPTION, COORD. WITH CONTR., SUBMITTAL (SHOP DWG, SAMPLE, CAT CUTS), SUB. DATE, REQ'D DEL., FABRIC. TIME, CONTRACT # (Contract 1 - GENERAL CONSTRUCTION), TRADE (SHOP DRAWING LOG SHEET #), SUBMISSIONS (REC'D, RET'D, ACTION, REC'D, RET'D, ACTION, REC'D, RET'D, ACTION).

43	Plug Valve	X																		
44	Cast Iron Valve Box	X																		
45	Ground Hydrant	X																		
46	Irrigation Accessories						X													
56	Metal Stairs	X					X	X												
59	Vinyl Base Trim						X													
63	Hollow Metal Doors and Frames	X					X	X	X											
64	Aluminum Frames	X					X	X	X											
65	Aluminum Framed Entrances and Storefronts	X					X	X	X											
66	Aluminum Windows - Fixed	X					X	X	X											
67	Aluminum Windows - Casement	X					X	X	X											
68	Door Hardware							X	X											
69	Glazing							X	X											
70	Plastic Glazing							X	X											
71	Non-Structural Metal Framing								X											
72	Gypsum Board								X											
73	Tiling								X	X										
74	Paint								X	X										
76	Toilet Accessories								X	X										
77	Insulated Metal Panels	X						X	X	X										

TABLE OF CONTENTS

CONTRACT 1 – GENERAL CONSTRUCTION

Item No.	Item Description
1	Item Deleted
2	Item Deleted
3	Item Deleted
4	LEED Building Performance Requirements
5	Maintenance & Protection of Traffic - Type A
6	Temporary Wooden Tree Guard w Tree Wrap
7	Removals
8	Tree Removal Over 6" to 12" DBH
9	Relocate Site Items
10 - 11	Saw Cut Pavement, Curbs and Walls
12	Hand and/or Pneumatic Excavation
13	Unclassified Excavation
14	Stabilized Construction Entrance
15	Item Deleted
16	Earth Moving Operations
17	Geotextile - Drainage
18	Temporary Silt Fence
19	Restoration of Street Pavement
20	Horse Rail
21 - 23	8'-0" Height Chain Link Single Gate, Double Gate, Overwide Gate for Chain Link Fence
24	Native Seed Mixes
25	Preparatory Pruning of Tree Over 6" to 12" DBH
26	Temporary Sheeting
27	Item Deleted
28	Ductile Iron Sewer Pipe
29	Service Weight Cast Iron Soil Pipe - 6" Dia.
30 - 32	Polyethylene Corrugated Pipe
33	Slotted Polyethylene Pipe 18" Dia.
34	19" Dia. Manhole with H-20 Rated 18" Solid Cover
35	Broken Stone - Loose Measure
36	Item Deleted
37	Precast Concrete Drywell
38	Allowance for DEP Sewer Review Fee
39	Miscellaneous Iron & Steel
40	Galvanized Steel Fence
41 - 42	Type K Copper Tubing
43	Plug Valve 1" Dia.

44	Cast Iron Valve Box - 5 1/4" Dia
45	Ground Hydrant - 1" Dia
46	Irrigation Accessories - Type A
47	Borrowed Fill (Truck Measured)
48	Controlled Concrete
49	Steel Bar Reinforcement
50	Item Deleted
51	Vertical Timber Piles - 12" Dia.
52	Item Deleted
53	Concrete Masonry Units
54	Structural Steel
55	Steel Decking
56	Metal Stairs
57	Item Deleted
58	Item Deleted
59	Vinyl Trim
60	Item Deleted
61	Thermal Insulation
62	Joint Sealants
63	Hollow Metal Doors
64	Aluminum Frames
65	Aluminum-Framed Entrances and Storefronts
66 - 67	Aluminum Window - Fixed, Casement
68	Door Hardware
69	Glazing - Glass (Laminated)
70	Plastic Glazing
71	Non-Structural Metal Framing
72	Gypsum Board
73	Tiling
74	Interior Painting
75	Item Deleted
76	Toilet Accessories
77	Metal Building Systems
78	Sand
79	Plumbing Work
80	Installation of HVAC System
81	Electrical Work
82	Allowance for Utility Company Fees
83	Item Deleted
84	Item Deleted
85	Item Deleted

86	Item Deleted
87	Dry Pipe Sprinkler System
88	Item Deleted
89	Horse Stalls
90	Corner Hay Racks
91 - 94	Wall Feed Pans, Feed Storage Bins, Bridle Racks, Saddle Racks
95	Flexible Fence and Gates
96	Full Depth Asphalt Pavement
97	Cement Concrete Pavement
98	Item Deleted
99	Pipe Handrail
100	Item Deleted
101	Equestrian Fence
102	Steel Faced Concrete Curb
103	Remove & Reset Concrete Wheel Stop
104	Precast Concrete Wheel Stop
105	Thermoplastic HRPRM - Arrow
106	Item Deleted
107	Bicycle Rack
108 - 109	Thermoplastic HRPRM - ADA Parking Symbol
110	ADA Signs
111	Steel Drive Rail
112	Item Deleted
113	Topsoil for Sodded Areas
114	Commercial Fertilizer Low Phosphorous (Slow Release)
115	Limestone
116	Elemental Sulphur
117	Compost (Truck Measure)
118	Item Deleted
119	Reconstruct Lawn
120 - 121	Shredded Bark Mulch, with and without Fertilizer
122	Landscape Fabric
123	Topsoil for Native Planting Pits and Beds
124 - 131	Plant Material

APPENDIX

- ITEM A TREE WORK
- ITEM B MATERIALS AND METHODS OF CONSTRUCTION

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CONTRACT # 1
GENERAL CONSTRUCTION WORK

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<u>ITEM NO.</u>	<u>1</u>	ITEM DELETED
<u>ITEM NO.</u>	<u>2</u>	ITEM DELETED
<u>ITEM NO.</u>	<u>3</u>	ITEM DELETED
<u>ITEM NO.</u>	<u>4</u>	<u>LEED BUILDING PERFORMANCE REQUIREMENTS</u>

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 to the General Conditions, and (5) the Contract [City of New York Standard Construction Contract].
- B. Addendum to the General Conditions: 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. Definitions
 - 2. References
 - 3. LEED Provisions
 - 4. Submittals
 - 5. Required Recycled Content of Materials
 - 6. Recommended Content and Performance Criteria for Materials
 - 7. Installation
 - 8. Waste Management

1.3 RELATED SECTIONS: Include without limitation the following:

- A. Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
- 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. Section 01 81 19 INDOOR AIR QUALITY REQUIREMENTS FOR LEED BUILDINGS
- E. Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS
- F. All sections of the Specifications related to construction within the weather barrier of the building, including Plumbing, Mechanical and Electrical work.

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. Chlorofluorocarbons (CFCs): Hydrocarbons that are used as refrigerants and cause depletion of the stratospheric ozone layer.
- C. Fly Ash: A by-product of coal-fired power plant operation.
- D. Footcandle (fc): A measure of light falling on a given surface.
- E. Illuminance: A measure of how much the incident light illuminates a surfaces.
- F. Lighting Zone: One of four classifications of environments characterized by existing artificial lighting conditions, as defined by the Illuminating Engineers Society of North America (see Section 1.5

below). LZ2 comprises primarily residential zones, neighborhood business districts, light industrial areas with limited nighttime use, and residential mixed-use areas.

- G. Lumens: A measure of the total amount of visible light emitted by a source.
- H. Native Vegetation: Non-invasive plants adapted to a given area during a defined time period; plants growing in a region prior to the time of European settlement.
- I. Regional Content Value: Value of material components that are both extracted / harvested / recovered AND manufactured within 500 miles of the project site.
- J. Total Recycled Value: ($\frac{1}{2}$ x Pre-Consumer Value) + (1 x Post-Consumer Value)

1.5 REFERENCES:

- A. American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE)
 - 1. 52.2-1999, Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size
 - 2. 55-2004, Thermal Environmental Conditions for Human Occupancy
 - 3. 62.1-2007, Ventilation for Acceptable Indoor Air Quality
 - 4. 90.1-2007, Energy Standard for Buildings Except Low-Rise Residential Buildings
- B. American Society of Mechanical Engineers (ASME) Standard A112.18.1-2005, Plumbing Supply Fittings
- C. American Society for Testing and Materials (ASTM)
 - 1. C 311, Standard Methods of Sampling and Testing Fly Ash and Natural Pozzolans for Use as a Mineral Admixture in Portland Cement Concrete
 - 2. C 595-00a, Standard Specification for Blended Hydraulic Cements
 - 3. C 618, Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Uses as a Mineral Admixture in Portland Cement Concrete
 - 4. C1371-04a, Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers
 - 5. C1549-04, Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer
 - 6. D5359, Glass Cullet Recovered from Waste for Use in Manufacture of Glass Fiber
 - 7. D6111-97 Standard Test Method for Bulk Density and Specific Gravity of Plastic Lumber and Shapes by Displacement
 - 8. D6117-97 Standard Test Methods for Mechanical Fasteners In Plastic Lumber and Shapes
 - 9. D6112-97 Standard Test Methods for Compressive and Flexural creep and Creep-Rupture of Plastic Lumber and Shapes
 - 10. D6108-97 Standard Test Method for Compressive Properties of Plastic Lumber
 - 11. D6109-97 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastic Lumber
 - 12. D6245-98, Standard Guide for Using Indoor Carbon Dioxide Concentrations to Evaluate Indoor Air Quality and Ventilation
 - 13. D6341-98 Standard Test Method for Determination of the Linear Coefficient of Thermal Expansion of Plastic Lumber and Plastic Lumber Shapes
 - 14. D6435-99 Standard Test Method for Shear Properties of Plastic Lumber and Plastic Lumber Shapes
 - 15. E408-71(96), Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques
 - 16. E859, Test Method for Air Erosion of Sprayed Fire-Resistive Materials (SFRMs) Applied to Structural Members
 - 17. E903-96, Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres
 - 18. E1918-97, Standard Test Method for Measuring Solar Reflectance of Horizontal and Low-Sloped Surfaces in the Field
 - 19. E1980-01, Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces
 - 20. G-21, Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi

- D. California Standard 1350, Section 9, Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers
- E. Carpet and Rug Institute (CRI)
 - 1. Green Label Plus Testing Program
 - 2. Carpet Component Identification Codes
- F. Center for Resources Solutions, Green-e Product Certification Requirements
- G. Chartered Institute of Building Services Engineers (CIBSE) Applications Manual 10- 2005, Natural Ventilation in Non-Domestic Buildings
- H. Forest Stewardship Council (FSC) Principles and Criteria (for informational purposes only)
- I. Green Seal
 - 1. Standard GC-03
 - 2. Standard GS-11
 - 3. Standard GS-36, 2000
- J. Illuminating Engineers Society of North America (IESNA) Standard 90.1-2007, Section 9 without amendments (ASHRAE 90.1-2007)
- K. International Agency for Research on Cancer (IARC), Lyon, France, Prohibited Carcinogenic Compounds (Pressure-Treated Wood)
- L. International Association of Plumbing and Mechanical Officials Publication (IAPMO) / American National Standards Institute (ANSI), Uniform Plumbing Code UPC 1-2006, Section 402.0, Water-Conserving Fixtures and Fittings
- M. International Code Council, International Plumbing Code 2006, Section 604, Design of Building Water Distribution System
- N. International Standard ISO 14021-1999, Environmental Labels and Declarations – Self-Declared Environmental Claims
- O. Resilient Floor Covering Institute, FloorScore Program
- P. Sheet Metal and Air Conditioning Contractors National Association (SMACNA), IAQ Guidelines for Occupied Buildings under Construction, 2007
- Q. South Coast Air Quality Management District (SCAQMD)
 - 1. SCAQMD Rule 1113, Architectural Coatings
 - 2. SCAQMD Rule 1168, VOC Limits, 2005
- R. U.S. Environmental Protection Agency (EPA)
 - 1. Clean Air Act, Title VI, Section 608 Refrigerant Recycling Rule
 - 2. Compendium of Methods for the Determination of Air Pollutants in Indoor Air
 - 3. 2003 Construction General Permit
 - 4. Energy Policy Act (EPAct) of 1992, as amended
 - 5. Energy Policy Act (EPAct) of 2005
 - 6. Toxic Characteristic Leaching Procedure (TCLP)

1.6 LEED PROVISIONS:

- A. Obtain Silver Certification under the LEED New Construction (LEED-NC) rating system, Version 3.0 (2009). This requires the project to fulfill all eight (8) prerequisites and enough optional credits to achieve at least 50 out of 110 available points. Some credits are worth more than 1 point.
- B. The following prerequisites for LEED Certification are performance requirements for the project:
 - 1. Construction Activity Pollution Prevention (LEED: SSpr1): Protect adjacent properties and water resources from erosion and sediment damage throughout construction in accordance with the New York Department of Environmental Conservation (NYSDEC) or the 2003 EPA Construction General Permit, whichever is more stringent. Discharge from dewatering or washdown operations shall not be directed to the municipal storm water system. Comply with Section 01 81 13 of this Specification, SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS, as amended.
 - 2. 20% Water Use Reduction (LEED: WEpr1): Use 20% less water than the baseline established by the EPAct of 1992 and ASME standard for public lavatory faucets. Also see sub-section C, item 12 below.

3. Fundamental Commissioning of Building Energy Systems (LEED: EApr1): Engage a certified Commissioning Agent (CxA) to verify and ensure that fundamental building system elements are designed, installed, and calibrated to operate as intended. Comply with Section 01 91 13 of this Specification, GENERAL COMMISSIONING REQUIREMENTS, as amended. Also see sub-section C, item 14 below.
 4. Minimum Energy Performance (LEED: EApr2): Exceed by 10% the minimum energy efficiency and performance standards established by ASHRAE 90.1-2007 or meet or exceed the New York City Energy Conservation Construction Code (NYCECC), whichever is more stringent. Also see sub-section C, item 13 below.
 5. Fundamental Refrigerant Management (LEED: EApr3): Ensure that no CFCs are used in HVAC&R equipment installed in the building. Also see sub-section C, item 15 below.
 6. Storage and Collection of Recyclables (LEED: MRpr1): Provide adequate, dedicated space(s) for recycling of paper, cardboard, glass, metal, and plastic.
 7. Minimum Indoor Air Quality Performance (LEED: IEQpr1): Provide HVAC equipment that will comply with the minimum requirements of ASHRAE 62.1-2007. Also see sub-section C, item 18 below.
 8. Environmental and Tobacco Smoke Control (LEED: IEQpr2). No action by the Contractor is required to fulfill this prerequisite.
- C. The following credits have been identified as those most likely to be fulfilled by this project in order to achieve LEED Silver Certification. The provisions to fulfill these credits are integrated within the project construction documents and specifications. The following credits, as described herein, are performance targets for the project:
1. Alternative Transportation – Public Transportation Access (LEED: SScr4.1). No action by the Contractor is required to fulfill this credit.
 2. Alternative Transportation – Bicycle Storage and Changing Rooms (LEED: SScr4.2): Within 200 yards of the building entrance, provide secure bike storage for 5% of building users, and shower/changing facilities for 0.5% of full-time equivalent occupants. No action by the Contractor is required to fulfill shower/changing facility requirement for this credit.
 3. Alternative Transportation – Low-Emitting and Fuel-Efficient Vehicles (LEED: SScr4.3): Using signage, dedicate 5% of the site's total vehicle parking capacity to preferred parking for low-emitting and fuel-efficient vehicles.
 4. Alternative Transportation – Parking Capacity (LEED: SScr4.4): Using signage, dedicate 5% of the site's total vehicle parking capacity to carpool/vanpool vehicles.
 5. Site Development – Protect or Restore Habitat (LEED: SScr5.1 plus Regional Priority Credit): Restore 50% of the site's unbuilt area with native vegetation.
 6. Site Development – Maximize Open Space (LEED: SScr5.2): No action by the Contractor is required to fulfill this credit.
 7. Stormwater Design – Quantity Control (LEED: SScr6.1 plus Regional Priority Credit): Do not exceed the site's predevelopment peak discharge rate/quantity.
 8. Heat Island Effect – Non-Roof (LEED: SScr7.1 plus Exemplary Performance Credit): Place 100% of the site's parking spaces under cover.
 9. Heat Island Effect –Roof (LEED: SScr7.2): Cover at least 75% of the building's roof with materials having a Solar Reflective Index (SRI) greater than or equal to 78.
 10. Light Pollution Reduction (LEED: SScr8): For all interior lighting with a direct line of sight to building openings, reduce power input by 50% between 11pm and 5am. For all exterior lighting, do not exceed the maximum illuminance values at the site boundary and beyond, or the maximum percentage of lumens allowed to be emitted at or above the horizontal, as permitted by IESNA limits for Lighting Zone 2.

11. Water Efficient Landscaping (LEED: WEcr1): No action by the Contractor is required to fulfill this credit.
12. 30% Water Use Reduction (LEED: WEcr3): Use 30% less water than the baseline established by the EPA Act of 1992 and ASME standard for public lavatory faucets.
13. Optimize Energy Performance (LEED: EAcr1): Exceed by at least 14% the minimum energy efficiency and performance standards established by ASHRAE 90.1-2007.
14. Enhanced Commissioning of Building Energy Systems (LEED: EAcr3): Engage a certified Commissioning Agent (CxA) to review the design of fundamental building system elements during construction documentation and, eight to ten months after substantial completion, review system performance and prepare a plan for any adjustments or improvements required to meet the criteria established by the project's Basis of Design. Comply with Section 01 91 13 of this Specification, GENERAL COMMISSIONING REQUIREMENTS, as amended.
15. Enhanced Refrigerant Management (LEED: EAcr4): Select refrigerants and HVAC&R equipment that minimize emission of compounds that contribute to ozone depletion and global climate change.
16. Green Power (LEED: EAcr6): No action by the Contractor is required to fulfill this credit.
17. Construction Waste Management (LEED: MRcr2 plus Exemplary Performance Credit): Divert 95% of construction and demolition waste from landfill. Comply with Section 01 74 19 of this Specification, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL, as amended.
18. Recycled Content (LEED: MRcr4): Provide permanently installed materials and products with a combined total recycled value of at least 20% of the cost of all materials and products used on the project. See Section 2.1 below.
19. Increased Ventilation (LEED: IEQcr2): For all occupied mechanically ventilated spaces, exceed by 30% the minimum ventilation rates required by ASHRAE 62.1-2007 as determined by subsection B, item 7 above. For all occupied naturally ventilated spaces, meet the recommendations of CIBSE Applications Manual 10: 2005.
20. Construction Indoor Air Quality Management Plan – During Construction (LEED: IEQcr3.1): Comply with Section 01 81 19 of this Specification, INDOOR AIR QUALITY REQUIREMENTS FOR LEED BUILDINGS, as amended.
21. Construction Indoor Air Quality Management Plan – Before Occupancy (LEED: IEQcr3.2): Comply with Section 01 81 19 of this Specification, INDOOR AIR QUALITY REQUIREMENTS FOR LEED BUILDINGS, as amended.
22. Low-Emitting Materials – Adhesives and Sealants (LEED: IEQcr4.1): Comply with Section 01 81 13.13 of this Specification, VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES, SEALANTS, PAINTS AND COATINGS FOR LEED BUILDINGS, as amended.
23. Low-Emitting Materials – Paints and Coatings (LEED: IEQcr4.2): Comply with Section 01 81 13.13 of this Specification, VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES, SEALANTS, PAINTS AND COATINGS FOR LEED BUILDINGS, as amended.
24. Low-Emitting Materials – Flooring Systems (LEED: IEQcr4.3): See Section 2.2, sub-section F below.
25. Low-Emitting Materials – Composite Wood and Agrifiber Products (LEED: IEQcr4.4): See Section 2.2, sub-section B below.
26. Controllability of Systems – Lighting (LEED: IEQcr6.1): Provide individual lighting controls for 90% of building occupants, and system controls for all shared multi-occupant spaces.

27. Controllability of Systems – Thermal Comfort (LEED: IEQcr6.2): Provide individual comfort controls for 50% of building occupants, and system controls for all shared multi-occupant spaces.
28. Daylight and Views – Daylight (LEED: IEQcr8.1): Provide 75% of regularly occupied spaces with a minimum daylight illuminance of 25 footcandles.
29. Daylight and Views – Views (LEED: IEQcr8.2): Provide seated occupants in 90% of regularly occupied spaces with a direct line of sight to the exterior.
30. LEED Accredited Professional (LEED: IDcr2): No action by the Contractor is required to fulfill this credit.
31. Pilot Credit: Rainwater Management (LEED: SSpc16): Using low-impact development and green infrastructure, manage on site the runoff from the developed site for the 95th percentile of local rainfall events.
32. Pilot Credit: Bird Collision Deterrence (LEED: SSpc55): Design the building façade, interior light trespass, and exterior lighting to make the building visible as a physical barrier and eliminate conditions that create confusing reflections to birds.
33. Pilot Credit: Clean Construction (LEED: SSpc75): Use nonroad diesel engines that meet EPA Tier 4 PM emission standards and on-road diesel engines that comply with EPA model year 2007 standards. Limit unnecessary vehicle and equipment engine idling. Comply with Section 01 10 00 of this Specification, SUMMARY, as amended.

1.7 SUBMITTALS:

- A. Comply with submittal requirements specified in Section 01 33 00, SUBMITTAL PROCEDURES, as amended; Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL, as amended; Section 01 81 13, SUSTAINABLE DESIGN REQUIREMENTS FOR LEED BUILDINGS, as amended; Section 01 81 13.13, VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES, SEALANTS, PAINTS AND COATINGS, as amended; and Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS, as amended.

PART 2 – PRODUCTS

2.1 REQUIRED RECYCLED CONTENT OF MATERIALS:

- A. The materials and products in this Section, if permanently installed in the project, are required to meet or exceed the recycled content criteria specified herein.
 1. These materials are also subject to other requirements provided elsewhere in this Specification.
 2. While these requirements will contribute toward the project's overall recycled content value, the recycled materials used in the project should not be restricted to the specific materials listed herein.
- B. Concrete (Reinforced and Non-reinforced)
 1. Applicable concrete products include, but are not limited to, the following:
 - a. Concrete paving
 - b. Cast-in-place concrete
 - c. Structural precast concrete (plant cast)
 - d. Architectural precast concrete (plant cast)
 2. Recycled Content (by weight): Provide a minimum of 15% post-industrial recycled fly ash replacement for cement in concrete mixes.
 - a. The fly ash shall not reduce the amount of cement in the concrete mix below the minimum requirements of the New York City Building Code, Section 27-605, Table 10-3, Minimum Cement Content.

- b. Where the use of fly ash cannot meet the 15% level, provide the maximum amount of fly ash permissible that will meet the code requirements for cement content.
 - c. All design mixes are subject to review and approval by the Structural Engineer.
- C. Plastic and Wood/Plastic Composite Lumber
- 1. Applicable products made partially or entirely from plastic and wood/plastic composite lumber include, but are not limited to, the following:
 - a. Dimensional lumber
 - b. Landscape timbers
 - c. Decking
 - d. Parking space wheelstops
 - e. Traffic control speed bumps
 - f. Site furnishings
 - g. Fencing
 - h. Signage
 - 2. Recycled Content (by weight):
 - a. Plastic Lumber, including High Density Polyurethane (HDPE), HDPE/Fiberglass composites, and Mixed Resin Composites: a minimum of 75% (combined) post-industrial/post-consumer recycled content with a minimum of 50% post-consumer recycled content.
 - b. Composite Wood Fiber and Plastic Lumber: a minimum of 100% (combined) post-industrial/post-consumer recycled content, with a minimum of 50% post-consumer recycled content.
- D. Fiberglass Insulation
- 3. Recycled Content (by weight): Fiberglass insulation shall contain a minimum of 20% (combined) post-industrial/post-consumer recycled content.
 - 4. Content and Performance Criteria: See Section 2.2, sub-section D below.
- E. Sprayed-on Fireproofing
- 1. Recycled Content (by weight): Sprayed-on fireproofing shall contain a minimum of 75% (combined) post-industrial/post-consumer recycled content.
 - 2. Content and Performance Criteria: See Section 2.2, sub-section E below.
- F. Gypsum Wallboard
- 1. Recycled Content (by weight):
 - a. Paper facings: a minimum of 100% post-consumer recycled paper content.
 - b. Gypsum cores: a minimum of 75% post-industrial recycled gypsum content (also called "synthetic" gypsum – from coal-fired power plants).
- G. Ceramic Tile
- 1. Applicable products include:
 - a. Ceramic tile
 - b. Glass tile
 - c. Ceramic/glass composite tile
 - d. Terrazzo-type tile
 - 2. Recycled Content (by weight): a minimum of 50% (combined) post-industrial/post-consumer recycled content.
 - 3. Content and Performance Criteria: See Section 2.2, sub-section F below.
- H. Acoustic Panel Ceiling Systems
- 1. Applicable products: Mineral-wool and cellulose fiber based acoustic ceiling panels and associated steel suspension grids
 - 2. Recycled Content (by weight):
 - a. Panels: a minimum of 50% (combined) post-industrial/post-consumer recycled content.
 - b. Panels specifically formulated for fire resistance: a minimum of 35% (combined) post-industrial/post-consumer recycled content.

- c. Steel suspension grids: a minimum of 25% (combined) post-industrial/post-consumer recycled content.
- I. Carpet Tile
 1. Applicable products: Nylon face-fiber carpet tiles
 2. Recycled Content (by weight): Carpet tiles shall have face fibers and/or backings containing a minimum of 15% (combined) post-industrial/post-consumer recycled content.
 3. Product Labeling (for future recycling): Carpet tiles shall have Carpet Component Identification Codes as established by the Carpet and Rug Institute (CRI). The labels shall be permanently printed or attached to the carpet backing. The codes shall identify, at minimum, the carpet's face fiber, primary backing, and secondary backing.
 4. Content and Performance Criteria: See Section 2.2, sub-section G below.

2.2 RECOMMENDED CONTENT AND PERFORMANCE CRITERIA FOR MATERIALS:

- A. The materials and products in this Section, if permanently installed in the project, shall meet or exceed the content and emissions criteria recommended herein, to the extent feasible.
 1. These materials are also subject to other requirements provided elsewhere in this Specification.
 2. While the content and performance criteria listed herein may contribute toward the project's overall LEED performance, the materials subject to other content and performance criteria are not restricted to the specific materials listed herein.
- B. Composite Wood and Agrifiber Products, including Laminating Adhesives
 1. Content and performance criteria: Composite wood and agrifiber products, including laminating adhesives, shall contain no added urea-formaldehyde.
- C. Pressure-Treated Wood Products
 1. Content and performance criteria:
 - a. Pressure-treated wood products shall not contain arsenic, chromium, or other agents classified as carcinogenic, probably carcinogenic, or possibly carcinogenic to humans (compounds in Groups 1, 2A, or 2B) by the International Agency for Research on Cancer (IARC), Lyon, France.
 - b. Pressure-treated wood products shall not exceed the limits of the U.S. EPA's Toxic Characteristic Leaching Procedure (TCLP).
 - c. Pressure-treated wood products shall not be classified as hazardous waste.
 2. Compliant and non-compliant products:
 - a. Compliant products include, but are not limited to, Ammoniacal Copper Quaternary (ACQ) and Copper Boron Azole (CBA).
 - b. Non-compliant products include, but are not limited to, Chromated Copper Arsenate (CCA) treatments, Ammoniacal Copper Zinc Arsenate (ACZA) treatments, and those using pentachlorophenol or creosote.
- D. Fiberglass Insulation
 1. Content and performance criteria: Provide fiberglass insulation that does not contain formaldehyde binders.
 2. Recycled Content (by weight): See Section 2.1 above.
- E. Sprayed-on Fireproofing
 1. Content and performance criteria: The fireproofing material shall be formulated at the time of manufacturing with a mold inhibitor. Fireproofing material shall be tested in accordance with ASTM G-21 and shall show resistance to mold growth for a period of 28 days for general use and 60 days for materials to be installed in plenums.
 2. Recycled Content (by weight): See Section 2.1 above.
- F. Hard Surface Flooring
 1. Applicable products include, but are not limited to:
 - a. Vinyl flooring

- b. Linoleum tile or sheet flooring
 - c. Laminate flooring
 - d. Wood flooring, except untreated/unfinished wood flooring
 - e. Mineral-based flooring, except mineral-based flooring treated with sealants containing organic materials
 - f. Rubber flooring
 - g. Wall base
2. Content:
 - a. Linoleum tile or sheet flooring shall consist primarily of renewable materials including linseed oil, cork flour, wood flour, pine rosin, and jute. Additional components may include inert fillers, pigments, or other secondary materials; however, the products shall not contain synthetic latex, vinyl, or other thermoplastics or thermosetting plastics as backings or pre-finished coatings.
 - b. Glazings used for glazed ceramic tiles shall be lead-free.
 3. Performance criteria: All applicable flooring products shall comply with the FloorScore standard requirements of the Resilient Floor Covering Institute.
- G. Carpet and Carpet Cushion
1. Content and performance criteria:
 - a. Carpet shall comply with the "Green Label Plus" indoor air quality testing program of the Carpet and Rug Institute of Dalton, GA
 - b. Carpet cushion shall comply with the "Green Label" indoor air quality testing program of the Carpet and Rug Institute of Dalton, GA
 2. Recycled Content (by weight): See Section 2.1 above.

PART 3 – EXECUTION

3.1 INSTALLATION:

- A. The following requirements supplement, and do not replace, the installation requirements found in the Specification Sections dedicated to the following materials.
- B. Fiberglass Insulation: Fiberglass insulation in exposed locations and in ceiling plenums (used for HVAC return) shall be encapsulated with a continuous wrap of polyethylene or similar material.
- C. Sprayed-on Fireproofing: In areas subject to impact or vibration (e.g., mechanical rooms), medium density (min. 22 lbs/cf) or high density (≥ 40 lbs/cf) fireproofing products shall be specified.
- D. Carpet Tile: When installed over concrete slabs, verify compatibility of carpet tile and adhesives with curing compounds, leveling agents, or sealing agents used for slab preparation.

3.2 WASTE MANAGEMENT:

- A. Identify manufacturer's policy for collection or return of construction scrap, unused material, demolition scrap, and/or packaging material.

MEASUREMENT AND PAYMENT: Payment for LEED PERFORMANCE REQUIREMENTS in accordance with the plans and specifications will be made at the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM** price and shall include the cost of all labor and materials, including all LEED Requirements as provided in the General Conditions and all other incidental expenses necessary to complete the work in accordance with the plans and specifications to the satisfaction of the Engineer.

END OF SECTION

**ITEM NO. 5 MAINTENANCE AND PROTECTION OF TRAFFIC -TYPE A
MAINTENANCE AND PROTECTION OF TRAFFIC -TYPE B
MAINTENANCE AND PROTECTION OF TRAFFIC -TYPE C**

WORK: Under these items the Contractor shall maintain and protect traffic for the duration of the portion of the contract work performed in the street and/or sidewalk. The purpose is to protect the traveling public from all damage to persons and property within the contract limits and furnish, erect and maintain warning signs, barricades and lamps, all in accordance with the contract documents and directions of the Engineer.

NOTE: Contractor is advised that each of the three (3) types of Maintenance and Protection described below requires a different level of work, the Contractor should expect to perform all work required to adequately protect the traveling public as directed by the Engineer.

Nothing herein contained shall be construed so as to prevent the Engineer from requesting the Contractor to provide such other suitable devices or special measures as the Engineer determines necessary for proper safety of the public or for the control of traffic during construction work. Obstructions to traffic (both vehicular and pedestrian) at any location will be tolerated only so long as is necessary for the proper performance of the contract work.

SCOPE OF WORK: The typical work under these three (3) items will consist of all provisions necessary for maintenance and protection of traffic in conjunction with contract work as follows:

TYPE A: Street excavations for utilities, including water taps and connections to subsurface utilities.

TYPE B: Construction of sidewalks and/or street pavements or curbs. Also shall include work described under TYPE A, above.

TYPE C: Major malls, traffic triangles and/or public street constructions typically involving street closures, reconfigurations and repaving. Also shall include work described under TYPE A and TYPE B, above.

The Contractor shall conduct his operations so as to interfere with traffic as little as possible, and effect, by every reasonable means, the safety and comfort of pedestrians, vehicles and vehicular passengers passing over or adjacent to the site of the work.

In the execution of the Contract, work shall be arranged and traffic shall be maintained as scheduled on the drawings, or as directed by the Engineer.

Under these items, subject to the approval of the Engineer, the Contractor shall perform the following:

TYPES A,B.&C:

Keep the surface of all pavement used by the public free and clean of all dirt, debris, stones,

timbers, or other obstructions to provide a safe travelled way.

Furnish, erect and place approved signs and cones for the directing of traffic, danger signs for curves, narrow pavement and other dangerous locations, and road closure signs.

Provide watchmen and flagmen as may be necessary in the opinion of the Engineer for the protection of traffic.

TYPES B&C:

Furnish and erect barricades which shall be adequately lighted at night and on which red danger lights shall be displayed where needed.

Furnish and erect temporary barricades and guide railing at points of hazard.

TYPE C:

Provide concrete "jersey barriers", as necessary.

Provide detours in street as necessary to reroute traffic.

SIGNS: Under these items, the Contractor shall construct, erect and maintain suitable signs for the direction and protection of traffic. These signs shall not only warn the traveller of the route or track to be followed in case of detours, but shall also warn of points of unusual danger. At points of termination of pavement, where shown on drawings or where required by the Engineer, signs of sizes indicated on plans shall be erected. Warning signs for termination of pavement shall be erected in advance of the point of pavement change as directed by the Engineer.

Signs required for maintenance of traffic shall be in accordance with the rules, regulations and specifications of the State Traffic Commission.

All barricades, danger signals, warning signs, indicators or obstructions not designed or suitable for use in the dark shall be removed from the roadway each evening by a time not later than one half (1/2) hour after sunset, as reported daily in newsprint referring to New York City, and the particular day in question, nor shall any obstructions as noted above be placed in the street earlier than one half (1/2) hour before sunrise.

When performing work during the dark hours, the Contractor shall use reflectorized barricades, reflectorized signs, illuminated devices, and suitable warning lights facing the approaching traffic to warn, direct and protect from damage vehicles, pedestrians, workmen and equipment. All such warning devices shall have the approval of the Engineer, and he shall prescribe the minimum requirements for each such warning device.

GENERAL: Under all these items all areas in which work is to be done shall be adequately barricaded and closed off before such work is begun.

At least one flagman shall be required to be on duty for the direction of traffic during all working hours and one night watchman may be required to continuously patrol the contract to make sure that all signs are in place, all lights lighted, and all temporary timber curbing properly in place.

Danger signs shall be equipped with acetylene Gas Generating Units for such locations where electrical energy is not suitably available.

The Contractor shall furnish, erect, and install illuminated barricades when needed and as directed by the Engineer. The details of these may be shown on the plans.

Barricades shall be erected at points of abrupt changes in the direction of traffic, at points of similar hazard or where required by the Engineer. They shall be painted in alternate black and white stripes as directed by the Engineer, or indicated on drawing.

When necessary to perform the work and allow traffic to flow unimpeded, the Contractor shall install steel plates in the roadway in compliance with NYC DOT rules and as directed by the Engineer. Pursuant to NYC DOT rules all steel plates shall comply with the New York State Skid Resistance of 36 or greater, matching the existing adjacent surfaces of the roadway. The number of 36-skid resistance is determined by ASTM E274- (Skid resistance of paved surfaces using full scale tire test). In addition the plates shall comply with the British Pendulum Test with a BPN of 55 or greater as determined by ASTM E303, latest revision. These test results numbers shall be maintained as long as the plates remain in the roadway.

The Contractor shall paint all barricades, signs and railings with two (2) coats of white paint, after which he shall apply one (1) coat of colored paint where shown on the plans or as directed by the Engineer.

Upon completion of the work, all signs, barricades and temporary curbing shall become the property of the Contractor and shall be removed from the site of the work by him.

PERMITS: Contractor is responsible for obtaining all permits from appropriate agencies and utilities prior to commencement of work. Contractor shall coordinate work per M.T.C.C.C. requirements and shall prepare a Maintenance and Protection of Traffic Plan if so required by same.

The Contractor shall obtain all necessary permits for the closing of roads and shall comply with all laws or ordinances applicable to the work under this contract. He shall pay for all service charges and permits at his own expense.

COOPERATION: The Contractor shall cooperate in every respect with other agencies of the State, City and private agencies engaged in construction work in the vicinity. Lighting and other methods of protection shall be changed from time to time as conditions change and as ordered by the Engineer.

LIABILITY: Any method or clause under this item is intended to be the minimum requirement. The Contractor shall provide any other facilities that may be required.

The Contractor agrees to assume all responsibility for damage to persons or property that may accrue during the prosecution of the work, due to negligence of himself, his agents or employees, in failing to comply with the requirements of this specification or other necessary precautions for the protection and safety of traffic.

TIME OF COMPLETION DAMAGES: The Contractor shall have no claim against the City for the extension of the time of completion of this contract nor for damages due to delay, inconvenience or expense caused by the provisions of this item.

MEASUREMENT AND PAYMENT: Payment for Maintenance And Protection Of Traffic of the various types in accordance with the plans and specifications will be made at the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM** price and shall include the cost of all labor and materials, including barricades, timber curbs, generating units, signs, permits, removing temporary detours and restoring disturbed areas, and all other incidental expenses necessary to complete the work in accordance with the plans and specifications to the satisfaction of the Engineer.

END OF PAGE

ITEM NO. 6 **TEMPORARY WOODEN TREE GUARD WITH TREE WRAP**

WORK: Under these items, before commencing any work on the site, the Contractor shall erect Temporary Wooden Tree Guards With Tree Wrap around existing trees in accordance with the plans, specifications and directions of the Engineer. Also, the branches of existing trees shall be tied up, when directed, to prevent injury during work on the site. Temporary Wooden tree guard with tree wrap is intended to protect individual trees.

MATERIAL:

Tree Guard: Lumber shall be Yellow Pine, Douglas Fir or Spruce. Nails shall be galvanized. No paint will be required. All work shall be done in a neat and workmanlike manner to the satisfaction of the Engineer.

Tree Wrap: Tree wrap shall be snow fencing composed of commercially woven wood slats and wire.

Line Post/Stake: Line post/Stake shall be 'Heavy Vinyl Guard Post', 'U' shaped, 13 gauge, rustproofed steel, three (3'-0") foot height, manufactured by Boundary Fence and Rail Systems, Richmond Hill, NY or approved equal. Color to be Black or Green.

INSTALLATION:

Snow fencing shall be carefully wrapped around the trunk of the tree, above the flare and secured with steel or aluminum tie wire, as directed by the Director or Landscape Construction or his designated representative. Tree wrap shall be installed prior to the installation of the tree guards.

The temporary wooden tree guards shall be installed where shown on the contract drawings. Posts shall be installed at approximately eight feet on center, unless otherwise noted on the plans or directed by the Engineer. They shall be installed with line post/stakes securely attached with galvanized or stainless steel screws to the wooden posts and driven 18" into the ground, as directed by the Director or Landscape Construction or his designated representative, without damage to existing trees. If any temporary wooden tree guards or wrap are damaged during the course of the work, they shall be immediately repaired, or replaced by a new temporary wooden tree guard or wrap at no additional expense.

Temporary wooden tree guards and wrap shall remain in place and not be moved or removed without written permission of the Director of Landscape Construction or his designated representative until all work which might cause damage or defacement has been completed. Upon completion of the work, to the satisfaction of the Engineer, the Contractor shall remove and dispose of all temporary wooden tree guards and wrap.

MEASUREMENT AND PAYMENT: The price bid for **TEMPORARY WOODEN TREE GUARD WITH TREE WRAP** shall be a unit price per tree guard with wrap, furnished, erected and removed in accordance with the plans, specifications and directions of the Engineer.

The price bid for temporary wooden tree guards shall be a unit price for **EACH** tree guard with tree wrap and shall include the cost of all labor, materials, equipment and expenses necessary to furnish, erect and remove the tree guards, including tree wrap, line post/stakes, and tying of tree branches, all

in accordance with the contract drawings and in accordance with these specifications, to the satisfaction of the Engineer.

Payment for work performed under this item shall be made as follows:

50% - upon initial installation

50% - at the final inspection, having maintained the temporary wooden tree guards for the life of the contract to the satisfaction of the Engineer.

The City reserves the right to eliminate this item from the contract.

Additional tree protection a applicable shall be paid for under their respective items.

END OF PAGE

ITEM NO. 7

REMOVALS

WORK: Under this Item, the Contractor shall undertake **REMOVALS** of materials and obstructions whose removal is not included under any other contract Items from within the contract areas.

DEFINITION OF REMOVALS: 'Removals' shall be defined as the removal of fences, sign(s), wooden deck, planters, tables, poles and other such minor structures that are encountered above the ground surface. Removals shall consist of the following additional materials:

Footings, bases, steel fabric reinforced concrete, and foundations for the above mentioned removals shall be removed under the item "UNCLASSIFIED EXCAVATION". Reinforced concrete with steel bar reinforcement shall be paid for under the item "REMOVAL OF STEEL BAR REINFORCED CONCRETE."

The Contractor shall exercise care to protect the adjacent existing curbs, lamp posts, and other structures and shall be responsible for any damage they may cause them during construction. All other debris, refuse, solid waste, tires, wooden planks, junk of any nature, etc. shall also be removed from the site and disposed of.

UTILITIES: Should the Contractor encounter any utilities or services during the performance of the work, they shall notify the City Department or Utility company owning or controlling services to cut off these services. Any services cut off or interrupted by the Contractor's operations shall be restored at the Contractor's expense.

MEASUREMENT AND PAYMENT: For performing the work of **REMOVALS** in accordance with the plans, specifications, and directions of the Engineer, the Contractor shall receive the **LUMP SUM** price bid.

The **LUMP SUM** price bid shall include the cost of all labor, materials, equipment, and incidental expenses necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

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ITEM NO. 8 **TREE REMOVAL OVER 6" TO 12" DBH**

WORK: Under this item, the Contractor shall cut and remove within the contract limits, all trees over six (6) inches DBH, including the root to a depth of three (3) feet below the surface, where shown on the plans or as directed by the Engineer.

Note: DBH is defined as Diameter at Breast Height, which is 4'-6" above grade.

SPECIAL REQUIREMENTS FOR LONGHORNED BEETLE QUARANTINE ZONE: For tree work to be performed within the quarantine zone, the Contractor shall utilize the service of a Sub/Contractor certified by the New York State Department of Agriculture and Markets. Due to current Federal, State and NYC DPR policy, any wood waste that is generated must be completely chipped within the Quarantine Zone, by said certified Sub/Contractor. Log splitting equipment, where necessary, shall be utilized at no extra cost to the City. See Appendix Item, Section A, "Tree Work". For additional information regarding procedures, contact Matthew DiVittorio at (718) 760-6736. Also, see requirements listed under heading "Submittals".

METHOD: The Contractor shall carefully protect against damage all existing trees, plants and other features to remain. He shall be liable for any damage to such trees, plants, park features and other property caused by Tree Removal operations and all damaged property shall be replaced or restored to its original condition to the satisfaction of the Engineer.

The Contractor shall cut and remove all trees designated for removal within the limits of the contract or as directed by the Engineer. The stumps and roots of these trees shall be removed to a depth of three (3) feet below the ground surface except in areas of fill greater than three (3) feet, where such trees may be cut flush with the ground surface. All voids and excavations left after removal of the tree and roots shall be backfilled to grade with clean earth fill. The fill shall be placed and compacted by acceptable methods to the satisfaction of the Engineer. Chips generated by root removal operations shall be removed prior to backfilling.

Cutting of trees shall be done by competent workmen only and in workmanlike manner. All trees shall be "topped" and "limbed" previous to felling unless otherwise directed by the Engineer. All branches, limbs, trunks, stumps, roots and other debris shall be removed from the site or otherwise disposed of to the satisfaction of the Engineer.

No trees are to be removed except as ordered by the Engineer.

PAYMENT SCHEDULE: The Contractor will be paid at the following rates for the different size groups of trees removed, based on the unit bid price for removing a tree over 6" to 12" DBH (base unit).

<u>TREE DBH</u>	<u>TREE UNITS</u>	<u>PAYMENT PER TREE REMOVED</u>
Over 6" to 12"	1.0 (base unit)	100% of unit bid price
Over 12" to 18"	1.25	125% "
Over 18" to 24"	1.5	150% "
Over 24" to 30"	2.0	200% "

Over 30" to 36"	2.5	250%	"
Over 36" to 42"	3.5	350%	"
Over 42" to 48"	4.5	450%	"
Over 48"	5.5	550%	"

Arbitrary Example: For example, removal of (1) 30" DBH tree would receive payment for 2.0 tree units, removal of (1) 22" DBH tree would receive payment for 1.5 tree units, and removal of (1) 7" DBH tree would receive payment for 1.0 tree unit, for a total payment of 4.5 tree units.

The tree DBH shall be measured in the presence of the Resident Engineer or the Landscape Supervisor, Matthew DiVittorio at (718)760-6736.

SUBMITTALS: All submittals shall be as specified in the General Conditions. The Sub/Contractor shall submit the following for review and approval prior to performing work.

Qualifications In Quarantine Zone:

State Certification- For all contracts within the Quarantine Zone, the Sub/Contractor must submit a copy of a valid Compliance Agreement issued by the State of New York Department of Agriculture and Markets, Division of Plant Industry.

MEASUREMENT AND PAYMENT: The quantity of Tree Removal to be paid for under this item shall be the number of tree units calculated in accordance with the payment schedule above, completely removed in accordance with the plans and specifications and directions of the Engineer.

The price bid shall be a unit price for **EACH** tree of the over 6" to 12" DBH size group, and shall include the cost of all labor, materials and equipment necessary for removing and disposing trees, including removal of root to 3' depth, borrowed fill, and all other incidentals necessary to complete the work in accordance with the plans and specifications to the satisfaction of the Engineer. The cost of State Certification and chipping wood waste shall be included in the bid price for all Contracts located within the Quarantine zone.

Trees six (6") in DBH and under shall be removed and paid for under the item "Clear and Grub"

END OF PAGE

ITEM NO. 9 **RELOCATE SITE ITEMS**

WORK: Under this item the Contractor shall remove, salvage and **RELOCATE STEEL SHELTER, RELOCATE STEEL BLEACHERS - 3 TIERS, and RELOCATE WHEELSTOPS** in accordance with the plans, specifications and directions of the Engineer.

Under this item the Contractor shall remove, salvage and **RETURN MOBILE TRAILER** to another NYCDPR facility, to be designated, in accordance with the plans, specifications and directions of the Engineer.

MATERIALS: Unless otherwise herein specified, all materials and methods of construction shall conform to requirements of Appendix Item, Section B, "Materials and Methods of Construction".

INTENT: Under this item, the Contractor shall dismantle the existing pipe rail sections from wooden posts, remove the posts and reinstall the pipe rail enclosures on site as directed in field by the Resident Engineer.

METHOD: Structures shall be removed and salvaged on site. They shall be reinstalled at the locations specified on the contract drawings or as directed by the Resident Engineer. Any damage to the structures caused by the contractor's negligence shall be repaired to the satisfaction of the Resident Engineer at the Contractor's expense.

Structures shall be placed on leveled sub-base constructed as per the direction of the Resident Engineer. All base material, if required, shall be paid under their respective items, such as Average Concrete, Cement Concrete Pavement or Broken Stone.

The Contractor shall maintain all structures to be relocated under these items during the life of the contract and shall repair and replace all members that are disturbed, damaged or destroyed.

DISPOSAL: All materials deemed salvageable shall become Parks property and shall be delivered to a city storage yard as directed the Engineer. The Contractor shall notify the Foreman of Mechanics three (3) days in advance of such delivery. All other material shall become the property of the Contractor and properly disposed of as part of the bid price of this item.

MEASUREMENT AND PAYMENT: For performing the work to **RELOCATE SITE ITEMS** in accordance with the plans, specifications, and directions of the Engineer, the Contractor shall receive the **LUMP SUM** price bid.

The **LUMP SUM** price bid shall include the cost of all labor, materials, equipment, and incidental expenses necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

Unclassified Excavation, Average Concrete, Cement Concrete Pavement and Broken Stone, where required, shall be paid under their respective contract items.

END OF PAGE

ITEM NO. 10 SAW CUT PAVEMENT
ITEM NO. 11 SAW CUT CURBS AND WALLS

WORK: Under these items, the Contractor shall saw cut existing pavements and/or saw cut existing curbs and walls in accordance with the plans, specification and direction of the Engineer.

EXECUTION: All work shall be done by competent mechanics in an approved manner to the satisfaction of the Engineer.

All saw cutting shall be carried out to the full depth of the pavement, curb or wall to be cut. Saw cutting shall be done to accurate, neat and straight lines marked previously to commencement of work. Saw cutting shall be done with approved power saws specifically designed and manufactured for such a purpose.

Workmen shall wear safety clothing and eye protection while operating saw equipment and shall be thoroughly familiar in the safe operation of the equipment.

MEASUREMENT AND PAYMENT: The quantity of **SAW CUT PAVEMENT** and **SAW CUT CURBS AND WALLS** to be paid for under these items shall be the number of **LINEAR FEET** of saw cutting performed, in accordance with the plans, specifications and directions of the Engineer. Measurement of curbs and walls shall be either horizontal or vertical, whichever quantity is greater.

The price bid shall be a unit price per **LINEAR FOOT** and shall include the cost of all labor, materials, equipment and incidentals necessary to complete the work in accordance with the plans and specifications to the satisfaction of the Engineer.

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ITEM NO. 12 HAND AND/OR PNEUMATIC EXCAVATION

WORK: Under this Item, the Contractor shall perform **HAND AND/OR PNEUMATIC EXCAVATION** in accordance with the plans, specifications, and directions of the Engineer.

INTENT: The intent of the item is to either hand excavate or excavate with a pneumatic air device in areas where trenching or other excavation is required within the drip line of existing trees and/or excavation around gas lines and other sensitive areas. These are areas, where in the opinion of the Engineer, use of a backhoe or tractor would not be appropriate.

METHOD: Prior to beginning work, the area to be trenched/excavated shall be thoroughly wetted, 24 hours in advance, to minimize dust to the greatest extent possible. Trenching/Excavation shall be accomplished either by hand or with a pneumatic device such as an Air-Spade® CGP System, as manufactured by Concept Engineering Group, Inc. Verona, PA, or approved equal. The Contractor shall provide a compressor unit for operating the pneumatic excavator rated at one hundred fifty standard cubic feet per minute (150 scfm) at ninety pounds per square foot gauge (90 psfg). All pneumatic excavation shall be as minimal as possible in width and depth, thereby minimizing the impact on tree roots and other areas where the Engineer determines that conventional machine excavation may be detrimental. Different nozzles may be used on the air spade to expedite the work or minimize the amount of airborne material. Depth shall be as indicated on Contract Drawings or as directed by the Engineer. Depths greater than 18" shall require removal of soil by hand shovel, or other appropriate means. Where a pneumatic device is used, care shall be taken to avoid rocks being scattered and inadvertently damaging private or public property. In addition, operators must be equipped with adequate protective clothing and gear, in accordance with manufacturer's recommendations. All tree roots exposed by the pneumatic or hand excavation operation must be kept constantly moist with burlap covered with white plastic and checked a minimum of two (2) times a day, once in the morning and once in the afternoon, for a maximum of forty-eight (48) hours, until backfill is complete as directed by the Director of Landscape Construction, or his designated representative. If directed, soaker hoses shall be installed to facilitate properly moist conditions.

Necessary inspections of piping shall be scheduled in advance, especially those involving inspections performed by outside Agencies.

In cases where roots must be cut, the Contractor must receive written approval from the Director of Landscape Construction or his designated representative prior to cutting any roots larger than one inch (1") in diameter. Roots must be cut cleanly with pruning shears, loppers, or pruning saws. All root cuts must be approved by the Engineer prior to backfilling.

SUBMITTALS: All submittals shall be in accordance with the requirements of the General Conditions.

The Contractor shall submit in advance the proposed method of excavation performed under this item. If a device other than the Air-Spade is proposed, all product literature shall be submitted for review.

MEASUREMENT AND PAYMENT: The quantity of **HAND AND/OR PNEUMATIC EXCAVATION** to be paid for under this Item shall be the number of **CUBIC YARDS** of material excavated and backfilled, as measured in its original position, in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per **CUBIC YARD** of Hand And/Or Pneumatic Excavation and shall include the cost of all labor, materials, and equipment necessary, including compressor and backfilling, in accordance with the plans and specifications, to the satisfaction of the Engineer.

Note: Any overruns of quantity on this item shall be identified and approved prior to use, in writing, by the Engineer.

END OF PAGE

ITEM NO. 13

UNCLASSIFIED EXCAVATION

WORK: Under this item the Contractor shall do all excavating, not included under other items, required for grading, trenching, paving, curbs, construction and reconstruction of structures, such as buildings, subsurface structures or any other structures; and shall place, compact and dispose of excavated materials in accordance with the plans, specifications and directions of the Engineer.

DEFINITION: Excavation shall be defined as the removal of fence footings, pavements (including concrete pavement reinforced with welded wire mesh), all curbs (except DPR standard type eight (8) and larger), earth, boulders, buried timbers, broken concrete pieces, unit masonry foundations e.g. concrete block, brick and other materials of any nature whatsoever encountered that will not require special rock or hoe ram type heavy concrete breaking equipment. Where directed, excavation within the tree protection zone shall be performed with equipment of lighter weight to avoid compaction, as approved by the Director of Landscape Construction or his Representative.

EXCAVATION AND FILLING: The entire area of work shall be brought to the required lines and grades by excavation and filling. Excavation materials suitable in the opinion of the Engineer, shall be used in making embankments and filling the low areas of the work, and at such places as the Engineer may direct.

PROTECTION OF EXISTING TREES AND SHRUBS: All tree and shrub roots exposed by excavating operations must be kept constantly moist with burlap covered with white plastic and checked a minimum of two (2) times a day, once in the morning and once in the afternoon, for a maximum of forty-eight (48) hours, until backfill is complete as directed by the Director of Landscape Construction, or his designated representative. If directed, soaker hoses shall be installed to facilitate properly moist conditions. No roots greater than 1" shall be cut without written permission of the Director of Landscape Construction or his designated representative. In certain areas the Contractor shall use the Standard Specification "Hand and/or Pneumatic Excavation, in accordance with the Contract Drawings and directions of the Engineer. Also see Appendix Item, Section A, 'Tree Work' for additional information and requirements.

SUBGRADE: All soft, boggy, clayey or other objectionable material below the proposed subgrade shall be removed, and the area refilled with acceptable material.

SOD: Sod removed from excavation shall be disposed of to the satisfaction of the Engineer, but shall not be used in construction of embankment.

BOULDERS: The Contractor shall remove all boulders, stone or pieces of concrete, lumber, iron or other material that project above subgrade. Any stone larger than two (2) cubic feet in volume shall not be placed within two (2) feet of the finished surface.

DRAINAGE STRUCTURES: Existing catch basins, drop inlets, manholes and similar structures to be abandoned shall be broken down and excavated to a depth of four (4) feet below the finished surface, and the void backfilled with suitable material. All drainage lines and sewer lines designated

to be abandoned or plugged under this contract, shall be plugged at both ends with average concrete twelve (12") inches into the pipe.

EMBANKMENT, COMPACTING: Embankment shall be carried on as directed by the Engineer, and shall be constructed in successive horizontal layers not over six (6") inches in depth, extending across the entire fill. It shall be spread by a "Bulldozer", or other acceptable methods, and each six inch layer shall be thoroughly compacted by rolling with a self-propelling roller weighing not less than ten (10) tons and completed to the satisfaction of the Engineer. In places where the character of the material makes the use of this roller impractical or where drains or other construction may be damaged, a lighter one may be substituted, or the area shall be compacted by tamping, all with the approval, and to the satisfaction of the Engineer.

On sidehill fills or where the nature of the materials make layer rolling impractical the Contractor shall use other means, satisfactory to the Engineer, of depositing and compacting the material. In order that fills and embankments may be allowed natural settlement to as great an extent as possible, all structures below the surface shall be constructed and backfilled as long as possible before the construction of any other work.

All hollows and depressions which develop during the process of rolling and compacting shall be filled with acceptable material, and the subgrade shall again be compacted. This process of filling and compacting shall be repeated until no depressions develop.

Care shall be taken not to roll clay foundations enough to develop a plastic condition. Where required in the opinion of the Engineer, areas shall be compacted and settled by puddling with water.

EXCAVATING FOR FOUNDATIONS: All excavations shall be cut accurately to required lines and dimensions for work on drawings and shall be large enough to provide adequate clearance for the proper execution of the work within them.

BOTTOMS OF EXCAVATIONS: The Contractor shall level the bottoms of all excavations accurately to the lines and levels shown on the plans or as directed by the Engineer to receive the bottoms of footings or other work supported on soil.

Where excavation for a foundation has been carried below the indicated level by error on the part of the Contractor, he will be required to fill the space between the incorrect and required depth with average concrete at no additional cost to the City.

STORAGE AND PLACEMENT: All those excavated materials which in the opinion of the Engineer are suitable for backfilling shall be stored or placed within the limits of the Contract, where directed by the Engineer. Refer to Appendix Item, Section A, for requirements to eliminate surface and subsurface root damage and soil compaction.

SURPLUS: Excess material excavated by the Contractor becomes the Contractor's property and is to be properly disposed of at the Contractor's expense.

SHORING: Wherever necessary to maintain the banks of excavation in a safe and stable condition, the Contractor shall furnish and install temporary sheet piling or planks, braces and shores of good sound timber of adequate strength, and shall remove such piling or shoring as the foundation work progresses.

All shoring work shall meet or exceed the requirements of the New York State Department of Labor Industrial Code Rule 23 and Title 29 Code of Federal Regulations Part 1926, Safety and Health Regulations for Construction.

Where the depth of excavation exceeds five (5) feet, sheeting and necessary bracing must be installed for the entire depth below the existing ground surface.

The type of sheeting and bracing shall be satisfactory to the Engineer and subject to his approval, but the approval by the Engineer of a method to be used does not relieve the Contractor of his responsibility for protection and safety.

The foregoing shall include the construction and removal of sheeting and bracing, the excavation and maintenance of temporary ditches, and the furnishing and operation of pumps or other appliances needed to properly drain the work. No additional payment will be made for this work, but payment therefore shall be deemed included in the cost of this item.

Separate payment shall be made for temporary sheeting only where the depth of excavation exceeds five (5) feet. When sheeting is used in trenches or excavations for structures of five (5) feet or less in depth, the cost of such sheeting and bracing, unless ordered left in place, shall be deemed included in the cost of this item.

INSPECTION: When the excavations have been carried to the required depth as shown on the drawings, the Contractor shall do no more work until after inspection by the Engineer, who shall order the foundation or other work to proceed, or further excavation, as the conditions indicate. No foundation or other work shall be done until the excavations therefore have been approved by the Engineer.

BACKFILL: After inspection and approval of masonry foundations and other work which is to be covered by backfill, the excavated voids around masonry and other work shall be filled with clean excavated material, puddled and rammed solid every six inches 6" of depth.

No direct payment shall be made for rehandling of excavated materials for backfilling structures, nor for any other purposes necessary to complete the work as shown on the plans, but the compensation will be considered as having been included in the price bid for excavation. Rehandling of excavated materials may be paid for as excavation when the same is made necessary by changes of plans and is ordered in writing by the Engineer. Backfilling inside of sheeting shall be placed before sheeting is removed.

After areas and trenches have been excavated and structures constructed therein, the spaces around and above them shall be carefully backfilled with acceptable material. Backfill shall be placed on

both sides of structures to approximately the same elevation at the same time. All backfill shall be thoroughly tamped and rammed in place in layers not over six (6) inches in depth, using rammers of a weight acceptable to the Engineer. If directed by the Engineer, the backfill shall be thoroughly saturated with water as it is placed.

Backfill adjacent to foundation walls shall be pneumatically compacted.

BAILING AND DRAINING: The Contractor shall furnish all materials, appliances and labor required to keep the site of the work free from water, ice and snow during construction.

UTILITIES AND SERVICES: It is the Contractor's responsibility to detect and protect existing utilities (to remain) from damage during construction. Prior to start of construction the Contractor is required to notify:

New York City/ Long Island One Call Center
36-35 Bell Blvd., Suite 202
Bayside, New York 11361
(800) 272-4480

when excavation operations are to be conducted in the installation of any item of work that is deemed part of the original contract provisions or is specifically ordered by the Agency.

New York State General Business Law Article 36 and New York State Public Service Law Section 119-b, as set forth in Code Rule 753 mandates that the Contractor notify all underground facility operators in the area not less than two (2) and not more than ten (10) business days before the start of excavation to ensure that utility service lines are properly marked prior to excavation.

The Contractor's obligation to protect utilities is not relieved by calling the One Call Center. The Contractor shall understand that not all utilities will be identified by the One-Call Center and the Contractor is still responsible to locate these and other utilities, to the best of his ability, using electronic probes, or other methods, prior to the start of excavation. The Contractor shall then proceed cautiously and perform hand excavation, as necessary, to protect the utility as directed by the Engineer, at no extra cost to the City. If a utility is inadvertently damaged, it is the Contractor's responsibility to restore that utility to operating condition, equal to that existing prior to damage. The Contractor shall remain at the site with the damaged utility until it has been restored and there is no danger to the public (i.e. exposed live electrical wires, etc.).

MEASUREMENT AND PAYMENT: The quantity of **UNCLASSIFIED EXCAVATION** to be paid for under this item shall be the number of **CUBIC YARDS** of material, measured in its original position, excavated and disposed of as directed by the Engineer.

The price bid for unclassified excavation shall be a unit price per **CUBIC YARD** and shall include the cost of all labor, materials, equipment and incidental expenses necessary for the excavation, disposal, delivery and placing of excavated material, pumping, sheeting and bracing, and other incidental work and expenses necessary to complete the work in accordance with the plans and specifications to the satisfaction of the Engineer.

For computation of quantities of excavation, no deductions shall be made in the areas of any cross section for any pipe or similar obstruction unless the area of such obstruction is greater than one square foot. Unless otherwise specified, **all Excavation payment lines shall be produced from neat lines except as follows:** Payment lines for pipes, drainage structures, building walls and Type 8 (eight) curbs (only) shall be as shown on Drainage Details - Number 2 of D.P.R. Standard Details.

Rock excavation, removal of steel bar reinforced concrete, and average concrete for plugging existing drain lines shall be paid for under their respective items.

Rock excavation includes only excavation of boulders of more than thirteen (13) cubic feet in volume and ledge rock which is determined by the Engineer to be so hard that it is necessary to loosen and handle with a power shovel, special rock breaking equipment or blasting.

Payment for temporary sheeting shall be paid for separately only when the depth of excavation exceeds five (5) feet or if the sheeting is less than five (5) feet and is ordered left in place. Removal of all curbs (including those with steel reinforcement) shall be paid for under this item except DPR standard type eight (8) and larger), which may be paid for under Removal of Reinforced Concrete.

Hand and/or Pneumatic Excavation, where deemed necessary, shall be paid for separately under its own Item.

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ITEM NO. 14

STABILIZED CONSTRUCTION ENTRANCE

WORK: Under this item, the Contractor shall furnish and install a **STABILIZED CONSTRUCTION ENTRANCE** to the dimensions and the locations shown on the plans, in accordance with the specifications, and as directed by the Engineer.

INTENT: The intent of this item is to facilitate an erosion and sediment control plan, which may be required by NYS Department of Environmental Conservation (DEC) in accordance with the State Pollutant Discharge Elimination System (SPDES) and The Code of Federal Regulations, 40 CFR Part 122.

The purpose of a Stabilized Construction Entrance is to reduce or eliminate the tracking of sediment onto public rights-of-way or streets. Contractor shall install a stabilized pad of aggregate underlain with geotextile at all points where trucks and construction equipment enter and/or leave the site as shown on the plans and as directed by the Engineer.

MATERIALS: Unless otherwise specified, the materials shall meet the requirements of Section B, "Materials and Methods of Construction".

Broken Stone: Stone shall consist of straight one (1 ") inch or two (2") inch coarse aggregate in accordance with ASTM C33, free from organic or other deleterious material. Recycled Concrete Aggregate (R.C.A.) of the specified sizes is acceptable.

Geotextile - Separation: Separation application is defined as the placement of a flexible porous geotextile between dissimilar materials so that the integrity and functioning of both materials can be maintained or improved, but where water seepage through the geotextile is not a critical function.

Fibers used in the manufacture of geotextiles, and the threads used in joining geotextiles by sewing, shall consist of long-chain, synthetic polymers, composed of at least 95 percent by weight polyolefins, polyesters, or polyamides. The geotextile and the threads used in sewing geotextiles, shall be resistant to chemical attack, rot, and mildew. The geotextile shall have no tears or defects which adversely alter its physical properties. They shall be formed into a stable network such that the filaments or yarns retain their dimensional stability relative to each other, including selvages.

Geotextiles shall conform to the following AASHTO M-228 properties for separation geotextiles:

	ASTM TEST		
Structure	N/A	Woven	Non Woven
Elongation	D4595	<50%	≥50%
Grab Strength (minimum)	D4632	1100 N (247 LBF)	700 N (157 LBF)
Trapezoid Tear Strength (minimum)	D4533	400 N (90 LBF)	250 N (56 LBF)
Puncture Resistance (minimum)	D4833	400 N (90 LBF)	250 N (56 LBF)
Permittivity (minimum)	D4491	.02 / sec. Minimum	.02 /sec. Minimum
Apparent Opening Size (maximum)	D4751	0.6 mm Maximum Std. No. 230 sieve	0.6 mm Maximum Std. No. 230 sieve

Geotextile shall be ADS 315, as manufactured by Advanced Drainage Systems, Inc., Hillard, OH,

FX66 manufactured by Carthage Mills, Cincinnati, OH, or 600X (woven) or 160N (nonwoven) as manufactured by Mirafi, Inc., Charlotte, NC, or approved equal.

INSTALLATION: Unless otherwise shown on the plans, for sites with only one (1) construction entrance, the Stabilized Construction Entrance shall be twenty-four (24') feet wide. Where there are two (2) or more construction entrances to the site the Stabilized Construction Entrance shall be twelve (12') feet wide each. Length of the entrance shall be a minimum of fifty (50') feet. (*See sketch).

Geotextile - Separation: The ground shall be prepared by removing stumps and other organic material, along with any large boulders and sharp objects which may tear or damage the fabric. After the ground has been prepared, the fabric shall be rolled directly on the ground. The fabric shall be placed over the entire area that is to be covered by the aggregate, unless otherwise directed by the Engineer. All seams shall be overlapped approximately six (6") inches. No equipment, materials or machinery shall be placed on or be transported over exposed fabric. Broken stone shall then be carefully placed to prevent dislocation of the fabric.

If the fabric is damaged during installation, the rupture shall be removed and the damaged area shall be covered with a patch of new fabric that will overlap the undamaged fabric approximately six (6") inches in all directions. All repaired fabric surface costs will be deemed part of the price bid.

Broken Stone: Broken stone shall be spread utilizing suitable equipment or from piles dumped along the proposed site. Stone shall be evenly spread so that the course will have, after rolling, a minimum of six (6") inches in thickness. No segregation of large or fine materials will be allowed, but the stone as spread shall be well graded with no pockets of fine material.

MAINTENANCE: The entrance shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way or streets. This may require periodic inspection and top dressing with additional aggregate as directed by the Engineer. All sediment spilled, dropped, or washed onto the public streets must be removed immediately.

When necessary, wheels of all vehicles leaving the construction site must be cleaned to remove sediment prior exiting the site. When washing is required, it shall be done on an area stabilized with aggregate, which drains into an approved sediment-trapping device. All sediment shall be prevented from entering storm drains, ditches, or watercourses at all times. The cleaning of wheels, if necessary, shall be deemed -part of the bid price of this item.

REMOVAL: All materials installed for the Stabilized Construction Entrance shall be removed from the site and disposed of by the Contractor at the end of all construction activity as directed by the Engineer, at no additional cost to the City.

SUBMITTALS: All submittals shall be in accordance with the requirements of the General Conditions. The Contractor shall submit the following for review and approval prior to installation:

Manufacturer's-Data - Geotextile: The Contractor shall submit manufacturer's data with sufficient detail to demonstrate compliance with the requirements of this specification.

Sample - Geotextile: The Contractor shall furnish two labeled (2) samples of the geotextiles intended for use in the work for approval and the Engineer's use. The label shall include the manufacturer's product name, the type of fabric, and the weight of grade of the material. Geotextiles used in the work shall conform to the approved samples.

Sample- Broken Stone: A three (3) pound bag of broken stone or RCA shall be submitted to the Engineer for approval with a sieve analysis and the name of the supplier.

MEASUREMENT AND PAYMENT: The quantity of **STABILIZED CONSTRUCTION ENTRANCE** to be paid for under this item shall be the number of **SQUARE YARDS** furnished and installed complete, in accordance with the plans, specifications, and directions of the Engineer.

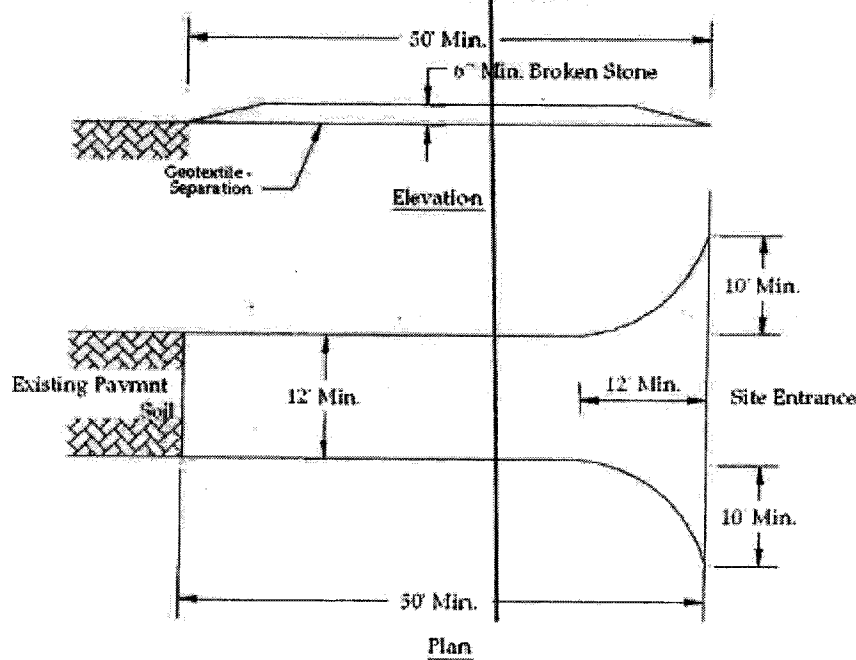
The price bid shall be a unit price per of SQUARE YARD of Stabilized Construction Entrance and shall include the cost of all labor, materials, and equipment including broken stone, geotextile, maintenance, cleaning of wheels as necessary, removals at end of contract, and all incidental expenses necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

Payment for work performed under this item shall be as follows:

*50% payment upon installation.

*50% payment upon complete removal of the stabilized Construction Entrance

***SKETCH OF STABILIZED CONSTRUCTION ENTRANCE**



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ITEM NO. 15 ITEM DELETED

ITEM NO. 16 EARTH MOVING OPERATIONS

WORK: Under this item, the Contractor shall perform all earthwork and grading operations required for this Contract, in accordance with the plans, specifications, and directions of the Engineer.

EXECUTION:

Topsoil: Within areas of cut and fill, topsoil shall be stripped and stockpiled prior to grading operations. Stripping topsoil shall be paid under the item "Strip, Store and Spread Existing Topsoil".

General Conditions:

The entire area of work shall be brought to the required lines and grades by excavating and filling. Excavated materials suitable in the opinion of the Engineer shall be used for bringing low areas to the new proposed subgrade.

Use suitable excavated material as fill. Material shall be free of sod, roots, stumps, brush, branches, frozen material, and other objectionable material. Clods or hard lumps greater than three inches (3") in diameter shall be broken up. Material considered unsuitable in the opinion of the Engineer shall be removed from the site, at no extra cost to the City.

Protect underground and surface utility lines. Protect existing trees, plants, lawn, and other features designated to remain in accordance with Appendix Item, Section A. Underpin adjacent structures, including service lines, which may be damaged during grading operations.

Execute grading operations to prevent surface water from puddling in work areas.

Subgrade: All soft, boggy, clayish soil, or otherwise unsuitable and objectionable material below the proposed subgrade shall be removed and the area refilled with acceptable material as directed by the Engineer.

Boulders: The Contractor shall remove all boulders, stone or pieces of concrete, lumber, iron, sod clumps, or other material that projects above the proposed subgrade. Any stone larger than two (2) cubic feet in volume shall be buried at least two (2) feet below proposed subgrade. Any stone larger than two (2) cubic feet in volume, not buried as described, shall be removed from the site at no extra cost to the City.

Drainage Structures: Existing catch basins, drop inlets, manholes and similar structures to be abandoned shall be broken down and excavated to a depth of four feet (4') below the finished grade and the void backfilled with suitable material.

The ends of abandoned drain lines shall be plugged with concrete to the satisfaction of the Engineer.

Site Preparation: Establish extent of grading operation by area and elevation to meet and continue existing grades. Verify with Engineer.

Do not cover or enclose work before obtaining required inspections, test approvals, and utility location recording.

Existing Utilities: Before starting grading, establish the location and extent of underground utilities in the work area. Exercise care to protect existing utilities during earthwork operations.

Maintain, protect, relocate, or extend utility lines to remain which pass through the work area.

Protect active utility service lines from areas of excavation. Cap, plug, or seal abandoned lines, and identify termination points at grade level with markers.

Layout, Lines and Levels: Before clearing operations (if necessary) are started, the site shall be completely staked out for the work of this item for the Engineer's approval of layout and for the Engineer's confirmation of trees to remain.

The laying out shall be performed by an approved licensed Engineer or Surveyor. Grade stakes shall be set where spot elevations are shown at breaks in grade, along swales, and as otherwise required to grade properly, establish, and maintain bench marks.

The drawings indicate existing grade elevations in addition to new finished grade elevations. These existing elevations are given for the convenience of the Contractor to aid them in arriving at the quantities of excavation, grading, backfilling, etc. for bidding purposes. However, the correctness of these elevations is not guaranteed. The Contractor shall verify all elevations and satisfy themselves as to their correctness by visiting the site of the proposed work and examining the actual conditions prior to the beginning of the work.

Perform grading within contract limits, including adjacent transition areas, to levels indicated. Provide subgrade surfaces parallel to finished surface grades.

Provide uniform levels and slopes between new elevations and existing grades.

Regrade surfaces as indicated to assure areas drain away from structures and to prevent ponding and pockets of surface runoff. Provide subgrade surfaces free from irregular surface changes and as follows:

1. Grade stakes shall be set where spot elevations are shown, along center lines, at breaks in grade, along drainage swales, and as otherwise required to rough grade the area, according to the elevations shown on the drawings.
2. Upon completion of rough grading, obtain Architect's approval before commencing subgrade preparation.
3. Tolerances: Rough grading of subsurface: plus or minus 0.10 ft. Finish required will be obtained from either blade grader or scraper operation.

4. Provide subgrade free of exposed boulders or stones exceeding 3" in greatest dimension in paved areas, 2" in greatest dimension in lawn and planting areas to a depth of 12".
5. Subgrade Allowances:
 - a. Lawn and planting areas: Allow for 5" average depth of topsoil at sod areas, allow for 6" average depth of topsoil at seeded areas, and 18" depth at planting beds except as otherwise indicated on the drawings.
 - b. Paved areas: provide compacted subgrade suitable to receive paving base materials. Subgrade tolerance plus or, minus 1/2".
 - c. Granular base areas: grade subgrade surface smooth and even, free of voids as required. Provide compacted subgrade suitable to receive granular base materials, tolerance 1/2" in 10'-0".
6. Scarifying and Rolling: After areas to be graded are brought approximately to the required grades, they shall be scarified to a depth of 6", moistened and rolled. Resulting depressions and high areas shall be brought to the proper grades by further scarifying, filling, or cutting and rerolling.

All hollows and depressions which develop during the process of rolling and compacting shall be filled with acceptable material, and the subgrade shall again be compacted. The process of filling and compacting shall be repeated until no depressions develop.

Care shall be taken not to roll clay foundations enough to develop a plastic condition. Where required, in the opinion of the Engineer, specific areas shall be compacted and settled by puddling with water.

SPECIAL REQUIREMENTS FOR RAISING AND LOWERING GRADE AT EXISTING TREES:

Whenever grades around existing trees are raised or lowered, the cut and/or fill operation must be supervised by the Director of Landscape Construction, or his designated representative

Lowering Grade at existing trees to remain:

Perform grading, within dripline of existing trees to remain, by hand and/or pneumatic methods, to elevation indicated.

Raising Grade at existing trees to remain:

To raise the grade within the dripline of existing trees the Contractor shall use topsoil as fill. The maximum depth of fill at existing trees shall be three (3") inches. Grades shall be feathered toward the trunk. Any filling over three (3") inches shall include a tree well.

COMPACTION:

1. Compact top 6" of subgrade and each layer of fill material at lawns and unpaved areas to 90% of maximum dry density at optimum moisture content, in accordance with ASTM D698- Standard Proctor Method.
2. Water settling, puddling, and jetting of fill and backfill materials as a compaction method are not acceptable.
3. Maintain moisture content of materials during compaction operations within required moisture range to obtain indicated compaction density.
4. Provide adequate equipment to achieve consistent and uniform compaction of fill and backfill materials.

Obtain inspection and approval of subgrade surfaces by Landscape Architect prior to filling operations. Scarify, dry, and compact soft and wet areas; remove and replace unsuitable subgrade materials with an approved compacted fill material. Take corrective measures before placing fill materials.

Topsoil is not permitted as fill or backfill material within structure or earthen dam limits, or under paved areas.

Soil stabilization: When exposed subgrade surfaces become spongy during construction operations and soil stabilization is required, stabilize subgrade materials as directed by the Engineer. Obtain Landscape Architect's written authorization before performing soil stabilization work.

Spread approved fill material uniformly in layers not greater than 6" of loose thickness over entire fill area. Material shall be spread by a bulldozer, or other acceptable methods, and shall be thoroughly compacted by rolling with a self propelling roller weighing not less than ten (10) tons and completed to the satisfaction of the Engineer.

1. Fill thickness requirements may be modified by Engineer to suit equipment and materials or other conditions when required to assure satisfactory compaction.
2. Moisture-condition fill material by aerating or watering and thoroughly mix material to obtain moisture content permitting proper compaction.
3. Place and compact each layer of fill to indicated density before placing additional fill material. Repeat filling until proposed grade, profile, or contour is attained.
4. Suspend fill operations when satisfactory results cannot be obtained because of environmental or other unsatisfactory site conditions. Do not use muddy or frozen fill materials. Do not place fill material on muddy or frozen subgrade surface.
5. Maintain surface conditions which permit adequate drainage of rain water and prevent ponding of surface water in pockets. When fill placement is interrupted by rain, remove wet surface materials or permit to dry before placing additional fill material.

Corrections to grades:

Fill all areas of settlement to proper grade before subsequent construction operations are performed.

Disposal of Surplus Material:

- A. Stockpile, haul from site, and legally dispose of waste materials, including surplus excavated materials, rock, trash, and debris.

Surplus: All surplus materials and materials not suitable for backfill shall be removed from the site and disposed of by the Contractor. No additional payment will be made for this. The cost thereof shall be deemed included in the price bid for this item.

- B. Maintain disposal routes clear, clean, and free of debris.

NOTE: Any services cut off or interrupted by the Contractor's operations shall be restored at the Contractor's expense.

COMPUTATION OF QUANTITIES OF EXCAVATION: Computation of quantities of cut shall be by Cross-Section Average-End Area Method, to be paid under the Item: 'Services of a Licensed Surveyor'.

MEASUREMENT AND PAYMENT: The quantity of **EARTH MOVING OPERATIONS** to be paid for under this item shall be the number of **CUBIC YARDS** of excavation (cut) as calculated subgrade to subgrade in compacted position, computed by cross-sections. Where an Item for "Services of a Licensed Land Surveyor" is included in Contract, the quantity shall be calculated by a licensed independent Surveyor.

The price bid for **EARTH MOVING OPERATIONS** shall be a unit price per **CUBIC YARD** and shall include the cost of all labor, materials, equipment, and incidental expenses necessary for the excavation, disposal, delivery, and placement of excavated material, pumping, sheeting and bracing, and other incidental work and material expenses necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

Hand and/or Pneumatic Excavation, Borrowed Fill, Strip, Store & Spread Existing Topsoil, or new Topsoil, if necessary, shall be paid under their respective separate items.

Tree Wells, where shown on drawings shall be paid for under separate items in this contract.

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ITEM NO. 17 **GEOTEXTILE - DRAINAGE**

WORK: Under this Item, the Contractor shall furnish and install **GEOTEXTILE - DRAINAGE** in accordance with the plans and specifications, as directed by the Engineer.

MATERIALS: Unless otherwise herein specified, all materials and methods of construction shall conform to requirements of Appendix Item, Section B "Materials and Methods of Construction".

GEOTEXTILE - DRAINAGE: Drainage application is defined as a soil to geotextile system that allows for long-term, adequate liquid flow normal to the geotextile with limited soil loss across the plane of the geotextile.

Fibers used in the manufacture of drainage geotextiles, and the threads used in joining geotextiles by sewing, shall consist of long-chain, synthetic polymers, composed of at least 95 percent by weight polyolefins, polyesters, or polyamides. They shall be formed into a stable network such that the filaments or yarns retain their dimensional stability relative to each other, including selvages. The geotextile shall have no tears or defects which adversely alter its physical properties. Geotextiles used in drainage applications shall be Class 2 and shall conform to the following AASHTO-M-288 properties for drainage geotextiles:

Property	ASTM Test	<i>Insitu Soil requirements-% passing though a Standard No. 200 US sieve</i>					
		Less than 15%		15% to 50%		Greater than 50%	
Structure		Woven	Non-Woven	Woven	Non-Woven	Woven	Non-Woven
Elongation	ASTM D4595	<50%	>=50%	<50%	>=50%	<50%	>=50%
Grab Strength (Min.)	ASTM D4632	1100N (247 LBF)	700N (157 LBF)	1100N (247 LBF)	700N (157 LBF)	1100N (247 LBF)	700N (157 LBF)
Tear Strength (Min.)	ASTM D4533	400N (90 LBF)	250N (56 LBF)	400N (90 LBF)	250N (56 LBF)	400N (90 LBF)	250N (56 LBF)
Puncture Strength (Min.)	ASTM D4833	400N (90 LBF)	250N (56 LBF)	400N (90 LBF)	250N (56 LBF)	400N (90 LBF)	250N (56 LBF)
Permittivity (Min.)	ASTM D4491	0.51/sec.		0.21 / sec.		0.11 / sec.	
Apparent Opening Size (Max.)	ASTM D4751	0.43 mm (0.01645 inch) Std No. 40 sieve		0.25 mm (0.0098 inch) Std. No. 60 sieve		0.22 mm (0.0083 inch) Std. No. 70 sieve	

Geotextiles shall be as manufactured by Advanced Drainage Systems, Inc., Hillard, OH, Carthage Mills, Cincinnati, OH, or by Mirafi, Inc., Charlotte, NC, or approved equal. Contractor shall submit appropriate style of geotextile depending on the soil condition of the site.

DELIVERY AND STORAGE: Each geotextile roll shall be wrapped with a material that will protect the geotextile, including the ends of the roll, from damage due to shipment, water, sunlight,

and contaminants. The protective wrapping shall be maintained during periods of shipment and storage. During storage, geotextile rolls shall be elevated off the ground and adequately covered to protect them from the following: site construction damage, precipitation, extended ultraviolet radiation including sunlight, chemicals that are strong acids or strong bases, and any environmental condition that may damage the physical property values of the geotextile.

INSTALLATION: Prior to installation of geotextile, the ground shall be prepared by removing stumps and other organic material, along with any large boulders and sharp objects which may tear or damage the fabric. Install geotextile at elevations and alignments as indicated on the drawings or as directed by the Resident Engineer. The drainage geotextile shall be placed loosely with no wrinkles or folds. Care will be taken to place the geotextile in intimate contact with the soil so that no void spaces occur between the geotextile and trench or ground. Where the geotextile is to be installed in a trench, the geotextile shall be overlapped at the top of the trench, twelve (12") inches or the full width of the trench, whichever is less.

If the geotextile is damaged during installation, the rupture shall be removed and the damaged area shall be covered with a patch of new fabric which will overlap the undamaged fabric approximately six (6") inches in all directions. All repaired fabric surface costs will be deemed part of the price bid.

SUBMITTALS: All submittals shall be submitted prior to purchase and in accordance with the requirements of the General Conditions.

Manufacturer's Data: The Contractor shall submit manufacturer's data with sufficient detail to demonstrate compliance with the requirements of this specification. Contractor must examine soil condition on site and select the appropriate geotextile to submit and to use for the site.

Samples: The Contractor shall furnish two (2) labeled samples of the geotextiles intended for use in the work for approval and the Engineer's use. The label shall include the manufacturer's product name, the type of fabric, and the weight of grade of the material. Geotextiles used in the work shall conform to the approved samples.

Soil Testing for Large Quantities: Where quantity of Geotextile - Drainage exceeds four hundred and fifty (450) square yards, the Contractor shall pay for soil testing of existing soil prior to the selection and submittal of the specific geotextile. The Contractor shall furnish a certified report by an approved Materials Testing Laboratory showing the in-situ soil condition. Contractor shall submit to the Designer the result of the sieve analysis indicating percent passing through a standard No. 200 US Sieve along with the Geotextile sample. The grain size analysis of in-situ soil shall be in accordance with AASHTO T88. Contractor shall obtain a minimum of one soil sample per one hundred and fifty (150) square yard of area covered. The Contractor shall bear responsibility for all costs associated with laboratory testing.

MEASUREMENT AND PAYMENT: The quantity of **GEOTEXTILE - DRAINAGE** to be paid for shall be the number of **SQUARE YARDS** required, measured in its final position, furnished and installed in accordance with the plans and specifications and the directions of the Engineer.

The price bid shall be a unit price per **SQUARE YARD** of **GEOTEXTILE - DRAINAGE** installed and shall include the cost of furnishing all labor, material, equipment, submittals, soil testing, if necessary, and incidental expenses necessary to complete the work in accordance with the plans and specifications and to the satisfaction of the Engineer.

Excavation, topsoil backfill, or clean borrowed fill shall be paid for separately.

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ITEM NO. 18

TEMPORARY SILT FENCE

WORK: Under this item the Contractor shall install **TEMPORARY SILT FENCE** to prevent excess sediment from leaving the site, at the locations shown on the plans, in accordance with the specifications and as directed by the Engineer.

INTENT: The intent of this item is to facilitate an erosion and sediment control plan, which may be required by NYS Department of Environmental Conservation (DEC) in accordance with the State Pollutant Discharge Elimination System (SPDES) and The Code of Federal Regulations, 40 CFR Part 122.

MATERIALS: Unless otherwise herein specified, all materials and methods of construction shall comply with Appendix Item, Section B, "Materials and Methods of Construction".

Posts: Posts shall be wood, steel, or an approved synthetic material, with a minimum length of four (4') feet. Hardwood posts shall have a minimum cross sectional area of 1.25" x 1.25" and steel posts of U, T, L, or C shape shall weigh one (1 lb.) pound per linear foot.

Wire Mesh: Wire mesh fencing shall be a minimum of fourteen (14) gauge with a maximum six (6") inch mesh opening.

Geotextile: Fibers used in the manufacture of geotextiles, and the threads used in joining geotextiles by sewing, shall consist of long-chain, synthetic polymers, composed of at least 95 percent by weight polyolefins, polyesters, or polyamides. The geotextile and the threads used in sewing geotextiles, shall be resistant to chemical attack, rot, and mildew. The geotextile shall have no tears or defects which adversely alter its physical properties. They shall be formed into a stable network such that the filaments or yarns retain their dimensional stability relative to each other, including selvages. The geotextile shall have no tears or defects which adversely alter its physical properties. Geotextile for temporary silt fence shall meet or exceed requirements for temporary silt fence as set forth by AASHTO M-288 and as outlined below:

<u>PROPERTY</u>	<u>UNIT</u>	<u>TEST METHOD</u>	<u>TYPICAL VALUES*</u>
Grab Strength	LB	ASTM D 4632	90
Grab Elongation	%	ASTM D 4632	20 (max)
Trapezoid Tear Strength	LB	ASTM D 4533	60
Mullen Burst Strength	PSI	ASTM D 3786	190
Permittivity	Sec ⁻¹	ASTM D 4491	0.05
Water Flow Rate	L/min/m ²	ASTM D 4491	240
Apparent Opening Size	mm	ASTM D4751	0.6 (max)
Ultraviolet stability	%	ASTM D 4355	70

*Minimum values unless otherwise indicated.

Geotextile shall be Mirafi 100X, as manufactured by Mirafi Inc., Charlotte, NC, or the FX-11™ Woven geotextile as manufactured by Carthage Mills, Cincinnati, OH, or approved equal.

INSTALLATION: Silt Fence shall be installed prior to land disturbing activities or as necessary to control erosion from land disturbing activities. Comply with all applicable standards for Soil Erosion and Sediment Control as set forth by New York State DEC. Care shall be taken when installing the silt fence that all the requirements of Appendix Item, Section A, "Tree Work" shall be followed. In addition, where tree roots of one (1") inch or greater are encountered, or if directed by the Engineer, the Contractor shall move the location of the silt fence to avoid damage to existing trees.

Contractor shall first excavate a trench approximately six (6") deep and four (4") inches wide in the line of the silt fence. Silt fence to be located at least ten feet from the toe of steep slopes and nearly level throughout its length. Contractor shall drive posts securely at least sixteen (16") inches into the ground on the down slope side of the trench. Post spacing shall be eight (8') feet apart maximum. Adjust spacing to place posts at low points along fence line.

Fasten support wire fence to upslope side of posts, extending six inches into the trench. Attach continuous length of fabric to upslope side of fence posts with ties space every twenty-four (24") inches at top and mid section. Avoid joints, particularly at low points in the fence line. Where joints are necessary, fasten fabric securely to support posts and overlap to the next post. Place the fabric in the trench so the bottom folds across the bottom of the trench. Place backfill in the trench over the fabric to the groundline and compact with a power tamper.

Additional erosion and sedimentation control measures beyond those shown on the drawings may be required to prevent siltation. The Engineer shall determine the necessity of actual measures beyond those installed by the Contractor.

MAINTENANCE AND REMOVAL: Contractor shall inspect silt fences every seven (7) days and after each rainfall event. Any sediment deposits found shall be removed promptly to provide adequate storage volume for the next rain and reduce pressure on the fence. Take care not to undermine the silt fence during clean out. If the fabric is teared, decomposed, or in anyway becomes ineffective, the Contractor shall replace it immediately without additional cost to the City.

The silt fence shall remain in place and maintained until the completion of the contract or as directed by the Engineer and shall become the property of the Contractor. Upon removal, the Contractor shall remove and dispose of any excess sediment accumulations, top dress the area, and cover with vegetation all bare areas in accordance with the plans.

MEASUREMENT AND PAYMENT: The quantity of **TEMPORARY SILT FENCE** to be paid for under the item shall be the number of **LINEAR FEET** installed in accordance with the plans, specifications and directions of the Engineer.

The price bid shall be a unit cost per **LINEAR FOOT** of **TEMPORARY SILT FENCE** and shall include the cost of all labor, materials, and equipment necessary to complete the work, including the

fabric, wire mesh, posts, all hardware, excavation, maintenance and removal of silt fence, all in accordance with the plans and specification, to the satisfaction of the Engineer.

Lawn seed, sod, or other vegetation for restoration shall be paid for under their respective items. Straw bales, if required, shall be paid for separately under the item "Temporary Straw Bale Silt Control".

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ITEM NO. 19 **RESTORATION OF STREET PAVEMENT**

WORK: Under this item, the Contractor shall restore all pavements and pavement base removed or disturbed in the street as required for the execution of work, in accordance with the plans, specifications and directions of the Engineer.

DESCRIPTION: The Contractor shall saw cut all pavement edges as required for the execution of the work. All saw cutting shall be executed with accurate, neat and straight lines. Sawcutting shall be done with approved power saws specifically designed and manufactured for such purposes. Workmen shall wear all necessary safety clothing and eye protection while operating saw cutting equipment. All pavements shall be marked and approved before cutting. Backfill shall be properly tamped to accurate subgrades prior to paving.

Pavement restorations, including the base, shall be the same as surrounding pavements in all respects. All restoration of street pavements shall be in accordance with the requirements and specifications of the Department of Transportation of the City of New York, and shall be performed to the satisfaction of the Department of Transportation's Engineer or its representative. The Contractor shall do all work necessary to connect the restored pavement to existing work.

All Asphalt Work shall conform to the New York City DPR Standard Specification for Asphalt Pavement Full Depth, except that the Top Course shall be NYS type 6. Concrete shall conform to the Average Concrete Specification.

TRAFFIC: The Contractor will be responsible for furnishing and erecting barricades at points of hazard, maintaining and directing traffic during street pavement restoration. All work shall be done in a timely manner.

SUBMITTALS: Contractor shall submit proposed Asphalt mix and sources of the aggregate to the Engineer for approval.

MEASUREMENT AND PAYMENT: For restoring all pavements and pavement base removed or disturbed in the street as required for the execution of the work, in accordance with the plans, specification and directions of the Engineer, the Contractor shall receive the **LUMP SUM** price bid.

The **LUMP SUM** price bid for restoration of street pavement and pavement base shall include the cost of furnishing all labor, materials and equipment, including compaction, fine grading, pavement base (concrete base if required), in accordance with the plans and specifications, to match existing conditions to the satisfaction of the Engineer and the City of New York, Dept. of Transportation except excavation and sawcutting, which will be paid for under their respective items. Restoration of sidewalk and curb, if necessary will be paid for separately. "Maintenance and Protection of Traffic" shall be paid under a separate item.

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ITEM NO. 20 DELETED

ITEM NO. 21 CHAIN LINK FENCE 8'-0' HT.

ITEM NO. 22 SINGLE GATE FOR CHAIN LINK FENCE 8' HT.

ITEM NO. 23 DOUBLE GATE FOR CHAIN LINK FENCE 8' HT.

WORK: Under these Items, the Contractor shall furnish and erect powder coated chain link fences and powder coated chain link fence gates of the heights and sizes shown on the drawings, in accordance with the plans and specifications and directions of the Engineer. In addition, the Contractor shall furnish extra materials to D.P.R. M &O. as specified under heading EXTRA MATERIALS.

INTENT: It is the intent of these items to effectively enclose the areas shown on the plans, and when new fences terminate at existing or new structures or fences within the areas or adjacent to the areas, the clear spaces between the fences and structures shall not exceed four (4) inches. Closures, if necessary, shall be made by the Contractor in a manner approved by the Engineer. Payment for such closures will be made per linear foot or a fraction thereof, at the unit prices bid for the fences.

MATERIAL: All fittings, hardware and equipment shall be designed to carry one hundred percent (100%) overload.

Malleable iron castings shall be powder coated after hot dipped galvanizing in accordance with ASTM Serial Designation: A-153-82.

Pressed steel fittings and appurtenances shall be powder coated after hot dipped galvanizing in accordance with ASTM Serial Designation: A-123-89.

All fittings, hardware and equipment shall be powder coated of a color to match the framework and shall be of the materials listed in the following schedule:

FENCE/GATE PART

MATERIAL

Boulevards, Corner (Split) Fittings and End Fittings	Malleable Iron or Pressed Steel-3/16" thick
Brackets for Overwide Gates	3" X 3" Steel Bracket - 1/4" thick, welded to Gate Frame
Post Caps and Post Line Tops	Malleable Iron or Pressed Steel - 3/16" thick
Couplings	Galv. Steel Pipe - 1/8" thick with 1/4" Dia. Full Depth Rivet
Gate Hinges	Malleable Iron or Pressed Steel-1/4" thick with 1" Dia. Stainless Steel Pin Welded to

	1/2" thick Pin Support
Bolts and Nuts	Galv. Steel or Stainless Steel as indicated on Plans
Tension Bars	1/4" x 3/4" Galv. Steel for 2" and 1-3/4" Mesh 3/16" x 3/8" Galv. Flat Steel
Tension Bands	1/8" x 1" Pressed Steel
Truss Rods	1/2" Dia. Galv. Steel
Truss Tightener	3/8" x 1" Galv. Steel
Truss Clamp	1/4" Pressed Steel
Locking Device	Outer Housing - Malleable Iron Inner Parts, including Bolt- Stainless Steel, 18-8, 14 gauge
Drive Pins and Set Screws	Stainless Steel, 18-8

POSTS AND RAILS: TYPE I - Posts and rails shall be standard weight galvanized steel pipe of the sizes shown on the plans and shall conform to ASTM Serial Designation F-1083 Schedule 40. Posts and rails shall be hot dip galvanized inside and outside in accordance with ASTM Serial Designation F-1083.

Or :

For fence up to and including ten (10) feet height, posts and rails may be TYPE II, SS-40 steel tubing as manufactured by Allied Tube and Conduit Corp. of Harvey, Illinois, or approved equal. Tubing must conform to ASTM A-569, cold rolled steel pipe and coated with a minimum of 0.9 ounces of zinc per square foot, a minimum of 15 micrograms of zinc chromate per square inch. Steel pipe supplied under this option shall be of the same outside diameter as Schedule 40 pipe and achieve a minimum yield strength of 50,000 p.s.i.

SURFACE COATINGS: All posts, rails and fittings shall be powder coated with either polyvinyl chloride (PVC) or TGIC-Polyester (with the exception of the turnbuckles and threaded ends of the truss rods, both of which shall be sprayed with powder coat touch-up after installation).

Galvanizing of all components shall provide an acceptable substrate for applied powder coatings.

No lacquer, urethane or other coatings which would prevent proper adhesion of powder coating shall be applied to the pipe.

The powder coating shall be applied to the galvanized surfaces in such a manner that the coating will not peel off. Insure surfaces to be coated are clean and dry and free of grease, dust, rust, etc. All coated parts shall first receive phosphating and chromatizing treatments to improve the adhesion of the surface coating. Color to be black unless otherwise indicated on the plans.

The entire fence installation shall be coated with one of the two following types of powder coating, (with the exception of gates, all of which shall be TGIC-Polyester and fabric which shall always be PVC). All Fence components shall be coated on all surfaces, of a color to match the framework. All coated surfaces shall comply with the adhesion specifications listed in ASTM F1043.

TYPE A - Polyvinyl Chloride Powder Coating: PVC Powder coating shall be applied to the galvanized steel or iron by the fluid bed method to a preheated base which has been cleaned and primed prior to submersion in vinyl, resulting in a firm bond between the PVC and the metal. PVC shall be applied to a film thickness of 10 to 15 mils on framework, and fittings and 7 to 12 mils on fabric without voids, tears or cuts that reveal the substrate and shall thoroughly adhere to the metal without peeling when scratched with a pick device or knife blade point.

TYPE B - TGIC-Polyester Powder Coating: TGIC-Polyester Powder shall be applied to the galvanized steel or iron in such a manner that the coating will not peel off. The TGIC-Polyester shall be applied at a film thickness of 3 to 6 mils by electrostatic spray process and bake finished per manufacturer's directions. The TGIC-Polyester shall be applied without voids, tears or cuts that reveal the substrate and shall thoroughly adhere to the metal without peeling when scratched with a pick device or knife blade point.

TESTS:

Field Test For PVC Powder Coating: As per ASTM F668, three sample sections of the PVC powder coated fence shall be tested for bonding of the powder coat to the metal. Each test will consist of making two cuts parallel to the axis of the pipe or fitting, through the coating, appx. 1/16 inch (1.6 mm) apart, at least 1/2 inch (12.7 mm) long. With a knife peel back a section of the coating between 1/8 inch (3.2 mm) and 1/4 inch (6.4 mm) long to produce a tab. Attempt to remove the 1/16 inch strip of coating by pulling the tab. The fence shall be deemed acceptable if the coating breaks rather than separates from the metal on all three samples.

Laboratory Test For TGIC-Polyester Powder Coat: At the discretion of the Engineer, a sample of the TGIC-Polyester powder coated fence shall be laboratory tested for bonding of the powder coating to the metal. Test shall be the Cross Hatch test per ASTM D3359, method B. Failure to satisfactorily pass this test shall be a basis for rejection.

TOUCH-UP & REPAIR: For minor damaged caused by installation, transportation, field welding and cutting of metal powder coated surfaces: clean welds, bolted connections, abraded or sawcut areas, then:

1. On welded and cut surfaces, apply organic zinc repair paint complying with ASTM A780, then repair powder coating per number 2 below. Galvanizing repair paint shall have 65 percent zinc by weight. Thickness of repair paint shall be not less than that required by ASTM A123.
2. On damaged powder coated surfaces, touch-up finish in conformance with manufacturer's recommendations. Provide touch-up such that repair is not visible from a distance of six feet (6').

FABRIC: Fabric shall be hot dip galvanized steel wire mesh as per ASTM - 641, with a thermally fused polyvinyl chloride powder coating of 7 to 12 mils thick as per ASTM F668 class 2b. Color to match framework. Fabric shall be produced by methods recognized as good commercial practices. Core wire tensile strength shall be 75,000 psi (517 MPa).

Wire used for the manufacture of fabric shall meet the requirements of ASTM F668 and shall be capable of being woven into fabric without the PVC coating cracking or peeling. PVC coating shall be a dense, impervious covering free of voids. Excessive roughness, bubbles, blisters, bruises and flaking will be a basis for rejection. PVC shall be thermally fused. Bonded or extruded and glued surface coating will not be permitted. Fabric shall be stretched to provide a smooth, taut, uniform appearance free from sag.

Field Test: PVC coating on fabric shall be field tested for adherence to the metal as outlined elsewhere in this specification.

One and Three Quarter (1-3/4) Inch and Two (2) Inch Mesh: Uncoated wire dimension shall be .148 inches in diameter (9 gauge). Zinc coating shall be .3 ounces per square foot of wire surface.
Selvages: Fabric shall be barbed at the top and knuckled at the bottom on fences over 6'-0" high. Fabric on fences 4'-0" and 6'-0" shall be knuckled top and bottom. Loops of knuckled fabric shall be closed or nearly closed. The wire ends of barbed selvages shall be twisted in a closed helix of 1-matching turns and cut at an acute angle. The length of the ends beyond the twist shall be at least 1/4 inch long. One (1) inch mesh shall be knuckled both top and bottom.

TIES: Tie-wire core thickness shall be 9 gauge (.148") wrought aluminum alloy 1100-H16 wire with an extruded vinyl coating in accordance with ASTM A641 Class 3. PVC shall be applied to a film thickness of 20 to 22 mils. Ties shall be spaced fifteen (15) inches apart on rails and twelve (12) inches apart on posts. The ends of ties shall be wound in a telegraph twist two and one half turns. Color to match mesh. Contractor shall touch-up PVC coating on ties damaged as result of installation.

GATES: Gates shall be furnished and installed on reinforced concrete slabs where indicated on the plans or directed by the Engineer. All gates shall be galvanized steel and shall be TGIC-Polyester

powder coated after fabrication per requirements for fence framework outlined elsewhere in this specification. Welded joints shall have a suitable rust preventive coating applied to the welds prior to powder coating. Gate fabric shall match line fabric adjacent to gate opening. Gates shall be installed plumb, level and secure for full opening without interference. The hinges shall be so designed to permit the gate to swing a full 180 degrees.

Gate Locking Device: This latch shall be a s.s. drop rod or plunger bar arranged to engage the gate stop. Locking device shall be constructed so that the center drop rod or plunger bar cannot be raised when the gate is locked. The locking device bolt hardware shall be tack welded and filed smooth after installation to prevent loosening. The locking device shall have provisions for a padlock. All necessary fittings and gate holders to lock gates in both open and closed positions shall be furnished. The locking device shall be entirely enclosed as shown on the plans or shall be an approved equal locking device.

REINFORCED CONCRETE SLAB: At gates shall be as shown on the contract drawings and as specified under "Reinforced Concrete Pavement".

PADLOCK: The Contractor shall furnish one (1) padlock for each single gate and each leaf of double gates. The padlocks shall be American No. 5571 as manufactured by American Lock Co. of Crete, Illinois or approved equal. All padlocks for the same park facility shall be keyed alike, with two (2) inch width by three-quarter (3/4) inch thick brass body, maximum security, five (5) pin tumblers with hardened alloy steel chrome plated shackle no less than three-eighths (3/8) inch diameter and two (2) inch clearance (elongated shackle). A galvanized steel chain, nine (9) inches long shall be fastened to the gate and body of each lock. The chain shall be five-sixteenths (5/16) inch by one and three-eighths (1-3/8) inch. The Contractor shall furnish two (2) keys for each padlock.

BOLT AND HARDWARE INSTALLATION: Nuts and bolts shall be galvanized but not powder coated. Cans of TGIC-Polyester or PVC touch-up powder coating shall be used to paint the nuts and bolts per manufacturer's recommendations. The ends of all bolts shall be peened after tightening. Bolts which are installed six feet (6') or less above grade shall not protrude more than 1/4" beyond the nut after tightening. All rough edges resulting from the cutting of bolts to achieve this requirement shall be filed smooth to the satisfaction of the Engineer. All post caps, corner and end fittings, and gate hinges on all fence elevations are to be secured in place with #14 SS drive screws to the satisfaction of the Engineer.

ERECTION: The posts shall be set in holes which shall have been formed in the concrete curb as shown on the plans or directed by the Engineer. Voids for posts shall be formed in the concrete by removable waxed sonotubes or galvanized sheet metal sleeves to remain. Core drilling is not permitted. After the posts have been set in place and properly supported to hold them in line and grade, the resulting space shall be neatly filled with a grout consisting of one (1) part cement and two

(2) parts sand or approved equal. All gates and all end, corner and gate posts, regardless of height of fence shall have a 1/2" diameter truss rod and turnbuckle. Rod shall be tied to the mesh every 12 inches on center with tie-wires. Bolts on the turnbuckle shall be tack welded to prevent loosening. The only exception to the above is that truss rods are not required for end, corner and gate posts for fences 4'-0" ht. and under.

Chain link fabric shall be attached to line and corner posts and top, intermediate and bottom rails. Maintain a min. 1" (inch) clearance between finished grade and fence fabric. Posts shall be set plumb and true to line and grade. Any post not set true to line and grade shall be removed and replaced at the Contractor's expense. Bending posts to make them plumb will not be permitted.

The Contractor shall maintain the chain link fences and gates during the life of the contract and shall repair and replace all members that are disturbed, damaged, or destroyed from any cause at no cost to the City.

SUBMITTALS:

Certification: The Contractor shall submit, at his own expense, a certification from the supplier for the following:

1. All castings are made from malleable iron.
2. All hot-dipped galvanized items have met the ASTM serial designations as indicated in these specifications
3. All powder coating meets the ASTM serial designations as indicated in these specifications.

Shop Drawings: Before the work in the shop is started, the Contractor shall submit shop drawings for approval. Include complete details of fence and gate construction, fence height, post spacing, dimensions and unit weights of framework and concrete footing detail.

Samples: Prior to erection of the fence the following shall be submitted:
Fence framework: One piece of each pipe size, twelve (12") inches long.
Fence Fabric: One piece twelve (12") inches square.

Shipping Lists: The shipping list for the materials furnished shall be endorsed with the manufacturer's voucher certifying that the materials used comply with these specifications.

EXTRA MATERIALS: The Contractor shall furnish (furnish only, not install) extra materials and deliver to D.P.R. Maintenance and Operations division as follows:

20 (Twenty) each - powder coated tension bars 8' (Eight Foot) lengths. 1/4" x 3/4"
galvanized steel for 2" mesh.

100 (One-Hundred) - powder coated tension bands, 1/8" x 1" pressed steel - 20 (twenty) of each of the following sizes- 4, 3.5, 3, 2.5, & 2 inch dia. post band sizes.

1 (One) box of 1800 (Eighteen-Hundred) - vinyl-clad aluminum ties, 8 1/2" length, 3/16" dia. wrought aluminum alloy 1100-H16 wire.

1 (One) each - vinyl-clad aluminum tie coil, 50 (Fifty) pound size, 3/16" dia. wrought aluminum alloy 1100-H16 wire.

5 (Five) gallons - paint for fence, Sherwin Williams Silicone Alkyd # B56Z Carbon Black, or approved equal.

3 (three) each - 16 (sixteen) ounce cans PVC and TGIC-Polyester powder coating touch-up spray.

All Extra Materials shall be black.

The above materials shall be delivered to the Sector A.P.R.M. or Borough Foreman of Mechanics (only), and a signed receipt (from M.&O.) shall be submitted to the Engineer to acknowledge M.&O. receipt of the aforementioned materials.

MEASUREMENT AND PAYMENT: The quantity of **CHAIN LINK FENCE** to be paid for shall be the number of **LINEAR FEET** of each height, furnished and erected complete in accordance with the plans, specifications and directions of the Engineer.

The price bid shall be a unit price per **LINEAR FOOT** of **CHAIN LINK FENCE** of each height and shall include the cost of all labor, material, equipment and all incidental expenses necessary to complete the work, including powder coating and powder coating touch-up, required to furnish and erect chain link fence with PVC powder coated steel fabric, all in accordance with the plans and specifications, to the satisfaction of the Engineer.

The quantity of **GATES** for chain link fence with PVC powder coated fabric shall be the number of TGIC-Polyester powder coated gates for chain link fence with PVC powder coated steel fabric (including both leaves of two-leaf gates, gate posts and chain link fence over the gates) furnished and erected complete in accordance with the plans, specifications, and directions of the Engineer.

The price bid for PVC powder coated gates shall be a unit price for **EACH GATE** for the height of fence specified and shall include the cost of all labor, material, equipment and all incidental expenses necessary to complete the work, including powder coating and powder coating touch-up required to furnish and erect gates with PVC powder coated steel fabric, all in accordance with the plans and

specifications, to the satisfaction of the Engineer.

The cost of excavation and concrete will be paid for under their respective Items. No deductions will be made for openings in fence except where gates occur.

In addition, the Contractor shall deliver EXTRA MATERIALS as outlined above to D.P.R. M.&O.. No additional payment shall be made for extra materials. Contractor shall include Cost in the bid price.

END OF PAGE

ITEM NO. 24

NATIVE SEED MIXES

WORK: Under these items, the Contractor shall install NATIVE MEADOW SEED MIX and NORTHEAST PERENNIAL/ANNUAL WILDFLOWER MIX, including seed mix, prepare soil, plant seed and water, reseed sparse areas, and maintain seeded areas in accordance with the plans and specifications and as directed by the Engineer.

The Contractor shall be liable for any damage to property caused by their seeding operations. All areas and construction disturbed shall be restored to their original condition, to the satisfaction of the Engineer.

MATERIALS: Unless otherwise herein specified, all materials of construction shall comply with Appendix Item, Section B, "Materials and Methods of Construction".

SEED: All seed species (except annual oats or rye) shall be native to the New York City area. Substitutions must be approved by the Landscape Architect, Gabriella Keller, (718) 760-6796. Seed shall be pure, live fresh, recleaned seed of the latest crop mixed in equal proportions by numbers of seed. Seed species shall be as specified below.

The Contractor shall furnish a certified report of an approved seed testing laboratory, not engaged in selling seed, showing a test for purity, viability and weed seed content of representative samples of the Seed which he proposes to use. The Engineer shall take samples of the Seed before it is mixed; witness the operations; and shall immediately seal all bags of mixed seed. The price bid shall include the cost of inspection and laboratory charges. No seed shall be delivered until the samples have been approved by the Landscape Architect. The City reserves the right to reject, on or after delivery, any material, which does not, in his opinion meet these specifications.

All seed shall be delivered in standard size bags of the vendor, showing weight analysis and name of vendor. It shall be stored as directed by the Engineer, in such a manner that its effectiveness will not be impaired.

SEED CARRIER MEDIUM: In order to facilitate seeding operations, the Contractor shall mix the seed with an inert material such as sawdust, finely ground mulch or vermiculite. The carrier material shall be slightly damp in order for the seed to stick to it sufficiently. Two (2) bushels of carrier material is required to seed approximately one thousand (1000 sf) square feet of area.

NATIVE MEADOW GRASS SEED MIX SHALL BE SOWN WITH THE FOLLOWING:

- Annual oats (*Avena sativa*), seeded at the rate of 128 lbs. per acre, or Annual Rye, seeded at the rate of 15 lbs. per acre.
- 50% Meadow wildflowers, as noted below, all flower species approximately equally mixed
- 50% Grasses, as noted below, all grass species mixed in the proportions below.

GRASSES: Grasses shall be equal parts of the following:

<u>Scientific Name</u>	<u>Common Name</u>
Andropogon gerardii	Big Bluestem
Panicum virgatum	Switchgrass
Sorghastrum nutans	Indian Grass
Tripsacum dactyloides	Eastern Gamagrass

WILDFLOWERS shall be equal parts of the following:

<u>Scientific Name</u>	<u>Common Name</u>
Aster novi-belgii	New York Aster
Monarda punctata	Horsemint
Penstemon digitalis	Tall White Beard Tongue
Solidago sempervirens	Seaside goldenrod

NORTHEAST PERENNIAL/ANNUAL WILDFLOWER MIX SHALL BE SOWN WITH THE FOLLOWING:

100% Meadow wildflowers, as noted below, all flower species approximately equally mixed

<u>Scientific Name</u>	<u>Common Name</u>
Achillea millefolium	Common Yarrow
Aster novi-belgii	New York Aster
Centaurea cyanus, Tall Mixed	Bachelor's Button Tall Mixed
Coreopsis lanceolata	Lanceleaf Coreopsis
Echinacea purpurea	Purple Coneflower
Gaillardia pulchella	Annual Gaillardia
Linum perenne ssp. lewisii	Perennial Blue Flax
Monarda punctata	Horsemint
Papaver rhoeas, Shirley Mix	Corn Poppy, Shirley Mix
Penstemon digitalis	Tall White Beard Tongue
Rudbeckia hirta	Blackeyed Susan
Solidago sempervirens	Seaside goldenrod

EXECUTION:

SOIL PREPARATION: Prior to start of work, the Contractor shall, under the direction of the Engineer, take soil samples in existing grass areas to be seeded for analysis. Contractor shall install lime, fertilizer, and/or compost based on the soil analysis results.

Cultivation should be kept to a minimum. Seed bed preparation in shady areas shall consist of loosening soil by hand to a depth of one (1") inch to three (3") inches. Seed bed preparation in sunny areas shall consist of loosening soil by hand to a depth of three (3") inch to five (5") inches. In both sunny and shady areas, if tree roots or steep slopes interfere with cultivation, the seed shall be raked in by hand. Under no circumstances shall surface roots of trees be disturbed or damaged. After the soil is loosened, it should be left in the roughened condition. The seedbed shall be a loose

uncompacted surface from which large clods, rocks, and woody debris has been removed. Seeding should immediately follow soil preparation, in order to minimize erosion.

SEEDING METHOD:

Native Meadow Grass seed shall be mixed as per the schedule above. The mixed seed shall be applied at a rate of 60 lbs. of seed per acre or 1.4 lb. per 1000 S.F.

Perennial/Annual Wildflower seed mix shall be mixed as per the schedule above. The mixed seed shall be applied at a rate of 10 lbs. of seed per acre or .28 lb. per 1000 S.F.

Prior to spreading, the seed shall be mixed evenly with a slightly damp inert material, as noted above. The Contractor shall spread the seed by hand broadcasting or the use of a manually operated (hand-held) seed spreader in order to achieve a uniform distribution of seed mixture. One-half of the total mix shall be spread across the area. Once the area has been covered, the second half shall be spread evenly across the same area, walking perpendicular to the first pass. Rake or drag the seed into the soil so that it is lightly covered, one quarter to one half inch deep. Roll the site with a roller to firm the seed into the soil. Do not roll the site if the soil is wet.

After the seed is applied and firmly pressed into contact with the soil a one-inch layer of straw shall be spread over the seeding area, to cover but not bury the seeds. The straw should be chopped and blown onto the seeding area to assure its resistance to wind. On steep slopes, or as directed by the Landscape Architect, erosion control fabric shall be applied in lieu of straw.

All seeding is to be done at a time when the wind does not exceed a velocity of five (5) miles per hour or using wind screens. The application method of seed shall be approved in advance by the Landscape Architect. Seeding shall occur between February 1st and March 31st.

MAINTENANCE: The Contractor shall do all work required to achieve a rapid stand of cover. The Contractor shall be directed to reseed any area, which in the opinion of the Engineer is unacceptable. The Contractor shall maintain the seeded areas, including watering as necessary. If the stand is inadequate for erosion control, contractor shall overseed and fertilize using half of the rates originally applied. If stand is over sixty percent (60%) damaged, reestablish following original recommendations.

During the first year of establishment, the Contractor shall perform monthly hand weeding to remove Mugwort (*Artemisia vulgaris*), Japanese Knotweed (*Polygonum Cuspidatum*) and Common Reed (*Phragmites australis*). In the event that Reed cannot be distinguished from other grasses it shall remain until species can be clearly determined. All other vegetation shall remain undisturbed. No mowing shall be done at shaded areas. At Sunny areas, when vegetation reaches 12-18 inch tall, mow to no less than 6 inch by rotary mowing or weed eater to prevent weeds from going to seed. DO NOT MOW WITH A LAWN MOWER.

SUBMITTALS: Submittals shall be as per the General Conditions.

Source of Supply: The Contractor shall submit a document from the seed source for approval prior to installation the site showing the seed composition and percentages of each grass type proposed.

Testing: For existing grass areas, the Contractor shall submit a report from an approved independent testing laboratory including sieve analysis, organic content, electrical conductivity, pH, hydrometer test, and N, P,K levels and recommendation to amend existing topsoil.

MEASUREMENT AND PAYMENT: The quantity of **NATIVE SEED MIX_** to be paid for under this item shall be the area furnished, planted, grown, and maintained, measured in **SQUARE YARDS** in accordance with the plans and specifications, to the satisfaction of the Engineer.

The price bid shall be a unit price per SQUARE YARD of area furnished and installed including the price of water, regardless of the source, the cost of testing and amending existing topsoil, preparing seedbeds, seeding, reseeding, preparing and reseeding sparse areas as shown on the drawings; watering, maintenance, and all related incidental work. No extra payment shall be made for water provided by the Contractor.

END OF PAGE

ITEM NO. 25 PREPARATORY PRUNING OF TREE OVER 6" TO 12" DBH

WORK: Under these Items, the Contractor shall perform **PREPARATORY PRUNING OF TREE OVER 6" TO 12" DBH**, in accordance with the plans, specifications, and as directed by the Landscape Construction Supervisor.

Note: DBH is defined as Diameter at Breast Height, which is 4'-6" above mean grade.

NOTIFICATION: Before any pruning work can begin under this item, the following persons must be notified a minimum of 48 hours prior to beginning work:

- Matthew DiVittorio, Director of Landscape Construction (718) 760-6736, Jeremy Barrick, Capital Projects Arborist (718) 760-6466 and **one** of the following:
- Director of Forestry, **Manhattan** (212) 860-1844
- Director of Landscape Management, **Queens** (718) 699-6724
- Director of Forestry, **Staten Island** (718) 816-9192
- Director of Forestry, **Brooklyn** (718) 965-7737
- Director of Forestry, **Bronx** (718) 430-1820

All of the following information and instructions are subject to the approval and direction of Director of Landscape Construction.

QUALIFICATIONS REQUIRED: Arborist shall be certified by the New York State Department of Agriculture and Markets to perform pruning work within the Asian Longhorned beetle quarantine zone. All pruning of limbs and roots must be performed by a qualified arborist, trained in proper pruning techniques, tree biology, diagnosis and treatment of plant diseases, and cabling and bracing. The tree care sub/Contractor shall have a minimum of three (3) years experience performing non-utility pruning as well as documentation of eight (8) hours of education in any combination of the specialties listed above. Certification by the International Society of Arboriculture (I.S.A.), Champaign, IL shall be considered proof of the requisite experience and educational requirements, provided that experience is in non-utility pruning. Also, see requirements listed under heading "Submittals", in the General Conditions, and Appendix Item, Section A "Tree Work". For additional information regarding procedures, contact Matthew DiVittorio at (718) 760-6736.

Asian Longhorned Beetle Quarantine Zone Regulations: Due to current Federal, State and NYC DPR policy, any wood waste that is generated must be completely chipped by a Sub/Contractor certified by the New York State Department of Agriculture and Markets to perform tree work within the Quarantine Zone. See Appendix Item, Section A, "Tree Work". For additional information regarding procedures, contact Matthew DiVittorio at (718) 760-6736.

PRUNING METHOD:

Tree Pruning (Preparatory): No trees shall be pruned except as directed by the Director of Landscape Construction or his designated representative. Before pruning an arborist or arborist trainee shall visually inspect each tree before beginning work. If a condition requiring attention beyond the original scope of the work is observed, the condition shall be reported to the Director

of Landscape Construction or his designated representative.

All work shall be performed by skilled persons directly employed and supervised by the Sub/Contractor. The current prevailing wage rates and supplemental benefits, as established by the Office of the Comptroller of the City of New York, shall be paid to all assigned personnel. The Contractor may exceed these rates, but they may not pay a lower rate.

The Contractor or their authorized representative must be present at the work site at all times while work is being performed to receive and promptly execute all orders and/or directions of the Director of Landscape Construction or his designated representative. The aforementioned provision shall be obeyed irrespective of whether the work is being performed by the Contractor or a Subcontractor.

Equipment, tools, and work practices that damage living tissue and bark beyond the scope of normal work shall be avoided. Pruning tools shall be sharp to avoid unnecessarily damaging tissue. Climbing spurs shall not be used when entering and climbing trees for the purpose of pruning, except when branches are more than throw-line distance apart and there is no other means of climbing.

Pruning of the crown shall be performed in such a manner as to maintain the shape of the particular species and the balance and symmetry of the tree in general while retaining as much fine growth as possible. Live branches or limbs 4-inches in diameter and larger shall not be removed without the written permission of the Director of Landscape Construction or his designated representative. On trees known to be diseased or where there is known danger of transmitting disease, tools are to be disinfected with wood alcohol after each cut and after completion of each tree.

All work shall be performed in a professional manner and in accordance with the most current revision of the American National Standards for Tree Care Operations: Tree, Shrub, and Other Woody Plant Maintenance and Standard Practices, A-300-(Part 1)- 2008 Pruning, published by the American National Standards Institute (ANSI). ANSI Standards are made part of this contract by this reference.

A pruning cut that removes a branch at its point of origin shall be made close to the trunk or parent branch without cutting into the branch bark ridge or branch collar or leaving a stub. A pruning cut that reduces the length of a branch or parent stem shall be made at a slight downward angle relative to the remaining stem and not damage the remaining stem. Smaller cuts shall be preferred. When pruning to a lateral, the remaining lateral branch shall be large enough to assume the terminal role. A cut that removes a branch with a narrow angle of attachment shall be made from the outside of the branch to prevent damage to the parent branch. The final cut shall result in a flat surface with adjacent bark firmly attached. When removing a dead branch, the final cut shall be made just outside the collar of living tissue. Wound treatment shall not be used to cover wounds or pruning cuts, except when necessary for disease, insect, mistletoe, or sprout control, or for cosmetic reasons. Wound treatments that are damaging to tree tissue shall not be used. When tracing wounds, only loose, damaged tissue shall be removed.

Pruning shall be performed in such a manner so as to avoid damage to other parts of the tree or other vegetation within proximity of the tree being pruned. Branches too large to support with one hand shall be pre-cut to avoid splitting of the wood or tearing of the bark. Where necessary, ropes or other equipment shall be used to lower large branches or portions of branches to the ground. The Contractor shall carefully protect from damage all existing vegetation, site features, and all other property which is to remain. The Contractor shall be liable for any and all damage to the above resulting from tree pruning operations and shall be responsible for the replacement or restoration of same where damaged, at the direction of and to the satisfaction of the Engineer.

Pruning shall occur for, but not be limited to, the following situations: interference with new fences, lights or utilities, to achieve the required clearance for pedestrian or vehicular passage,

Pruning objectives shall be defined as, but are not limited to; Structural, Restoration, Cleaning, Raising, Reducing, and Thinning. Defined as the following and as directed by the Director of Landscape Construction:

Structural Pruning: Shall consist of selective pruning to improve tree and branch architecture primarily on young-and medium-aged trees by selecting a dominant leader and removing or reducing competing leaders, removing intertwining branches, interfering, overextended, defective, weak, and poorly attached branches shall be removed or reduced

Restoration Pruning: Shall consist of selective pruning to redevelop structure, form, and appearance of severely pruned, vandalized, or damaged trees.

Cleaning: Shall consist of pruning to remove branches that are dead, diseased, insect infested, and/or broken 1.5-inches in diameter and larger throughout the entire tree canopy, as well as vines and other invasive vegetation.

Raising: Shall consist of pruning to provide vertical clearance. All branches shall be removed to a height sufficient to permit free passage of both pedestrian and vehicular traffic, approximately eight foot (8') clearance for paths and fourteen feet (14') for roadways, as directed by the Director of Landscape Construction. In lifting the bottom branches of trees for underclearance, care shall be given to maintain symmetrical appearance.

Reducing: Shall consist of pruning to decrease the canopy height and/or spread as directed by the Director of Landscape Construction or his representative.

Thinning: Shall consist of selective pruning to reduce the density of live branches in an attempt to permit establishment of grass, ground cover, and other plant material, or for aesthetic considerations.

AT NO TIME SHALL MORE THAN 20% OF A TREE'S LIVE CANOPY BE REMOVED.

Debris: If directed by the Director of Landscape Construction, pruned material shall be chipped and spread as mulch to supplement "Protect existing tree roots with wood chips" item. All other pruned material and debris shall be removed from the site of the contract within twenty four (24) hours and disposed of as directed by the Engineer, and as per the Quarantine provisions.

SUBMITTALS: All submittals shall be as specified in Division 1, General Conditions. **Arborist Qualifications:** The Contractor shall submit for approval, the name and qualifications of the proposed tree care sub/Contractor prior to performing work. The Contractor shall submit the following:

1.) Proof of three (3) years of non-utility pruning experience or I.S.A. certification with

- documented non-utility pruning experience.
- 2.) Documentation of eight (8) hours of required education or I.S.A. certification.
 - 3.) Name, address, and phone numbers for three (3) professional references associated with non-utility pruning work performed.
 - 4.) State Certification-The Contractor must submit a copy of a valid Compliance Agreement issued by the State of New York Department of Agriculture and Markets, Division of Plant Industry. The arborist shall meet the qualifications listed on the first page of this item under the heading Qualifications Required:. Verification of certification, qualifications, and references must be submitted to the DPR Landscape Supervisor for approval prior to performing any work.

PAYMENT SCHEDULE: The Contractor will be paid at the following rates for the different size groups of trees pruned based on the bid price for pruning a tree over six to twelve inch (6"-12") DBH (base unit).

<u>TREE DBH</u>	<u>TREE UNITS</u>	<u>PAYMENT PER TREE</u>
Over 0" to 6"	0.75	75% of unit price bid
Over 6" to 12"	1.00 (base unit)	100% of unit price bid
Over 12" to 18"	1.25	125% of unit price bid
Over 18" to 24"	1.5	150% of unit price bid
Over 24" to 30"	2.0	200% of unit price bid
Over 30" to 36"	2.5	250% of unit price bid
Over 36" to 42"	3.0	300% of unit price bid
Over 42" to 48"	3.5	350% of unit price bid
Over 48"	4.0	400% of unit price bid

For example, pruning of one thirty one inch (31") DBH tree would receive payment for 2.5 tree units, pruning of one twenty two inch (22") DBH tree would receive payment for 1.5 tree units, and pruning of one seven inch (7") DBH tree would receive payment for one tree unit, for a total payment of 5.0 tree units.

MEASUREMENT AND PAYMENT: The quantity of **PREPARATORY PRUNING OF TREE OVER 6" TO 12" DBH** to be paid for under this Item shall be the number of tree units pruned, calculated in accordance with the payment schedule above, in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price for **EACH** tree pruned in the **OVER 6" to 12" DBH** size group (equivalent to one tree unit), and shall include the cost of all labor, materials, and equipment necessary for pruning trees, including disposal of all debris, and all other incidentals necessary to complete the work, in accordance with the plans and specifications, to the satisfaction of the Engineer.

END OF PAGE

ITEM NO. 26

TEMPORARY SHEETING

WORK: Under this item the Contractor shall provide temporary sheeting and bracing in all trenches or excavations for structures, where necessary for the proper protection of persons or property. Where the depth of excavation exceeds five feet (5'), sheeting and necessary bracing must be installed for the entire depth below the existing ground surface and will be paid for under this item.

All shoring work shall meet or exceed the requirements of the New York State Department of Labor, Industrial Code Rule 23 and Title 29 Code of Federal Regulations Part 1926, Safety and Health Regulations for Construction (OSHA).

The type of sheeting and bracing shall be satisfactory to the Engineer and subject to his approval, but the approval by the Engineer of a method to be used does not relieve the Contractor of his responsibility for protection and safety.

When sheeting is used in trenches or excavations for structures of less than five (5) feet in depth, the cost of such sheeting and bracing, unless ordered left in place, shall be included in the price bid for Unclassified Excavation, see specification Section "Shoring", and payment will be made for such excavation to the maximum payment lines shown on the Plans.

MEASUREMENT AND PAYMENT: The quantity of Temporary Sheeting to be paid for under this item shall be the number of **SQUARE FEET** of sheeting, measured on exposed surfaces after installation in accordance with the plans, specifications and the directions of the Engineer.

The price bid shall be a price per **SQUARE FOOT** and shall include the cost of all labor, material, equipment and incidental expenses necessary including complete removal prior to backfilling, as necessary, to complete the work in accordance with the plans and specifications to the satisfaction of the Engineer

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<u>ITEM NO. 27</u>	ITEM DELETED
<u>ITEM NO. 28</u>	<u>DUCTILE IRON SEWER PIPE - 6" DIA.</u>
	<u>DUCTILE IRON SEWER PIPE - 8" DIA.</u>
	<u>DUCTILE IRON SEWER PIPE - 10" DIA.</u>
	<u>DUCTILE IRON SEWER PIPE - 12" DIA.</u>

WORK: Under this item, the Contractor shall furnish and lay Ductile Iron Sewer Pipe of the inside diameter sizes called for and shown on the plans or as directed by the Engineer.

MATERIALS: Ductile Iron Sewer Pipe shall consist of bell and spigot type Ductile Iron Pipe sections with Field Lok Gasket Joints, similar or equal to that manufactured by the U.S. Pipe & Foundry Co. of Birmingham, Alabama and shall conform to the American National Standards Institute C151 and American Water Works Association A21.51, Thickness Class 56. Pipe shall be laid true to line and grade with bells upstream.

LAYING: If the foundation is good, firm earth the earth shall be pared or molded to give a full support to the lower third of each pipe. If the foundation is unstable, or other conditions prevent a proper bearing for the pipe, a bedding of broken stone shall be installed as shown on the Standard Detail Sheet 'Drainage Details-No. 2'. If the excavation has been made deeper than necessary, a bedding of broken stone shall be installed at the Contractor's expense.

When the pipe is to be installed under a roadway a concrete cradle shall be laid to provide a full, firm and even bearing as shown on the Standard Detail Sheet 'Drainage Details-No. 2'.

Trenches shall be promptly backfilled after the installation of pipe or completion of structures but no backfilling shall be done until the work has been inspected and approved by the Engineer.

Trenches shall be backfilled with clean fill, hand placed and tamped with six (6) inch layers to completely fill all spaces adjacent to the pipe.

CONNECTIONS: The Contractor shall do all the work necessary to join the Ductile Iron Sewer Pipe to the existing sewer as shown on the plans. The cost for doing this shall be included in the unit price bid for this item.

MEASUREMENT AND PAYMENT: The quantity of **Ductile Iron Sewer Pipe** to be paid for under this item shall be the number of **LINEAR FEET** (laying length) of each size pipe, including fittings, furnished, placed and measured in its final position, in accordance with the plans and specifications and the directions of the Engineer.

The price bid shall be a unit price per **LINEAR FOOT** of laying length of Ductile Iron Sewer Pipe of each size shown and shall include the cost of all labor, materials and equipment necessary to complete the work, including delivering, handling and laying of pipe, connection and fittings, backfilling with clean fill, all in accordance with the plans and specifications to the satisfaction of the Engineer. Excavation, Concrete and Broken Stone shall be paid for under their respective items.

END OF PAGE

ITEM NO. 29 **SERVICE WEIGHT CAST IRON SOIL PIPE - 6" DIA.**
SERVICE WEIGHT CAST IRON SOIL PIPE - 8" DIA.
SERVICE WEIGHT CAST IRON SOIL PIPE - 10" DIA.

WORK: Under these Items, the Contractor shall furnish and install **SERVICE WEIGHT CAST IRON SOIL PIPE**(formerly known as Extra Heavy Cast Iron Soil Pipe) of the sizes called for and shown on the plans or as directed by the Engineer.

MATERIALS: Service Weight Cast Iron Soil Pipe shall consist of hub and spigot joint cast iron soil pipe and fittings, similar or equal to that manufactured by the Tyler Pipe Co., Tyler, Texas, or approved equal, and of the grade called for.

INSTALLATION Service Weight Pipe shall be laid true to line and grade with hubs upstream and shall have a full, firm and even bearing. Joints are to be connected with SV Ty Seal Gasket, as manufactured by Tyler Pipe Co., Tyler, Texas, or approved equal.

CONNECTION: The Contractor shall do all the work necessary to join the Cast Iron Soil Pipe to the existing sewer as shown on the Plans. The cost for doing this shall be included in the unit price bid for this Item.

MEASUREMENT AND PAYMENT: The quantity of **SERVICE WEIGHT CAST IRON SOIL PIPE** to be paid for under this Item shall be the number of linear feet (laying length) of each size pipe, including fittings, clean-out structures, measured in its final position, furnished and placed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per **LINEAR FOOT** of laying length Service Weight Cast Iron Soil Pipe of each size shown and shall include the cost of all labor, materials and equipment necessary pipe to complete the Work in accordance with the plans and specifications, to the satisfaction of the Engineer.

Unclassified Excavation shall be paid for under its' respective Item.

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<u>ITEM NO. 30</u>	<u>POLYETHYLENE CORRUGATED PIPE, 4" Dia.</u>
	<u>POLYETHYLENE CORRUGATED PIPE. 6" Dia.</u>
<u>ITEM NO. 31</u>	<u>POLYETHYLENE CORRUGATED PIPE, 8" Dia.</u>
	<u>POLYETHYLENE CORRUGATED PIPE, 10" Dia.</u>
<u>ITEM NO. 32</u>	<u>POLYETHYLENE CORRUGATED PIPE, 12" Dia.</u>
	<u>POLYETHYLENE CORRUGATED PIPE, 15" Dia.</u>
	<u>POLYETHYLENE CORRUGATED PIPE, 18" Dia.</u>
	<u>POLYETHYLENE CORRUGATED PIPE, 24" Dia.</u>
	<u>POLYETHYLENE CORRUGATED PIPE, 36" Dia.</u>

WORK: Under this item, the Contractor shall furnish and lay **POLYETHYLENE CORRUGATED PIPE** of the required size, in accordance with the plans, specifications, and directions of the Engineer. All work of connecting and joining to other pipes or drainage structure shall be included under this item.

MATERIALS: Pipe and fittings shall be manufactured by Advanced Drainage Systems, Inc. (ADS) Staybrook Industrial Area, Ludlow, MA. 01056, or approved equal. Sizes 4 – 36 inch (N-12) shall have a full circular cross-section, with an outer corrugated pipe wall and an essentially smooth inner wall (waterway). Corrugations for these sizes may be either annular. All sizes shall conform to the AASHTO classification "Type S", which describes pipe with a smooth waterway.

Pipe manufactured for this specification shall comply with the requirements for test methods, dimensions, and markings found in AASHTO Designations M252 and M294. Pipe and fittings shall be made from Virgin PE compounds which conform with the requirements of cell Class 324420C as defined and described in ASTM D3350.

The minimum parallel plate stiffness values when tested in accordance with ASTM D2412 shall be as follows:

<u>Diameter</u>	<u>Pipe Stiffness</u>
4" (100 mm)	50 psi (340 kPa)
6" (150mm)	50 psi (340 kPa)
8" (200mm)	50 psi (340 kPa)
10" (250mm)	50 psi (340 kPa)
12" (300mm)	50 psi (340 kPa)
15" (375mm)	42 psi (290 kPa)
18" (450 mm)	40 psi (280 kPa)
24" (600 mm)	34 psi (235 kPa)
36" (900 mm)	22 psi (150 kPa)

The fittings shall not reduce or impair the overall integrity or function of the pipe line. Fittings may be either molded or fabricated. Common corrugated fittings may be either molded or fabricated. Common corrugated fittings include in-line joint fittings, such as couplers and reducers, and branch or complimentary assembly fittings such as tees, wyes, and end caps. These fittings may be installed

by various methods, such as snap-on, screw-on, bell and spigot, and wrap around. Couplings shall provide sufficient longitudinal strength to preserve pipe alignment and prevent separation at the joints.

Only fittings supplied or recommended by the pipe manufacturer shall be used. Where designated on the plans, a neoprene or rubber gasket shall be supplied.

INSTALLATION: All pipe shall be laid in reasonably close conformity to line and grade and shall have a full, firm and even bearing at each joint and along the entire length of pipe. Joint misalignment shall not result in offsets, in the interior smooth liner, greater than one-quarter (1/4") inch. Pipe laying shall begin at the downstream end and progress upstream. Any single run of pipe, excluding and sections, shall consist wholly of the same type material unless otherwise directed by the engineer. No section of pipe used shall be less than three feet (3') in length. Installation of the pipe shall be in accordance with ASTM Recommended Practice D2321.

Installation Recommendation:

1. Crushed stone, gravel or compacted soil backfill material should be used as the bedding and envelope material around the culvert. The aggregate size should not exceed one-sixth (1/6) of the pipe diameter or four inch(4") diameter, whichever is smaller.
2. The corrugated pipe should be laid on grade, on a layer of bedding material. If native soil is used as the bedding and backfill material, it should be well compacted in six inch (6") layers under the haunches, around the sides, and above the pipe to the recommended minimum height of cover.
3. Either flexible (asphalt) or rigid (concrete) pavements may be laid as part of the minimum cover requirements.
4. Site conditions and availability of bedding materials often dictate the type of installation method used.
5. The load bearing capability of flexible conduits is dependent on the type of backfill material used and the degree of compaction achieved. Crushed stone and gravel backfill materials typically reach a compaction level of ninety to ninety five percent(90-95%) AASHTO standard density without compaction. When native soils are used as backfill material, a compaction level of eighty five percent(85%) is required. This is the same minimum compaction that is recommended by all culvert pipe manufacturers and can be achieved by either hand or mechanical tamping.

Two types of installations are recommended for H-20 live loads - the heaviest legal highway loads. These are the trench and open ditch installations. The minimum height of cover recommendations are the same for both conditions.

MINIMUM DIMENSIONS TRENCH OR OPEN DITCH INSTALLATIONS			
Nominal Diameter	Min. Thickness Of Bedding	Minimum Cover	Minimum Trench Width
4"	3"	12"	21"
6"	3"	12"	23"
8"	3"	12"	25"
10"	4"	12"	28"
12"	5"	12"	31"
15"	6"	12"	34"
18"	6"	12"	39"
24"	6"	12"	48"
36"	6"	12"	64"

Coupling of the pipes shall be performed using Standard ADC (Advanced Drainage Systems) N-12 split coupler PRO LINK ST, or PRO LINK 10.8, or PRO LINK 5, or approved equal.

MEASUREMENT AND PAYMENT: The quantity of **POLYETHYLENE CORRUGATED PIPE** to be paid for under this Item shall be the number of linear feet (laying length) of each size pipe, including fittings, measured in its final position, furnished, and placed in accordance with the plans, specifications, and the directions of the Engineer.

The price bid shall be a unit price per **LINEAR FOOT** of laying length Polyethylene Corrugated Pipe of each size shown and shall include the cost of all labor, materials and equipment necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer. Excavation and broken stone shall be paid for under their respective Items.

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ITEM NO. 33

SLOTTED POLYETHYLENE PIPE - 4" DIA.
SLOTTED POLYETHYLENE PIPE - 6" DIA.
SLOTTED POLYETHYLENE PIPE - 8" DIA.
SLOTTED POLYETHYLENE PIPE - 18" DIA.

WORK: Under these Items, the Contractor shall furnish and install **SLOTTED POLYETHYLENE CORRUGATED PIPE** of the required size, in accordance with the plans, specifications, and directions of the Engineer. All work of connecting and joining to other pipes or drainage structures, including connecting pieces, shall be included under these Items.

MATERIALS: Unless otherwise herein specified, all materials and methods of construction shall conform to Appendix Item, Section B.

Pipe: (N-12) pipe shall have a full circular cross-section, with an outer corrugated perforated pipe wall and an essentially smooth inner wall (waterway). Corrugations for these sizes may be either annular or spiral. Size shall conform to the AASHTO classification "Type SP" (which describes pipe with a smooth waterway and Class 2 perforations).

Pipe manufactured for this specification shall comply with the requirements for test methods, dimensions, and markings found in AASHTO Designations M252 and M294. Pipe and fittings shall be made from virgin polyethylene compounds which conform with the requirements of cell Class 324420C, as defined and described in ASTM D3350. Pipe and fitting shall be as manufactured by Advanced Drainage Systems, Inc. (ADS) Staybrook Industrial Area, Ludlow, MA, or approved equal. The minimum parallel plate stiffness values when tested in accordance with ASTM D2412 shall be as follows:

<u>Diameter</u>	<u>Pipe Stiffness</u>
4" (100mm)	50 psi (340 Kpa)
6" (150mm)	50 psi (340 Kpa)
8" (200mm)	50 psi (340 Kpa)

SOCK: The perforated pipe shall have a "DC Sock" - a polyester machine knitted envelope factory applied and ready for installation.

FITTINGS: The fittings shall not reduce or impair the overall integrity or function of the pipe line. Fittings may be either molded or fabricated. Common corrugated fittings include in-line joint fittings, such as couplers and reducers, and branch or complimentary assembly fittings such as tees, wyes, and end caps. These fittings may be installed by various methods, such as snap-on, screw on, bell and spigot, and wrap around. Couplings shall provide sufficient longitudinal strength to preserve pipe alignment and prevent separation at the joints. Only fittings supplied or recommended by the pipe manufacturer shall be used.

Where designated on the plans, a neoprene or rubber gasket shall be supplied.

EXECUTION:

Laying Pipe: All pipe shall be laid in reasonably close conformity to line and grade and shall have a full, firm and even bearing at each joint and along the entire length of pipe. Joint misalignment shall not result in offsets, in the interior smooth liner, greater than 1/4". Pipe laying shall begin at the downstream end and progress upstream. Any single run of pipe, excluding end sections, shall consist wholly of the same type material unless otherwise directed by the Engineer. No section of pipe used shall be less than three feet(3') in length. Installation of the pipe shall be in accordance with ASTM Recommended Practice D2321.

Installation Recommendations:

1. Compacted sand backfill material should be used as the bedding and envelope material around the culvert.
2. The corrugated perforated pipe should be laid on grade, on a layer of bedding material. Sand is used as the bedding and backfill material and it should be well compacted in six inch (6") layers under the haunches, around the sides and above the pipe to the recommended minimum height of cover.
3. Coupling of the pipes shall be performed using Standard ADS (Advanced Drainage Systems) N-12 split coupler PRO LINK ST, or PRO LINK 10.8, or PRO LINK 5, or approved equal.

MEASUREMENT AND PAYMENT: The quantity of **SLOTTED POLYETHYLENE PIPE, 4", 6", 8", and 18" DIA.** to be paid for under these Items shall be the number of **LINEAR FEET** (laying length) of **EACH SIZE SLOTTED POLYETHYLENE PIPE**, including fittings, measured in the final position, furnished, and placed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per **LINEAR FOOT** of laying length Slotted Polyethylene Corrugated Pipe of each size shown and shall include the cost of all labor, materials, and equipment necessary required to complete the work, including pipe and fittings in accordance with the plans and specifications, to the satisfaction of the Engineer.

Excavation and sand shall be paid for under the separate contract Items.

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ITEM NO. 31
ITEM NO. 32
ITEM NO. 33
ITEM NO. 34

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18" DIA. MANHOLE WITH H-20 RATED 18" SOLID COVER

WORK: Under this item, the Contractor shall furnish and install **18" DIA. MANHOLE WITH H-20 rated 18" SOLID COVER**, in accordance with the plans, specifications, and directions of the Engineers.

All work or connecting and joining to other drainage pipes shall be included in the price bid under this item.

MATERIALS: Manhole and cover shall be "Nyloplast Manhole 18" with 18" dia. Ductile iron solid cover, as manufactured by Advanced Drainage Systems, Inc. (ADS), Hilliard, OH, or approved equal.

A manhole shall be made of polyethylene and shall comply with the requirements for test methods, dimensions, and markings found in AASHTO Designations M252 and M294.

A manhole shall be made from Virgin PE compounds which conform with the requirements of cell Class 324420C as defined and described in ASTM D3350.

SOLID COVER AND FRAME H-20 RATED shall be ductile iron conforming to ASTM A536 Grade 70-50-05. The cover shall be painted black and have a locking device.

INSTALLATION: A manhole shall be set to the elevations shown on the drawing and shall be connected to new drainage pipes utilizing proper fittings as recommended by the manufacturer.

Crushed stone, gravel or compacted soil backfill material should be used as the base aggregate under the manhole Broken Stone shall consist solely of crushed ledge rock. Stone shall be #3 size and shall be of approved size and quality as specified in Appendix Item, Section B, 'Materials and Methods of Construction'. Depth of stone base shall be 6".

MEASUREMENT & PAYMENT: The quantity of **18" DIA. MANHOLE WITH H-20 RATED 18" SOLID COVER** to be paid for under this item shall be the number of **EACH 18" DIA. MANHOLE WITH H-20 RATED 18" SOLID COVER** furnished and installed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price for **EACH 18" DIA. MANHOLE WITH H-20 RATED 18" SOLID COVER** furnished and installed, and shall include the cost for all labor, material, equipment, and incidental expenses necessary to complete the work, including the polyethylene manhole with li-20 rated 18" solid cover, locking device, and broken stone base, all in accordance with the plans and specifications, to the satisfaction of the Engineer.

Excavation, Concrete Collar, Polyethylene Pipes shall be paid for separately under their respective contract items.

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ITEM NO. 35

BROKEN STONE - LOOSE MEASURE

WORK: Under this item the Contractor shall furnish and place **BROKEN STONE** in the locations where shown on the plans or as directed by the Engineer. This stone will be used for drainage applications and other miscellaneous work, as shown on the plans and as directed by the Engineer.

MATERIALS: Broken Stone shall consist solely of crushed ledge rock. Stone shall be No. 3 and No. 4 size and shall be of approved size and quality as specified in Appendix Item, Section B, 'Materials and Methods of Construction'.

*** IMPORTANT:** Material substitutions will not be approved under any circumstances. All recycled materials will be rejected.

MEASUREMENT AND PAYMENT: The quantity of **BROKEN STONE - LOOSE MEASURE** to be paid for under this item shall be the number of **CUBIC YARDS**, measured in trucks as delivered to the site, furnished and placed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per **CUBIC YARD** and shall include the cost of all labor, materials, equipment and incidental expenses necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

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ITEM NO. 36 **ITEM DELETED**

ITEM NO. 37 **PRECAST CONCRETE DRYWELL**

WORK: The Contractor shall furnish and install **PRECAST CONCRETE DRYWELLS** of the size called for on the plans, where indicated on the plans, or as ordered by the Engineer, in accordance with the plans, specifications, and directions of the Engineer.

MATERIALS: Except as otherwise provided for herein, all material and methods of construction shall fulfill the specification requirements of Appendix Item, Section B, "Materials and Methods of Construction".

Circular Footings: Circular footings shall be manufactured by OLDCASTLE Precast Corp., Middle Island, N.Y., or approved equal.

Storm Water Drainage Ring: Storm Water Drainage Ring shall be manufactured by OLDCASTLE Precast Corp., Middle Island, N.Y., or approved equal.

Top Slab: Circular top slabs shall be of the "Traffic Type" as manufactured by OLDCASTLE Precast Corp., Middle Island, N.Y., or approved equal.

Covers: Covers shall be manufactured by OLDCASTLE Precast Corp., Middle Island, N.Y., or approved equal.

Concrete cover shall be 2'-6" diameter with a min. of 1' earth cover.

Broken Stone No. 3 and No.4: Broken stone shall consist solely of crushed ledge rock. Stone shall be No. 3 or No. 4 size, as designated on the detail.

Geotextile-Drainage: Geotextiles used in drainage applications shall be Class 2 and shall conform to AASHTO-M-288 properties for drainage geotextiles as well as the specification for "Geotextil-Drainage" included in this contract.

PVC Pipe: The PVC piping is to be twenty four inches (24") in diameter, and shall meet the requirements of ASTM Specification D1785, with one inch (1") holes drilled four inches (4") on center as shown on detail.

INSTALLATION: The concrete sides and base shall be set so that the structure is completely surrounded by broken stone of the size shown on the detail. Thickness of the broken stone shall be as shown on the detail. Geotextile shall cover the sides and top of the structure and contain the Broken Stone. No geotextile shall be placed on the bottom of the structure.

INCIDENTAL WORK: The Contractor shall furnish materials for all incidental work to complete the structures, including the work of providing openings for connecting pipes, drilling, and setting the twenty four inch (24") PVC pipe, installation of the No. 3 and No. 4 Broken Stone, as shown on the

plans. No additional payment will be allowed for any incidental work.

MEASUREMENT AND PAYMENT: For each PRECAST CONCRETE DRYWELL furnished and installed in accordance with the plans, specifications, and directions of the Engineer, the Contractor shall receive the unit price bid.

The price bid shall be a unit price for **EACH** Precast Concrete Dry Well and shall include the cost of all labor, materials and equipment, including concrete, PVC pipe, No.3 and No. 4 broken stone, plate cover, shipping charges, dewatering, and incidentals, in accordance with the plans and specifications to the satisfaction of the Engineer.

Excavation, Geotextile-Drainage, and Temporary Sheeting shall be paid for separately under their respective items.

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ITEM NO. 38 ALLOWANCE FOR D.E.P. SEWER REVIEW FEE

Under this Item, the Contractor shall pay the D.E.P. Sewer Review fee to the New York City Water Board. The total area of the site is 40,000 SQ.FT.

The price of the fee is computed by multiplying the site area of:
40,000SQ.FT. by two (\$0.02) cents per square foot for the first ten (10) acres and 40,000 SQ. FT. by one and one-half (\$0.015) cents per square foot for the site area in excess of ten (10) acres.

In any event, payment for review fee shall not to be less than \$325.00, as established by the New York City Water Board and payable to the same.

The D.E.P.Review Fee for this Contract has been computed to be \$800.00. The check shall be made payable to the New York City Water Board and shall be sent to the Division of Review and Construction Compliance, 96-05 Horace Harding Expressway, 3rd Floor, Section "A", Corona, N.Y. 11368.

MEASUREMENT & PAYMENT: For authorized work performed under this Contract, payment will be based upon submission of legible paid receipts for D.E.P. Sewer Review Fee, clearly showing name of Contractor and Parks facility. The Contractor shall receive exact reimbursement for his expenses and no additional compensation will be made under this Item.

The allowance for D.E.P.Review Fee shall be \$800.00.

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ITEM NO. 39

MISCELLANEOUS IRON AND STEEL

WORK: Under this item, the Contractor shall furnish and place all cast iron, cast steel, wrought iron and steel, not especially included under other items, as shown on the plans and for miscellaneous castings, etc.

MATERIALS: All materials shall meet the requirements as given in Appendix Item, Section B, "Materials and Methods of Construction".

CLEANING: Except as otherwise ordered by the Engineer, immediately prior to the final inspection the Contractor shall clean unimbedded surfaces that show evidence of loose mill scale, non-adherent rust, peeling paint and other deleterious matter in accordance with SP-2, Hand Tool Cleaning, a method generally confined to wirebrushing, sandpaper, hand scrapers or hand impact tools.

MEASUREMENT AND PAYMENT: The quantity of **MISCELLANEOUS IRON AND STEEL** to be paid for under this item shall be the number of pounds furnished and placed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per **POUND**, and shall include the cost of all labor, materials and equipment necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

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ITEM NO. 40

GALVANIZED STEEL FENCE 3'-6" HIGH

WORK: Under these Items, the Contractor shall furnish and erect **GALVANIZED STEEL FENCES** of the types and sizes shown on the plans, in accordance with the plans, specifications, and directions of the Engineer.

MATERIALS: Unless otherwise specified, the materials shall meet the requirements of Section B, "Materials and Methods of Construction". All materials as delivered shall be in condition for erection without field fitting or cutting.

FENCES shall be constructed of solid bars, posts, and rails of galvanized steel of the sizes shown on the plans. All material shall conform to Specification ASTM A-123.

FABRICATION- Fences shall be fabricated in strict accordance with the plans and approved Shop Drawings. Rails and pickets shall be formed into panels of the shapes on the plans and joints completely welded with welds of proper size and shape; all welds ground smooth. All fence sections shall be hot-dipped galvanized immediately after welding. Connection to posts shall be provided as indicated on the plans.

Welding shall conform to the requirements given under the "Materials and Methods of Construction".

Posts and pickets shall, in all cases, be truly vertical. Rails and bars shall be parallel to grade as shown on the plans. Panels shall be curved as required by the work.

INSTALLATION: The fences shall be set in a galvanized steel plate in accordance with the plans, specifications and directions of the Engineer. Any fences and gates not set plumb and true to line and grade shall be removed and replaced at the Contractor's expense. The Contractor shall maintain the fences and gates during the life of the contract and shall repair replace all members that are disturbed, damaged, or destroyed.

TOUCH-UP AND REPAIR: For minor damage caused by installation or transportation and field bolted connections and abraded areas;

1. On damaged galvanized surfaces, apply organic zinc repair paint complying with ASTM A780. Galvanizing repair paint shall have 65 percent zinc by weight. Thickness of repair paint shall not be less than that required by ASTM A123.

SUBMITTALS: All submittals shall be in accordance with the requirements of the General Conditions, Section C, Special Requirements, Article 11.

Shop Drawings: shall be submitted prior to manufacture

SAMPLES: The Contractor shall submit for the approval finished 12" sample of the fence. The workmanship and finish of the final product shall be equal to the approved samples.

MEASUREMENT AND PAYMENT: The quantity of **GALVANIZED STEEL FENCE** to be paid for shall be the number of **LINEAR FEET** of each type fence furnished and erected complete, in accordance with the plans, specifications, and directions of the Engineer.

The prices bid shall be unit prices per **LINEAR FOOT** of Steel Fence of each type and a unit price per gate and shall include the cost of all labor, materials, and equipment required to furnish and erect fences and gates, including painting, grout, sealant, and all incidental expenses necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

END OF PAGE

- ITEM NO. 41 TYPE "K" COPPER TUBING - 1/2" DIA.
TYPE "K" COPPER TUBING - 3/4" DIA.
TYPE "K" COPPER TUBING - 1" DIA.
TYPE "K" COPPER TUBING - 1 1/2" DIA.
- ITEM NO. 42 TYPE "K" COPPER TUBING - 2" DIA.
TYPE "K" COPPER TUBING - 3" DIA.

WORK: Under this item the Contractor shall furnish, install and connect the water pipe of the size shown in accordance with the plans, specifications and directions of the Engineer.

PIPE: The water service pipe shall be rigid hard temper type "k" copper tubing in straight lengths meeting the specification for ASTM designation No. B88.

FITTINGS: Fittings shall be approved wrought copper and bronze solder - joint pressure fittings (ANSI B 16.22), Di-Electric fittings as required.

JOINTS: Joints shall be made by soldering, using lead free tin antimony solder. From the curb valve to the water tap, joints shall be of the "flared" type.

INSTALLATION: The pipe shall be laid true to line and grade with a cover as indicated on the plans or as directed by the Engineer. When the foundation is good firm earth, the earth should be panned or molded to give a full support and if necessary a layer of fine sand or other suitable material should be placed. The same means of securing firm foundation should be adopted in case the excavation has been made deeper than necessary, in which case the Contractor shall furnish the gravel at his own expense.

Where the bottom of the trench is in rock, fresh fill, soil of low bearing power or other situations where special foundations are required, the Contractor shall provide such foundation in accordance with the written order of the Engineer. The work shall be paid for at the unit prices bid for the materials used in the work.

TESTS: The Contractor shall not backfill over any pipe until ordered by the Engineer. The pipe system shall be tight and show no leaks when filled with water, sealed and subjected to an internal hydrostatic pressure of 100 psi for thirty minutes. Temporary caps shall be placed where required to permit making the tests where valves are not available. The tests shall be made in the presence of the Engineer.

MEASUREMENT AND PAYMENT: The quantity of **TYPE 'K' COPPER TUBING** to be paid for under these items shall be the number of **LINEAR FEET** (laying length), of each size, including fittings, furnished and incorporated in the work in accordance with the plans, specifications and directions of the Engineer.

TYPE K COPPER TUBING - VARIOUS DIAMETERS

The price bid shall be unit price per **LINEAR FOOT** and shall include the cost of all labor, materials, equipment and incidental expenses necessary to complete the work, including fine gravel, in accordance with the plans and specifications to the satisfaction of the Engineer.

Excavation, water tap and restoration will be paid for under other items.

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ITEM NO. 43

PLUG VALVE 1" DIA.
PLUG VALVE 1 1/4" DIA.
PLUG VALVE 1 1/2" DIA.
PLUG VALVE 2"DIA.
GATE VALVE 2 1/2" DIA.

WORK: Under this Item, the Contractor shall furnish and install **PLUG VALVES** and **GATE VALVES**, of the sizes and type shown on the plans, in strict accordance with the plans, specifications, and directions of the Engineer.

PLUG VALVES: Valves two inches (2") and under shall be of the cylindrical Plug Type with a closed bottom and a top seal, fully enclosed one-quarter (1/4) turn check, straight through flow way which is resistant to turbulence of the flow stream, one piece cast bronze cylindrical plug and "T" head that aligns with the ports to provide a visual check of valve position, inside screw ends with I.P. threads, as is manufactured by Mueller Co. No. H-10283, or approved equal. Adaptors are required for connecting to copper tubing.

GATE VALVES: Valves two and one-half inches (2 1/2") and over shall be iron body, bronze mounted, inside screw, non-rising stem, screwed ends, bolted bonnet, modified with a two inch (2") operating nut, Walworth, No. W4, Stockham No. G608, or approved equal.

OPERATING KEY: An approved operating key of proper size for each valve shall be furnished by the Contractor, except that the Contractor need not furnish more than two (2) keys for each type of valve, regardless of the quantity of valves called for in the contract. For plug valves two inches (2") and under, the operating key shall be Mueller Co. No. H-10322, or approved equal. For gate valves greater than two inches (2") the operating key shall be Stockham No. 1V437, or approved equal.

SHOP DRAWINGS: The Contractor shall submit shop drawings when required, in accordance with the requirements of the General Conditions.

MEASUREMENT AND PAYMENT: The quantity of **PLUG VALVES** and **GATE VALVES** of various sizes to be paid for under these items shall be the number of valves of each size, furnished and installed in accordance with the plans, specifications, and directions of the Engineer.

The prices bid shall be unit prices per valve of **EACH** type and size, and shall include the cost of all labor, materials, equipment, and incidental expenses necessary to complete the work, in accordance with the plans and specifications, to the satisfaction

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ITEM NO. 44 **CAST IRON VALVE BOX, 5 1/4" DIAMETER**

WORK: Under this Item, the Contractor shall furnish and install **CAST IRON VALVE BOX, 5 1/4" DIAMETER** in accordance with the plans, specifications, and directions of the Engineer.

MATERIALS

Box: 5 1/4" diameter valve boxes shall be Bingham & Taylor Fig. No. 4908 with a Fig No. 4904-L locking cover, or approved equal. The cover shall have the designation "WATER" cast thereon. The boxes shall extend within the limits called for on the plans.

Setting: The valve boxes shall be set plumb, as shown on the plans, on a footing of brick laid in cement mortar, supported on a foundation of broken stone. The entire area surrounding the valve box shall be fully compacted after setting.

Brick: The brick shall be made from clay or shale, well burned, of a quality approved by the Engineer. The mortar shall be composed of one part Portland Cement and two parts sand.

Broken Stone: The broken stone shall be clean broken traprock, or other approved stone, all of which shall pass a one-inch square opening screen and retained on a 5/8 inch square opening screen.

SHOP DRAWINGS: The Contractor shall submit Shop Drawings when required, in accordance with the requirements of the General Conditions.

MEASUREMENT & PAYMENT: The quantity of **CAST IRON VALVE BOXES, 5 1/4" DIA.** to be paid for under this item shall be the number of boxes, including brick and broken stone setting bed furnished and installed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per **EACH** Cast Iron Valve Box and shall include the cost of all labor, materials, equipment and other incidentals necessary to complete the work, in accordance with the plans and specifications, to the satisfaction of the Engineer.
Excavation will be paid for separately.

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ITEM NO. 45

GROUND HYDRANT - 1" DIA.
GROUND HYDRANT - 2" DIA.

WORK: Under these Items, the Contractor shall furnish all labor, materials and equipment necessary or required to install **GROUND HYDRANT - 1" DIA.**, or **GROUND HYDRANT - 2" DIA.** including all plumbing work and connection to water service in accordance with the plans, specifications, and directions of Engineer.

SCOPE: The Contractor shall furnish and install a ground hydrant, all piping, fittings, and other sundries necessary to connect the water lines, as shown on the plans, to the satisfaction of the Engineer.

MATERIALS: Unless otherwise herein specified, all materials and methods of construction shall conform to Appendix Item, Section B, "Materials and Methods of Construction."

Equipment:

One Inch (1") Diameter Ground Hydrant shall be Type Z-1360-HD-RK-10 as manufactured by Zurn Industries Inc., Hydromechanics Division, Erie, PA, or approved equal. Hose connection shall be one inch (1").

Two Inch (2") Diameter Ground Hydrant shall be Type Z-1365-HD-RK-10 as manufactured by Zurn Industries, Inc., Hydromechanics Division, Erie, PA, or approved equal. Hose connection shall be two inches (2"). Installation shall be as per manufacturer's recommendations.

Hydrant is encased, ground hydrant for flush-with-grade installation, complete with bronze casing, polished nickel bronze box, all bronze interior parts, bronze seat and replaceable seat washer, non-turning operating rod with free-floating compression closure valve with 1" or 2" connection. Polished nickel-bronze box shall have a scoriated heavy-duty cover with operating key lock and "Water" cast on cover. Depth of bury is two (2) feet minimum for both size Ground Hydrants. Four (4) keys are to be supplied to the Borough Foreman of Mechanics.

Brass Garden Hose Adaptor (for one inch Ground Hydrant only): Shall be (1" => 3/4") Model # FM1076 as manufactured by George Taylor Brass and Bronze Works, Huntington, N.Y., or approved equal.

Broken Stone: Broken Stone shall consist solely of crushed ledge rock. Stone shall be as designated on the detail and shall be of the approved size and quality specified in Appendix Item, Section B, Materials and Methods of Construction.

SUBMITTALS: All submittals shall be as specified in the General Conditions.

Shop Drawings: The Contractor shall submit shop drawings when required, in accordance with the requirements of the General Conditions. Shop Drawings must be approved prior to manufacture.

Operating Keys: The Contractor shall furnish four (4)-operating keys for each hydrant installed under this item.

Parts Repair Kit: Contractor shall supply one (1) Parts Repair Kit for each Ground Hydrant installed under this item.

MEASUREMENT & PAYMENT: For **EACH** Ground Hydrant of each size furnished and installed, complete with all plumbing work in accordance with the plans, specifications, and directions of the Engineer, the Contractor shall receive the unit price bid.

The price bid shall be a unit price for a Ground Hydrant of each size and shall include the cost of all labor, materials, equipment and incidental expenses necessary to complete the work, including all plumbing work and connections to water service within five (5') feet of the ground hydrant, broken stone, hose adapter, and all submittals in accordance with the plans and specifications to the satisfaction of the Engineer.

Plug Valve, Valve Box, Excavation and Average Concrete shall be paid for under their respective items.

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ITEM NO. 46

IRRIGATION ACCESSORIES - TYPE A

WORK: Under this item the Contractor shall furnish and deliver as designated by the Engineer **IRRIGATION ACCESSORIES- TYPE A** as herein specified.

MATERIALS: Each set of irrigation accessories shall consist of one (1) Quick Coupling Valve and two (2) Keys, one (1) Hose Swivel Ell, one (1) Brass Garden Hose Adaptor, two (2) Sprinkler Heads with Base, two hundred linear feet (200') of 3/4" Hose, one hundred linear feet (100') of soaker hose, twenty (20) anchor pins, one (1) Hose Reel, two (2) Brass Siamese "Y" Connectors with Shut-off Valves, one (1) Brass Rose, one (1) Extension Handle.

INTENT: It is the intent of this item to provide irrigation where a 1" connection with adapter is available. This item is primarily intended for use by community groups, for the "wetting down" of clay areas of bocce courts and infield areas and for the irrigation of garden areas.

Coupling Valve & Key: Quick coupling valve shall be solid bronze, bayonet type, with a one (1") inch inlet size, Buckner Model QB44LRC10, or approved equal. Corresponding coupling key shall be three quarter (3/4") inch inside diameter with a one (1") inch male thread, Buckner Model QB44K10, as manufactured by Buckner Brass, Storm Manufacturing Group, Inc., Torrance, CA, or approved equal.

Hose Swivel Ell: Hose Swivel Ell shall be bronze with one (1") inch female thread for coupler and three quarter (3/4") inch male garden thread for hose. Hose Swivel Ell must be manufactured by the same company as the Quick Coupling Valve & Key, and shall be Buckner Model HS-100 or approved equal.

Brass Garden Hose Adaptor: Shall be a one (1") inch FPT, with a three-quarter (3/4") inch garden hose thread, Model # FM1076 as manufactured by George Taylor Brass and Bronze Works, Huntington, N. Y., or approved equal.

Siamese "Y" Connectors: Siamese "Y" connectors shall be brass, with shut-off valves at each connection. Size shall be three quarter (3/4") inch by three quarter (3/4") inch.

Nozzle: Nozzle shall be a solid brass nozzle to fit a three-quarter (3/4") inch hose, Midsize #529 as manufactured by Gilmour, Chicago, IL or approved equal.

Brass Rose: Rose shall be Brass, four (4") inches in Diameter with protective rubber guard and metric to inch hose thread converter, Model #540B, as manufactured by Damm Corporation, Manitowoc, Wisconsin, or approved equal.

Extension Handle: Extension handle shall be extruded aluminum tubing, thirty (30") inches long, with forged brass hose couplings and comfort hand grip, Model #130-G, as manufactured by Damm Corporation, Manitowoc, Wisconsin, or approved equal.

Shut-Off Valve: Shut-off valve shall be brass with Teflon® seals and a hard chrome plated ball, Model #300, as manufactured by Dramm Corporation, Manitowoc, Wisconsin, or approved equal.

Sprinkler Head With Base: Sprinkler head shall be brass and stainless steel impulse type mounted on a die-cast zinc sled base, with powder coat finish, to fit three-quarter (3/4") inch hose. Sprinkler head and base shall be "Rainpulse" Model # 1729 as manufactured by Nelson Irrigation Corp., Walla Walla, WA, or approved equal.

Hose: Hose shall be garden hose, three-quarter (3/4") inch diameter in four (4) fifty (50') foot lengths, with a burst pressure of 500 psi minimum, equipped with approved connectors. Hose shall be "Flexogen" as manufactured by Gilmour, Chicago, IL or approved equal.

Hose Reel: Hose Reel shall be constructed of one (1") inch diameter steel frame, with heavy-duty eight (8") inch wheels. Cart and reel shall have a baked enamel finish and be capable of holding four hundred (400') feet of 3/4" hose. Hose reel shall be as manufactured by Ames-True Temper or approved equal.

Soaker Hose: Shall be porous pipe constructed primarily of recycled rubber tires. Hose shall weep along its entire length. Hose shall be five eighth (5/8") inch diameter in fifty (50') foot coupled lengths. All fittings shall be brass. Hose shall be as manufactured by Moisture Master, or approved equal.

Anchor Pins for Soaker Hose: Shall be five (5") inch x one (1") U-shaped 11-gauge steel pins. Each package shall contain ten (10) pins.

Tests: Before any irrigation accessories are accepted, they shall meet such tests as may be required to prove to the satisfaction of the Engineer that they are in proper working order and will do the work for which they are intended, in a satisfactory manner.

SUBMITTALS: The Contractor shall submit catalog cuts of Irrigation Accessories for approval in accordance with the General Conditions.

MEASUREMENT AND PAYMENT: For each SET of IRRIGATION ACCESSORIES-TYPE A furnished and stored as herein specified, the Contractor shall receive the unit price bid.

The price bid shall be a unit price for each SET of Irrigation Accessories -Type A and shall include the cost of furnishing, and delivering one (1) quick coupling valve & two (2) keys, one (1) swivel hose ell, one (1) garden hose adaptor, two (2) sprinkler heads with base, 200 LF of hose, one (1) nozzle, one (1) brass rose, one (1) hose extension, one (1) brass shut-off valve, one (1) hose reel, 100 LF of soaker hose, two (2) packages of anchor pins, two (2) brass siamese "Y" connectors with twin shut-off valves, and all necessary testing, and all labor, materials, and all incidental expenses necessary to complete the work, in accordance with the plans and specifications, to the satisfaction of the Engineer.

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ITEM NO. 47 **BORROWED FILL (TRUCK MEASURED)**

WORK: Under this Item, the Contractor shall furnish and place **BORROWED FILL (TRUCK MEASURE)** obtained from outside the site of the work, to bring the site to the required lines and grades indicated on the drawings and/or as directed by the Engineer.

MATERIALS: All fill material shall be from an approved source. The Contractor shall identify the source of the fill, and receive Agency approval prior to submitting the sample. See the "SUBMITTALS" heading of this Item. Brownfield and industrial sources will be rejected.

Acceptable particle size shall not be in excess of four (4") inches and no more than fifteen (15%) percent by weight passing the #200 mesh sieve. Material shall be a blend of all sizes within the acceptable range.

The fill material shall not smell of petroleum or give off other unnatural or toxic odors. Regardless of prior acceptance of sample material, should the fill material actually delivered to the site seem suspicious in any way, the Resident Engineer shall reject that material. Should the Contractor strongly disagree with the Resident Engineer's Determination, the Contractor may appeal. See the "APPEAL PROCESS" heading of this Item. Soil Composition shall be as follows for the two (2) types of use:

- a) Clean Fill shall be placed as a subgrade material under Paved Areas and areas to receive bearing material under foundations. Clean Fill shall be defined as material free of pesticides, deleterious substances, organic matter, wood, plastic, cardboard, paper, metal objects, gypsum board, rubble and soil-like pulverized construction, and demolition debris. Acceptable Clean Fill materials shall be limited to uncontaminated concrete and concrete products, asphalt pavement, brick, glass, soil, and rock within the particle size limits listed above.
- b) Horticultural Clean Fill shall be placed at planting areas. Horticultural Clean Fill shall be defined as material free of pesticides, deleterious substances, organic matter, wood, plastic, cardboard, paper, metal objects, gypsum board, rubble, crushed or pulverized construction and demolition debris, in addition to concrete and concrete products, asphalt pavement, brick, and glass. Only soil and rock shall be deemed acceptable for use as Horticultural Fill.

SUBMITTALS: All submittals shall be in accordance with the requirements of the General Conditions.

Documented Fill Material Sample: Two (2) ten (10) pound bag Samples of each material to be used as fill shall be submitted to the Engineer ten (10) days prior to commencing fill operations for the Engineer's approval. By submitting samples of this material, the Contractor agrees and guarantees that the fill material used for construction will conform to the samples supplied. Final acceptance of fill material rests with the Engineer, whose decision shall be final and binding upon the Contractor. However, the acceptance of any material by the Engineer shall not relieve the Contractor of their

responsibility that the fill material used conforms with approved samples and the specifications. A sieve analysis and Notarized certificate identifying source of soil shall be secured to each sample submitted to NYCDPR. For Horticultural Fill, an additional pH test may be required, where directed by the Engineer. Test must indicate a pH not lower than 5.0 nor greater than 7.0.

Compaction Equipment: The Contractor shall supply data on the compaction equipment to the Engineer five (5) days prior to the intended use date for approval. The compaction equipment shall be able to compact fill material to ninety five percent (95%) maximum dry density at optimal moisture content, in accordance with ASTM D698 Standard Proctor Method (90% in areas to be planted).

Compaction Testing: Except in planted areas, the Contractor shall hire an approved independent testing laboratory to perform field and laboratory compaction tests of completed areas of fill if so directed by the Engineer. Field test shall be by the calibrated sand method; the laboratory test shall be as per ASTM D698 or AASHTO T99.

METHOD: Borrowed fill shall be placed in a manner that will produce a reasonably well graded mass. The material shall be constructed in successive horizontal layers not over twelve (12") inches in depth extending across the entire area of fill. Well graded material shall be so placed and distributed that there will be no pockets of single size solid material. Each layer shall be spread by a Bulldozer or other acceptable equipment and method and shall be thoroughly compacted by rolling with a self-propelled roller weighing not less than ten (10) tons, and shall be thoroughly and uniformly compacted to the satisfaction of the Engineer before the next successive layer is placed. In places where the character of the material makes the use of a roller impractical or where drains or other construction may be damaged, a lighter roller or manually guided compactor/vibratory plate type may be substituted to compact the fill to the satisfaction of the Engineer.

Hollows and depressions which develop during the process of rolling and compacting shall be filled with acceptable material and the subgrade recompacted. This process of filling and compacting shall be repeated until no depressions develop. The entire work of compacting shall be performed to the satisfaction of the Engineer.

Note: Care shall be taken not to excessively roll clay subgrade so as not to develop a plastic condition. Where required, in the opinion of the Engineer, areas shall be compacted and settled by puddling with water.

After compacting, the area shall be left in a uniformly compacted, smooth, dense, true, firm, satisfactory, and evenly finished condition, free of irregularities, voids, compaction planes, ridges, or loose material. Deficiencies resulting from improper placement or compaction shall be fully corrected by the Contractor. No additional compensation will be made for settlement.

APPEAL PROCESS: The Resident Engineer shall check for discoloration and evidence of unacceptable contents. If the Engineer suspects that the fill possesses hazardous or contaminated characteristics, it will be rejected. Should the Contractor contest the Engineer's determination, then samplings of the rejected soil will be sent to a Laboratory which is certified by the NYSDOH

Environmental Laboratory Accreditation Program (E.L.A.P.) for the selected analytical method.

Environmental Analysis shall include, but not be limited to, U.S.E.P.A. Standard Test Methods for determination of Contaminant Concentrations and the Toxicity Characteristic Leaching Procedure (T.C.L.P.) for determination of Leachability of at least 39 Components. The extraction portion of the T.C.L.P. Test shall be performed according to E.P.A.-SW846 Method 1311. Analysis of the extract shall be performed by E.P.A. Methods SW846; 8021 for Volatiles, 8270 for Semi-Volatiles and 6010 for Priority Pollutant Metals (P.P.L.), including lead. Other characteristic tests may include those for ignitability, corrosivity, and reactivity, as deemed required by the Resident Engineer.

The Test Results shall be compared with Guidance Values developed by the NYSDEC Division of Spills Management, known as "Spill Technology And Remediation Series" (S.T.A.R.S.) dated 8/92 (Reprinted 7/93), which contains criteria for determining whether petroleum-contaminated soil meets beneficial reuse conditions.

For analyses which are not included in the S.T.A.R.S. guidance, the Test Results shall be compared with Guidance Values developed by the New York State Department of Environmental Conservation (NYSDEC), Bureau of Program Management, Technology Section, for the Division of Hazardous Waste Remediation.

These N.Y.S. D.E.C. Guidance Values are known as "Recommended Soil Cleanup Objectives" or "Appendix A" (Revised 1/24/94), and consist of Table 1 for V.O.C.'s, Table 2 for Semi-V.O.C.s, Table 3 for Organic Pesticides/Herbicides and P.C.B.'s, and Table 4 for Heavy Metal. Final values shall be determined by either a health-based level, or a concentration necessary to protect groundwater quality, whichever is lower. If the soil fails, then the Contractor shall be responsible for:

- 1) Payment of fees for services of the N.Y. State certified lab,
- 2) Removal and legal disposal of Fill,
- 3) Replacement with acceptable fill and
- 4) All other expenses, as well as potential fines that may be incurred.

MEASUREMENT AND PAYMENT: The quantity of **BORROWED FILL** to be paid for under this Item shall be the number of **CUBIC YARDS**, measured by truck, furnished and placed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit prices per **CUBIC YARD** and shall include the cost of all labor, materials, equipment, compaction, testing, and incidental expenses necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

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ITEM NO. **48**

CAST-IN-PLACE STRUCTURAL CONCRETE

WORK: Under this item, the Contractor shall furnish and place controlled concrete not especially included under other items, where indicated on the plans, in accordance with the plans and specifications and the directions of the Engineer.

MATERIALS: Except as otherwise provided for herein, all materials and methods of construction shall conform to the requirements of "Materials and Methods of Construction" in Appendix Item, Section "B".

CEMENT: Due to sulphate exposure, use Type II Portland Cement, ASTM C 150. Total percentage of Portland cement is NOT to exceed 75% of the cementitious mix. Cast-in-place concrete shall incorporate fly ash as a replacement for at least 25% (by weight) of the Portland cement. For special exposure conditions, the maximum water-cement ratio by weight, for normal aggregate concrete is 0.40.

CODES AND STANDARDS: The Contractor shall comply with provisions of the following codes, specifications and standards, except where more stringent requirements are shown or specified:

ACI 301, "Specifications for Structural Concrete for Buildings"

ACI 318, "Building Code Requirements for Reinforced Concrete"

Building Code of the City of New York

Concrete Reinforcing Steel Institute, "Manual of Standard Practice"

CONCRETE TESTING: The Commissioner shall employ a licensed testing Laboratory and Inspection Agency, to perform all special concrete inspections and testing, as required by the Building Code of the City of New York.

CONCRETE: All structural concrete shall be air-entrained normal weight concrete, unless otherwise noted, meeting a minimum compressive strength of 5000 PSI and shall comply with the current 2008 NYC Building Code and the ACI 318 Concrete Code.

DESIGN OF MIXES: All mix designs shall be proportioned in accordance with section 5.3, "Proportioning on the Basis of Field Experience and/or Trial Mixtures" of CAI 318 and prepared by a licensed testing laboratory approved by the commissioner but paid for by the contractor.

FORMS: The Contractor shall furnish and place all forms as required and shall remove them as directed.

CURING: All finished concrete shall be protected and kept moist continuously for three days, as directed.

SURFACE FINISH: Immediately after removing forms, cut back all metal form ties and fill all voids and honeycombed surfaces with mortar, 1-2 mix

When "rubbed" concrete is indicated on the contract plans, the concrete surfaces shall be rubbed smooth with carborundum bricks, to the satisfaction of the Engineer. All other surfaces shall be finished as indicated on the contract plans.

SUBMITTALS: All submittals shall be in accordance with the requirements of the General Conditions.

Original Truck Delivery Tickets: Shall be submitted to the Resident Engineer.

Test results: Shall be signed and submitted on testing company letterhead.

MEASUREMENT AND PAYMENT: The quantity of Structural Concrete to be paid for under this item shall be the number of **CUBIC YARDS**, furnished and placed, in accordance with the plans and specifications and as directed by the Engineer.

The price bid shall be a unit price per **CUBIC YARD** of Structural Concrete and shall include the cost of all labor, materials and equipment necessary to complete the work, including the cost of the testing laboratory and Professional Engineer, in accordance with the plans and specifications to the satisfaction of the Engineer.

Excavation and reinforcement shall be paid for separately under their respective items.

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ITEM NO. 49 **STEEL BAR REINFORCEMENT**

WORK: Under this item, the Contractor shall furnish and place steel bar reinforcement and dowels not included under other items as shown on the plans or ordered by the Engineer.

MATERIAL: Reinforcement shall meet the requirements of Appendix Item, Section B, "Materials and Methods of Construction".

REINFORCING BARS: Deformed reinforcing bars: ASTM A 615, Grade 60. Epoxy-coated reinforcing bars: ASTM A 775.

METHOD:

BENDING: All bars shall be bent cold. Only competent mechanics shall be employed for cutting and bending, and proper appliances shall be provided for such work.

The reinforcement shall be bent to the shapes shown on the plans. Bends for stirrups and ties shall be made around a pin having a diameter not less than two times the minimum thickness of the bar. Hooks shall conform to N.Y. City Building Code AND aci 318-02. Bends for other bars shall be made around a pin having a diameter not less than six times the minimum thickness of the bar, except that for bar larger than one inch the pin shall not be less than eight times the minimum thickness of the bar.

Reinforcement shall be formed to the dimensions indicated on the plans before it is embedded in the concrete.

SPLICES: All splicing shall be as specified in Section B.

PLACING AND FASTENING: Placing and fastening shall be as specified in Section B.

Before any concrete is placed, all mortar shall be cleaned from the reinforcement. No concrete shall be poured until the Engineer has inspected the placing of the reinforcing metal and permission to place concrete is granted. All concrete placed in violation of this provision shall be rejected and removed.

SUBMITTALS: All submittals shall be submitted in accordance with the requirements of the General Conditions. In conjunction with the use of structural concrete, for structural applications, or where required by the DDC structural Engineer, the contractor shall submit order forms, bar lists and bending diagrams as follows:

As soon as an order for material is placed by the Contractor, two (2) complete copies of the order shall be furnished by the Contractor to the Engineer; all orders shall show the contract number and the names of the manufacturer's, the name of the structure for which the material is intended, and shall state that the material is subject to the requirements of the specifications of the Department. To each order shall be attached a complete copy of that part of these specifications which applies to the materials ordered

thereby.

Before ordering any material which differs from that shown on the plans or in bar list, the Contractor shall submit bar lists and bending diagrams showing the proposed changes to the Engineer for approval.

Unless otherwise noted, when no bar list appears on the plans, the Contractor shall submit bar lists and bending diagrams to the Engineer for his approval before ordering any materials.

The Contractor shall carefully check and assume full responsibility for the accuracy of all bar lists.

The acceptance at any time of any material shall not be a bar to its future rejection if subsequently found to be defective or inferior in quality or uniformity to the material specified.

MEASUREMENT AND PAYMENT: The quantity of **STEEL BAR REINFORCEMENT** to be paid for under this item shall be the number of **pounds** of steel bars, including dowels, furnished and incorporated in the work in accordance with the plans and specifications.

The weight of metal will be computed from the table of weights under Steel Bars in Section B.

In case the Engineer allows the substitutions of larger bars than have been specified, payment will be made only for the amount of metal which would have been required if the specified size of bar had been used.

The price bid shall be a unit price per **POUND** of steel bar reinforcement furnished and incorporated in the work complete, and shall include the cost of furnishing all labor, material and equipment to bend, cut and maintain the reinforcement in place, and other incidentals necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

END OF PAGE

<u>ITEM NO.</u>	<u>50</u>	<u>ITEM DELETED</u>
<u>ITEM NO.</u>	<u>51</u>	<u>VERTICAL TIMBER PILES</u>

WORK: Under this Item, the Contractor shall furnish and install complete, pressure treated **TIMBER PILES – 14” DIA.**, in accordance with the plans, specifications, and any supplementary directions of the Engineer.

INTENT: This specification applies to foundation, land and fresh water timber pilings; it does not apply to Marine or Coastal timber piling applications.

MATERIALS: Unless otherwise herein specified, all materials and methods of construction shall conform to the requirements of Appendix Item, Section B, "Materials and Methods of Construction.

Timber Piles: shall be Southern Pine or Douglas Fir conforming to ASTM D-25, Class A requirements. Minimum tip diameter shall be nine (9”) inches. Timber piles shall conform to and be installed in accordance with the latest edition of the New York City Building Code, except as modified herein. Timber piles shall be as manufactured by MCM Forest Products, Hoboken, NJ, or approved equal. Timber piles shall be fitted with steel pile tips.

Pile Tips: shall be “Arrow Head” Model T-9168, 5” to 10”- as manufactured by Associated Pile and Fitting Corp., Clifton, NJ, or approved equal. Pile Tips shall be fabricated from Hot Rolled Commercial Quality Steel conforming to Federal Specification, GSA RR-S-331C.

Preservative Treatment: All wood components shall be pressure preservation treated in strict accordance with the provisions of the AWWA standard U1 and all other standards referenced therein. Wood shall be seasoned, either by air-drying or kiln drying and the moisture content prior to treatment shall be not more than 20%. Foundation, Land and Fresh Water Round Timber Pilings shall be treated to a net retention of .80 pounds per cubic foot with ACQ (ammoniacal copper quaternary), 0.41 pounds per cubic foot for Copper Azole preservation, or an approved equal.

In accordance with New York State Environmental Conservation Law (ECL), Section 37-0109, Bills A102 and S7167, CCA (chromated copper arsenate), ACZA (ammonical copper zinc arsenate) and CR-S (Creosote) treatments are prohibited as wood preservative methods. If any other preservative treatment is proposed, the Contractor shall submit documentation that such treatment conforms to the AWWA Standards for treatment of the wood for the intended use.

Quality Mark: Timber piles shall bear the SPIB (Southern Pine Inspection Bureau) quality mark or approved equal, certifying conformance with this specification.

Site Inspection of Piles: The piles shall be subject to inspection by the Engineer after arrival at the site. Previous inspection at the plant shall not bar rejection in the field due to injury,

breakage, or other defects. Piles shall be free from heat checks, water bursts, excessive checking, or from other damage or defects which would impair their durability, usefulness for the intended purpose. The use of 'S' irons for repairing or preventing checks, splits, or other defects will not be permitted.

Storage & Handling of Piles: Piles shall be stored and handled in a manner which will avoid damage to the piles. Special care shall be taken to avoid breaks in the surface of the piles. Tools such as cant hooks, dogs and pike poles shall not be used. Field treatment of cut or damaged surfaces shall conform to AWWA M4.

INSTALLATION:

Treatment of Pile Heads & Bolt Holes: The heads of piles shall be dried and covered with two (2) applications of preservative treatment. The first preservative treatment shall be a liberal application of copper naphthenate until visible evidence of further penetration ceased. The second application shall be with a fiberglass-plastic bonnet. Before installing bolts, a preservative that in accordance with AWWA M4-06 standard shall be poured into all bolt holes in such a manner that the entire surface of the hole is thoroughly coated. In addition, any unfilled holes shall be filled with Aquaseal, as manufactured by Tamms Industries, Kirkland, IL, or approved equal. Aquaseal is a two component, 100% solids, high strength, high modulus epoxy for underwater applications.

Preparation for Driving: Piles shall be fitted with pile driving caps, as required to prevent damage to the head of the pile. Provide collars or bands, if needed, to prevent splitting and brooming of the tops of piles. Piles shall be fitted with pile driving shoes, installed in accordance with the manufacturer's recommendations.

Pile Driving: Piles shall be driven with a steam hammer of suitable energy to install the piles to the required penetrations and capacities, without damage.

Sufficient boiler capacity shall be provided at all times to maintain the rated speed of hammer during the full driving time. The valve mechanism and other parts of the steam hammer shall be maintained in first class condition, to obtain the required length of stroke for a single acting hammer and the number of blows per minute for a double acting hammer. Any double-acting steam hammer not operating at the manufacturer's rated speed shall be deemed unsatisfactory, and shall be removed from the site.

Pile driver leads shall be constructed in a manner as to afford freedom of movement of the hammer, and shall be held in position by guys or stiff braces to insure lateral support to the pile during driving. Followers shall not be used. Jetting shall not be used unless permitted in writing by the Engineer. If jetting is permitted, piles shall be driven for at least the final five feet (5') of penetration.

Defective Piles: Piles that are broken during driving, or are otherwise impaired, as determined by the Engineer, shall be replaced at the Contractor's expense.

Cutting & Trimming: Piles shall be sawn to true planes. Surfaces shall be trimmed to provide level bearing areas. Bolt holes shall be drilled after the piles are installed, and bolts shall have a driving bit.

Pile Driving Criteria: Piles shall meet both minimum penetration and minimum capacity requirements, as follows:

Minimum Tip Elevation: EI- 50 ft.
Minimum Safe Bearing Capacity (By Formula): 30 Tons

Determination of Bearing Value: The safe bearing values for Timber Piles shall be determined by the following formulas:

For Single Acting Hammers: $P = (2 WH)/(S+0.1)$

For Double Acting Hammers: $P = (2E)/(S+0.1)$

Where P = Safe Bearing Capacity (Pounds)

W = Weight of Hammer (Pounds)

H = Fall Height for Hammer (Ft.)

S = Average Penetration for the Last 15 Blows (Inches/Blow)

E = Energy Delivered by Hammer (Ft-Pounds)

The above formulas are applicable only when:

- a) The hammer has free fall.
- b) The head of the pile is not broomed or crushed.
- c) The penetration is reasonably quick and uniform.
- d) There is no visible bounce after the blow.

Piles shall be driven to develop the safe bearing capacity specified. However, the Engineer reserves the right to reject the pile, if its capacity is considered unreliable, in view of the length of the pile relative to other piles, the driving conditions encountered, or other factors which indicate that its capacity or support is questionable.

Obstructions: Where obstructions to pile driving are encountered, as determined by the Engineer, the pile shall be considered unsatisfactory, notwithstanding the capacity as determined by the above driving formulas. The Contractor shall employ adequate methods (spudding, auger drilling, adding driving shots, etc.) to facilitate the driving through such obstructions. Failing this, the Contractor shall either remove such obstructions or install replacement piles, at the Contractor's expense.

Length of Piles: It is the intent of this Contract that the Contractor assume full responsibility in

ordering piles of lengths which will be sufficient to achieve required capacities. It is preferred that piles be single lengths, without splices. Details for splicing of timber piles may be submitted to the Engineer for approval.

To aid in evaluating pile length requirements, the Contractor may elect to drive test piles. If Test Piles meet all requirements of this specification and are installed at a required location, as shown on the plans, they will be paid for under this Item

Inspection of Pile Driving Operations: A special inspector, engaged by the Owner, shall be present when pile foundations are being installed. The special inspector shall make and submit to the Department of Buildings records of the installation of each pile. A special inspector shall verify that pile installation procedures are in accordance with the NYC Building Code as amended to date.

Pile Driving Record: The Special Inspector shall maintain the Pile Driving Record during the entire pile driving operation. The Pile Driving Record for each pile shall include the number of blows per foot, the tip elevation, the pile cut-off height, and the type of hammer used.

Pile Location Survey: A foundation survey, including pile locations, will be provided by an independent Licensed Surveyor in accordance with the Building Code of the City of New York. See "Submittals" section of this Specification. The tolerance in pile head locations shall be $\pm 3"$.

Pile Location Survey Reports: The Contractor shall file and distribute the pile location survey reports in accordance with the Building Code of the City of New York. See "Submittals" section of this Specification

Pile Analysis and Redesign: It is the intent to secure such conditions that the load on any pile will not exceed the maximum load allowed by the Building Code of the City of New York. Any excessive lateral force at the level of the pile cap due to lean in the pile caps themselves will be resisted by properly designed concrete members. No concrete for any pile cap will be placed until the survey affecting the pile cap has been analyzed and approval to process with the concrete work is given to the Contractor.

The Contractor shall engage the services of a Licensed Professional Engineer, designated by the Commissioner as the "Designing Engineer", for the performance of the structural engineering work called for herein. The Contractor may submit the name of an Engineer of their own choice to the Commissioner for consideration, who will be designated, if found acceptable, as the Designing Engineer.

Cost of Analysis and Redesign: It is the intent of the Contract that the cost of the entire analysis, whether or not it results in the determination of the necessity for corrective measures, shall be

borne by the Contractor. The Contractor shall also bear the cost of redesign necessitated by damaged piles and piles installed in misdriven locations. The analysis and redesign shall be performed by the Designing Engineer.

SUBMITTALS: All submittals shall be in accordance with the requirements of the General Conditions. The Contractor shall submit the following for the Landscape Architect's review and approval prior to manufacture:

Independent Laboratory and/or Professional Engineer Certifications: The Contractor shall submit Independent Laboratory and/or Professional Engineer Certifications for approval of the Engineer prior to start of work.

Product Data: The Contractor shall submit manufacturer's product data on Preservative Treatment Material, Pile Heads & Bolt Holes Treatment Material, and Pile Tips.

Affidavit: A sworn affidavit shall be furnished by the treatment plant certifying that the grade, species and size of the material treated the grade and quality of the chemical used, and the net final retention in pounds per cubic foot of wood impregnated into the piles all conform to the requirements of these specifications.

Pile Driving Record: The Special Inspector shall submit the Pile Driving Record.

Pile Location Survey Reports: The Contractor shall submit the pile location survey reports in accordance with the Building Code of the City of New York.

Pile Cap Concrete Work Submittals: The Contractor shall submit the following to secure approval before proceeding with Pile Cap Concrete Work:

Survey Drawings: The Contractor shall submit As-Drawings, showing the actual driven locations of the piles, shall be submitted in duplicate sets, simultaneously to the Design Engineer and to the Department.

Analysis: The Designing Engineer will make an analysis of conditions at each pile cap location and will make a determination of corrective measures required, if any, to drop pile loads within the allowable limits.

Supplemental Drawings: If corrective measures involve the driving of additional piles and/or the modification of pile cap details, details for splicing of timber piles, additional struts or braces or similar, Supplemental Drawings showing the details of the required corrective work shall be prepared by the Design Engineer.

MEASUREMENT AND PAYMENT: The quantity of **TIMBER PILES** to be paid for under this Item shall be the number of **LINEAR FEET** of pile, measured from pile tip to the pile cutoff elevation, furnished and installed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per **LINEAR FOOT** of **TIMBER PILES** and shall include the cost of all labor, materials, and equipment and all incidental expenses necessary to complete the work including: excavation, preservative treatment, pile driving, pile cutoff, pile trimming, cutting and pile fitting, also including driving test piles as specified herein, and services of a surveyor, all as shown on the plans or as directed by the Engineer, in accordance with the plans and specifications, to the satisfaction of the Engineer.

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ITEM NO. 52 ITEM DELETED

ITEM NO. 53 CONCRETE MASONRY UNITS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Division 01 Specification Sections, Drawings, General Conditions, Supplementary General Conditions, and Special Conditions apply to this section.

1.2 REFERENCES

- A. TMS 602/ACI 530.1/ASCE 6 2008 Specification for Masonry Structures
- B. ASTM International (latest versions)
1. ASTM A36/A36M Standard Specification for Carbon Structural Steel
 2. ASTM A82/A85M Standard Specification for Steel Wire, Plain, for Concrete Reinforcement
 3. ASTM A153/A153M Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
 4. ASTM A185/A182M Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete
 5. ASTM A307 Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength
 6. ASTM A615 Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
 7. ASTM A641/A641M Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
 8. ASTM A653/A653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanealed) by the Hot-Dip Process
 9. ASTM A884/A884M Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Fabric for Reinforcement
 10. ASTM A899 Standard Specification for Steel Wire Epoxy-Coated
 11. ASTM A951 Standard Specification for Masonry Joint Reinforcement
 12. ASTM A1008/A1008M Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Baked Hardenable
 13. ASTM C90 Standard Specification for Loadbearing Concrete Masonry Units
 14. ASTM C140 Standard Test Method for Sampling and Testing Concrete Masonry Units
 15. ASTM C150 Standard Specification for Portland Cement
 16. ASTM C270 Standard Specification for Mortar for Unit Masonry
 17. ASTM C476 Standard Specification for Grout for Unit Masonry
 18. ASTM C618 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for use in Concrete
 19. ASTM C989 Standard Specification for Slag Cement for Use in Concrete and Mortars
 20. ASTM C1019 Standard Test Method for Sampling and Testing Grout
 21. ASTM C1314 Standard Test Method for Compressive Strength of Masonry Prisms
 22. ASTM C1586 Standard Guide for Quality Assurance of Mortars

23. ASTM C1611/C1611M Standard Test Method for Slump Flow of Self-Consolidating Concrete
24. ASTM D2000 Classification System for Rubber Products in Automotive Applications
25. ASTM D2287 Standard Specification for Nonrigid Vinyl Chloride Polymer and Copolymer Molding and Extrusion Compounds

1.3 SUMMARY

A. Section Includes:

1. Concrete masonry units (CMUs).
2. Mortar and grout.
3. Reinforcing steel.
4. Control joint materials.
5. Masonry joint reinforcement.
6. Ties and anchors.
7. Embedded flashing.
8. Miscellaneous masonry accessories.

1.4 SYSTEM DESCRIPTION

- A. Provide materials to achieve the net compressive strength of concrete unit masonry equal to or greater than 5,000 psi f'_m .
- B. Provide materials to achieve the net compressive strength of concrete unit masonry equal to or greater than the f'_m as indicated

1.5 SUBMITTALS

A. Obtain written acceptance of submittals prior to use of the following:

1. Submit mix designs and test reports
 - a. Preblended mortar
 - 1) Mix design indicating types and proportions of materials according to proportion specification of ASTM C270, or
 - 2) Mix designs and mortar tests performed in accordance with the property specification of ASTM C270
 - b. Conventional grout
 - 1) Mix design indicating types and proportions of materials according to proportion requirements of ASTM C476, or
 - 2) Mix design and grout strength test performed in accordance with ASTM C476.
 - c. Self-consolidating grout
 - 1) Compressive strength tests performed in accordance with ASTM C1019, and slump flow and visual stability index (VSI) as determined by ASTM C1611/C1611M.
2. Submit material certificates for each of the following certifying compliance.
 - a. Concrete masonry units.
 - b. Steel reinforcing bars.

- c. Anchors, ties, fasteners, and metal accessories.
 - d. Preformed control joint gaskets.
- B. Samples for Verification: For each type and color of the following:
- 1. Exposed concrete masonry units.
 - 2. Mortar, for color selection or confirmation.

1.6 QUALITY ASSURANCE

- A. Preconstruction Testing.
- 1. Owner will select a qualified independent testing agency to perform preconstruction testing indicated below. Payment for these services will be made by Owner.
 - 2. The compressive strength of masonry shall be determined based on strength of the unit and type of mortar specified (Unit Strength Method) per CBC Table 2105.2.2.1.2.
 - a. Concrete Masonry Units: Test per ASTM C140.
 - b. Grout: Test per ASTM C1019.
 - 3. The compressive strength of masonry shall be determined by the prism test method in accordance with ASTM C1314. Schedule masonry procurement sufficiently in advance to allow for prism construction and curing.
 - a. Prism Test: For each type of construction required, construct and test threeprisms per ASTM C1314.
- B. Sample Panels: Construct an approximate long by panel for representation of completed masonry, joint tooling, design details, and workmanship. Comply with requirements in Division 01 Section "Quality Requirements" for mockups.
- C. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination".

1.7 DELIVERY, STORAGE, AND HANDLING

- A. All materials of this section shall be protected to maintain quality and physical requirements.
- B. All masonry units shall be stored on the jobsite so that they are protected from rain, stored off-ground and kept clean from contamination. Prevent units from being otherwise wetted.
- C. Store Spec Mix preblended mortar mix in manufacturer's original, unopened, undamaged containers with identification labels intact, covered and protected from weather, or in a Spec Mix dispensing silo.

1.8 FIELD CONDITIONS

- A. Securely cover tops of all unsheltered walls and partially completed walls when work is not in progress.

- B. Cold-weather procedures when ambient temperature falls below 40°F (4°C) or the temperature of masonry units is below 40°F (4°C):
 - 1. Wet or frozen units shall not be laid.
 - 2. Implement cold weather construction procedures in accordance with TMS 602/ACI 530.1/ASCE 6 Article 1.8 C.
- C. Hot-weather procedures when ambient temperature exceeds 100°F (38°C), or exceeds 90°F(32°C) with a wind velocity greater than 8 mph:
 - 1. Implement hot weather construction procedures in accordance with TMS 602/ACI 530.1/ASCE 6 Article 1.8 D.

PART 2 - PRODUCTS

2.1 CONCRETE MASONRY UNITS

- A. Concrete Masonry Units: ASTM C90.
 - 1. Weight Classification: Mediumweight unless otherwise indicated.
 - 2. Color(s) and texture(s):
 - a. As per Commissioner's sample

2.2 MORTAR AND GROUT MATERIALS

- A. Spec Mix Masonry Mortar preblended factory mix: ASTM C270.
 - 1. Natural gray color.
- B. Grout for masonry: ASTM C476.
 - 1. Fly ash: ASTM C618.
 - 2. Ground granulated blast furnace slag: ASTM C989.
 - 3. Provide grout other than self-consolidating grout with a slump of 8 to 11 inches per TMS 602/ACI 530.1/ASCE 6 Article 2.6 B.
- C. Water: Potable.
- D. Admixtures:
 - 1. The use of admixtures shall not be permitted except as specified herein, or as approved by the Architect or Engineer of Record and the Building Official.
 - 2. PRE-MIX Products Grout Additive manufactured by E-Z Mix, Inc. or approved equal. Use per manufacturer's specifications.

2.3 REINFORCEMENT AND METAL ACCESSORIES

- A. Metal reinforcement and accessories shall conform to TMS 602/ACI 530.1/ASCE 6 Article 2.4.
- B. Steel Reinforcing Bars: ASTM A615, Grade 60.

- C. Masonry Joint Reinforcement: ASTM A951. Maximum spacing of cross wires in ladder-type and points of connection of cross wires of truss-type joint reinforcement shall be 16 in.
- D. Anchors, ties, and accessories:
 - 1. Plate and bent-bar anchors: ASTM A36/A36M.
 - 2. Sheet-metal anchors and ties: ASTM A1008/A1008M.
 - 3. Wire mesh ties: ASTM A185/A185M.
 - 4. Wire ties and anchors: ASTM A82/A82M.
 - 5. Headed anchor bolts: ASTM A307, Grade A.
- E. Coatings for corrosion protection. Unless otherwise required, protect carbon steel joint reinforcement, ties, and anchors from corrosion by galvanizing or epoxy coating in conformance with the following minimums:
 - 1. Mill galvanized coatings:
 - a. Joint reinforcement: ASTM A641 (0.1 oz/ft²)
 - b. Sheet metal anchors and ties: ASTM A653 (1.50 oz/ft²)
 - 2. Hot-dipped galvanized coatings:
 - a. Joint reinforcement, wire ties, and wire anchors: ASTM A153 (1.50 oz/ft²)
 - b. Sheet metal anchors and ties: ASTM A153 Class B
 - 3. Epoxy coatings:
 - a. Joint reinforcement: ASTM A884 Class A Type 1 — ≥ 7 mils
 - b. Wire ties and anchors: ASTM A899 Class C — 20 mils
 - c. Sheet metal anchors and ties: 20 mils per manufacturer's specification

2.4 MISCELLANEOUS MASONRY ACCESSORIES

- A. Rubber Preformed Control-Joint Gaskets: per ASTM D2000, Designation M2AA-805.
- B. PVC Preformed Control-Joint Gaskets: per ASTM D2287, Type PVC.

2.5 MASONRY CLEANER

- A. Use potable water and detergents to clean masonry unless otherwise approved.
- B. Do not use acid or caustic solutions unless otherwise approved.

2.6 MIXING

- A. Mortar:
 - 1. Mix Spec Mix Masonry Mortar preblended factory mix per manufacturer's recommendations.
- B. Conventional grout:
 - 1. Mix grout to a consistency that has a slump between 8 and 11 in.
- C. Self-consolidating grout:
 - 1. Job-site proportioning of self-consolidating grout is not permitted.

2. Do not add water at the job site except in accordance with the manufacturer's recommendations.

2.7 Fabrication

- A. Fabricate reinforcement per TMS 602/ACI 530.1/ASCE 6 Article 2.7 A.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Prior to the start of masonry installation, verify all conditions pertinent to the performance of work in this Section are acceptable.
 1. Verify foundations are constructed with tolerances conforming to requirements of ACI 117.
 2. Verify that reinforcing dowels are positioned in accordance with Project Drawings.
- B. Masonry work shall not proceed until unsatisfactory conditions have been corrected or approved by the Design Professional.

3.2 PREPARATION

- A. Clean reinforcement and shanks of anchor bolts by removing mud, oil, or other materials that will adversely affect bond to mortar or grout.
 1. Reinforcement with rust and/or mill scale is acceptable provided attributes of a cleaned sample are in accordance with the applicable ASTM specification.
- B. Prior to laying masonry, remove laitance, loose aggregate, and any other material that would prevent mortar from bonding to the foundation.
- C. Do not wet units before laying, unless otherwise required. Wet cutting is permitted.
- D. Cut units as required to fit; use motor-driven masonry saw. Install cut units with cut surfaces concealed as much as possible.

3.3 INSTALLATION

- A. Select and arrange units for exposed masonry to produce a uniform blend of colors and textures.
 1. Mix units from several pallets or cubes as they are placed.
- B. Comply with construction tolerances in TMS 602/ACI 530.1/ASCE 6.
- C. Construct grout spaces free of mortar dropping, debris, and any material deleterious to grouting.
- D. Construct cleanouts in the bottom course of masonry for each grout pour when the grout pour height exceeds 5 ft.

1. Hollow-unit masonry: create cleanout by cutting off entire the face shell of the cmu. Replace face shell after inspection and before grouting.
 2. Solid-unit multiwythe masonry: create cleanout by leaving out every other unit. Install unit after inspection and before grouting.
 3. Brace cleanout closure to resist grout pressure.
 4. For partially grouted masonry, construct cleanouts at bottom of each cell to be grouted.
 5. For solid grouted masonry, space cleanouts horizontally a maximum 32 in. on center.
- E. All masonry shall be laid true, level, plumb, and in accordance with the drawings.
- F. Ensure all vertical cells to be grouted are aligned and unobstructed openings for grout are provided in accordance with Project Drawings.
- G. Exposed masonry shall be laid in running bond unless otherwise indicated in Project Drawings.
- H. Concealed masonry with shall be laid in running bond unless otherwise indicated.
- I. Brace masonry during construction to assure stability. Design, provide, and install bracing.

3.4 MORTAR BEDDING AND JOINTING

- A. Place mortar in accordance with TMS 602/ACI 530.1/ASCE 6 Article 3.3 B.
- B. Initial bed joint shall not be less than 1/4 inch nor more than 3/4 inch.
- C. All head and bed joints, except as in 3.4 B., shall be a nominal 3/8 in. thick, unless otherwise required.
- D. Thickness of bed joints shall not exceed 5/8 inch.
- E. Lay hollow units with head and bed joints filled with mortar for the thickness of the face shell.
- F. Lay solid units with full head and bed joints. Do not fill head joints by slushing with mortar. Bed joints shall not be furrowed deep enough to produce voids.
- G. Remove mortar protrusions extending 1/2 in. or more into cells to be grouted.
- H. Fully mortar webs in all courses of piers, columns and pilasters, in the starting course on foundations, and when necessary to confine grout.
- I. All mortar joints on exposed walls shall be concave, unless otherwise indicated, and struck to produce a dense, slightly concave surface well bonded to the surface of the masonry unit.
- J. Remove and re-lay in fresh mortar any unit that has been disturbed to the extent the initial bond is broken.

3.5 EMBEDDED ITEMS AND ACCESSORIES

- A. Construct control joints as detailed in the drawings as masonry progresses.

1. Install preformed control-joint gaskets designed to fit standard sash block.
- B. Construct chases as masonry units are laid.
- C. Install pipes and conduits passing horizontally through nonbearing masonry partitions as indicated.
- D. Place pipes and conduits passing horizontally through piers, pilasters, or columns as indicated.
- E. Place horizontal pipes and conduits in and parallel to plane of walls.
- F. Install and secure connectors, flashing, weep holes, weep vents, nailing blocks, and other accessories as required.

3.6 INSTALLATION OF REINFORCING STEEL, WALL TIES, AND ANCHORS

- A. Install reinforcing steel, wall ties, and anchors in accordance with TMS 602/ACI 530.1/ASCE 6 Article 3.4.
- B. Place reinforcement as detailed on the drawings.
 1. Support and fasten reinforcement to prevent displacement beyond specified tolerances during construction and grouting operations.
 2. Maintain clear distances between reinforcement and any face of masonry unit or formed surface, but not less than $\frac{1}{4}$ in. for fine grout, or $\frac{1}{2}$ in. for coarse grout.
 3. Completely embed reinforcing bars in grout.
 4. Embed joint reinforcement with minimum $\frac{5}{8}$ inch cover to faces exposed to weather or earth, and $\frac{1}{2}$ inch elsewhere.
 - a. Provide minimum 6-in. lap splices and ensure that all ends of longitudinal wires are embedded in mortar at laps.
 5. Tolerances for placement of reinforcing bars in walls and flexural elements shall be $\pm \frac{1}{2}$ in. when the distance from the centerline of reinforcing bars to the opposite face of masonry, d , is equal to 8 in. or less, ± 1 in. for d equal to 24 in. or less but greater than 8 in., and $\pm 1 \frac{1}{4}$ in. for d greater than 24 in.
 6. Foundation dowels that interfere with unit webs are permitted to be bent to a maximum of 1 in. horizontally for every 6 in. of vertical height.
- C. Install wall ties as detailed on the drawings and in accordance with TMS 602/ACI 530.1/ASCE 6 Article 3.4 C.
- D. Install anchor bolts ties as detailed on the drawings and in accordance with TMS 602/ACI 530.1/ASCE 6 Article 3.4 D.
 1. Embed headed and bent-bar anchor bolts in grout. Anchor bolts of $\frac{1}{4}$ in. or less may be placed in mortar bed joints at least $\frac{1}{2}$ in. in thickness.
 2. Maintain clear distance between anchor bolts and any face of masonry unit or formed surface of at least $\frac{1}{4}$ in. when using fine grout, and of at least $\frac{1}{2}$ in. when using coarse grout.
 3. Maintain a clear distance between parallel anchor bolts not less the diameter of the anchor bolt, nor less than 1 in.

3.7 GROUTING

- A. Comply with grout placement requirements in TMS 602/ACI 530.1/ASCE 6 Article 3.5.
- B. Place grout within 1 ½ hr from introducing water in the mixture and prior to initial set.
 - 1. Discard field-mixed grout that does not meet specified slump without adding water after initial mixing.
 - 2. For transit-mixed grout:
 - a. Addition of water is permitted at time of initial discharge to adjust consistency to a slump between 8 and 11 in.
 - b. Discard transit-mixed grout that does not meet specified slump without adding water, other than as allowed in 3.7 B. 2.a above.
 - c. Transit-mixed grout may be used beyond the time limit as long as it meets the specified slump.
- C. Grout pour height: do not exceed maximum grout pour height as given in TMS 602/ACI 530.1/ASCE 6 Table 7, or as otherwise specified.
- D. Grout space for multiwythe masonry: build vertical grout barriers of solid masonry across the grout space the entire height of the grout pour to control the flow of grout horizontally. Grout barriers shall not exceed 30 ft. apart.
- E. Grout lift height:
 - 1. Conventional grout:
 - a. Place grout in lifts not exceeding 5 ft.
 - 2. Self-consolidating grout:
 - a. When placed in masonry that has cured for a minimum 4 hours, place in lifts up to the grout pour height.
 - b. When placed in masonry with less than 4 hours of cure, place in lifts not exceeding 5 ft.
- F. Grout consolidation:
 - 1. Conventional grout:
 - a. Consolidate grout pours 12 in. or less by mechanical vibration or puddling.
 - b. Consolidate grout pours exceeding 12 in. by mechanical vibration, and reconsolidate after initial water loss and settlement has occurred.
 - 2. Self-consolidating grout: consolidation or reconsolidation is not required.
- G. Grout keys are required between grout pours, or between lifts when the previous lift is permitted to set prior to placement of the subsequent lift.
 - 1. Form grout key by terminating the grout a minimum of 1½ in. below a mortar joint.
 - 2. Do not form grout keys within beams.
 - 3. At beams or lintels laid with closed bottom units, terminate the grout pour at the bottom of the beam or lintel without forming a grout key.

3.8 FIELD QUALITY CONTROL

- A. Inspection tasks and frequency shall be performed in accordance with the Statement of Special Inspections.

- B. Tests
 - 1. Unless indicated otherwise, perform one set of tests for each 5000 sq. ft. of wall area or portion thereof.
 - 2. Concrete Masonry Units: test per ASTM C140.
 - 3. Grout: Test per ASTM C1019.
 - 4. Prism Test: For each type of construction indicated, construct and test three prisms per ASTM C1314.

3.9 POINTING, AND CLEANING

- A. Point and tool holes in mortar joints to produce a uniform, tight joint.
- B. During construction, minimize any mortar or grout stains on the wall. Immediately remove any staining or soiling that occurs.
 - 1. For precision or textured units, except as noted below, clean masonry by dry brushing before tooling joints.
 - 2. For burnished, glazed, or pre-finished concrete masonry units, immediately remove any green mortar smears or soiling with a damp sponge
- C. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry surfaces of stains, efflorescence, mortar or grout droppings, and debris as follows:
 - 1. Clean exposed cmu walls with a light sandblast. All nonmasonry work near the area to be sandblasted shall be covered or protected before the sandblasting starts. Care shall be taken to avoid contamination to areas that are not to be sandblasted.
 - a. Burnished, glazed, or pre-finished concrete masonry units shall be protected from sandblast operations.
- D. At completion of masonry work, remove all scaffolding and equipment used during construction, and remove all debris, refuse, and surplus masonry material from the site.
 - 1. Comply with Construction Waste Management plan.

3.10 JOBSITE SANDBLASTING

- A. Sandblast for textural effects as indicated on the drawings.
- B. Apply sandblasting to precision masonry walls at indicated areas, as demonstrated on approved samples, in uniform and consistent texture.

3.11 WATER REPELLENT APPLICATION

- A. Cleaning shall be complete and accepted by the Architect, and wall surfaces shall be thoroughly dry.
- B. Apply water repellent in strict accordance with the water repellent manufacturer's instructions.

PART 4 - MEASUREMENT AND PAYMENT

For furnishing and installing **CONCRETE MASONRY UNITS**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **SQUARE FOOT** price bid.

The price bid shall be a **SQUARE FOOT**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

END OF SECTION

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ITEM NO. 54

STRUCTURAL STEEL

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions, , Special Provisions, govern work in this Section. The Metal Framing System for the pre-fabricated building cell is not included under this specification.

1.02 DESCRIPTION OF WORK

- A. The work of this Section consists of the provision of all plant, materials, labor and equipment and the like necessary and/or required for the complete execution of the structural steel work for this project as required by the schedules, keynotes and drawings, including, but not limited to the following:
1. Furnish and deliver for installation, anchor bolts, bearing plates, embedded items, leveling plates and loose lintels with complete instructions and templates to facilitate installation.
Deliver items to be embedded under other sections of the work to site in ample time so as not to delay the work.
 2. Provide all columns, post, base and bearing plates, beams, bracing (temporary and permanent), hangers, brackets, anchors, angles, stiffeners and all related connections (bolted and/or welded) required for the construction of the mezanine floor and incidentals.
 4. Perform all shop painting, including finish coat(s) when required, and field touchup paint for designated structural steel items.
 5. Provide for erection bracing and supports.
 6. Provide steel tube ,end plates and anchor bolts for the post, door and side, jamb supports and temporary entrance ramp railings.
 8. Galvanize all steel after fabrication.

NOTE - Structural steel work is that work defined in the AISC "Code of Standard Practice, Section 2.0, Classification of Materials" plus steel work shown on the architectural drawings supporting wall and/or window systems as well as the entire package of structural drawings NOT INCLUDED UNDER ITEM NO. 77 METAL BUILDING SYTEMS.

1.03 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 satisfactorily 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 the construction schedules and in full compliance with all requirements of the Contract Documents.
- D. Welding procedures, welders, welding operations and tackers shall be qualified in accordance with the AWS "Structural Welding Code". In addition, all welders must have been certified in accordance with the AWS for the welding position required within the 12 month period prior to the performance of each welding operation.

1.04 SUBMITTALS

- A. Job Standards: Submit "job standard" connection details proposed prior to submitting detailed Shop Drawings.
- B. Meet the requirements of applicable portions 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 only.

Items requiring field measuring shall have all dimensions verified in the field before fabrication. Field dimensions shall be shown on the Shop

Drawings and shall be noted as having been verified in the field.

5. The Contractor shall coordinate shop drawings well in advance with Plumbing, HVAC, and Electrical trades.

It is this Contractors' sole responsibility to obtain all necessary information from other trades and equipment suppliers.

6. SHOP DRAWINGS SHALL BE PREPARED UNDER THE SUPERVISION OF A PROFESSIONAL ENGINEER LICENSED IN NEW YORK STATE. ALL DRAWINGS SHALL BE SEALED AND SIGNED BY SAME.

C. Certification of Specifications Compliance as follows:

1. Mill certificates of chemical composition and physical properties of steel in project, properly certified and attested to.
2. Certification of bolts, nuts, washers, and filler metal for welding.
3. Galvanizing certification stating that requirements pertaining to pre-galvanizing cleaning and galvanizing of steel have been performed in accordance with Contract Documents.

Spot check galvanizing by Preece Test Method per ASTM A 239.

- D. Samples: Submit descriptive literature of materials, products and methods.
- E. Manufacturers Material Safety Data Sheet (MSDS) must be submitted for each manufactured product.
- F. Joint Welding Procedures: Submit joint welding procedures and program of welding sequence (for each component and for welding components together) before any welding is done. After return of submittal, welding procedures and sequences shall be followed without deviation. Architect may require requalification of these welding procedures by tests prescribed in AWS "Standard Qualification Procedure".
- G. Joint Welding Testing: Submit, prior to start of fabrication, nondestructive testing method to be used for specific typical joints. Results of such tests during the course of work shall, upon request, be made available for review by the Engineer.
- H. Connection Design Calculations: Submit complete design calculations, properly coordinated with Shop Drawings.
- I. Corrective Work: Submit drawings showing details of proposed corrective work

prior to performing corrective work.

- J. Maintain records of shop and field welding procedures and records of welders employed, date of qualification and identification symbol or mark. Maintain records for each impact wrench test used in shop and field, showing dates, sizes of bolts tested and the corresponding torque values. Certified copies of the records shall be made available to the Architect.
- K. Submit complete shop details, keyed to erection layouts, and technical data for all structural bearings specified or shown.
- L. Provide setting drawings, templates, and directions for the installation of anchor bolts, or other items to be installed by others. Verify proper installation of same.
- M. Prior to starting work, submit description of methods, sequence of erection, and type of equipment proposed for use in erecting structural steel work for review and comment purposes only. This submission shall not relieve Contractor of his responsibility for providing proper methods, equipment, workmanship, and safety precautions.

1.05 REFERENCE STANDARDS AND CODES

- A. Except as modified by the requirements specified herein, the following codes and standards (latest editions and revisions unless noted) shall apply to the work of this Section; copies of these items shall be kept available in shop and field. Field copies shall be provided by the General Contractor.
 - 1. AISC - "Specifications for Structural Steel Buildings - Allowable Stress Design and Plastic Design", 1989, including supplement thereto as issued.
 - 2. AISC - "Code of Standard Practice."
 - 3. AISC - "Specifications for Structural Joints Using ASTM A 325 or A 490 Bolts", including Commentary Section.
 - 4. American Society for Testing and Materials - ASTM Standards.
 - 5. AWS - "Structural Welding Code", D1.1 - including all supplements, addenda, and special rulings applicable to building construction, except amendments to Sections or inspection specified herein.
 - 6. SSPC - "Steel Structures Painting Manual".
 - 7. Occupational Safety and Health Act of 1970 (OSHA), as amended to date.
 - 8. Recommendations or suggestions in the listed codes and standards shall be deemed to be mandatory.
- B. The work of this section shall further conform to the Codes, Rules and Regulations of the State of New York as promulgated within the New York State Uniform Fire Prevention and Building Code and/or New York City Building Code whichever is more restrictive.

- C. Any material or operation specified by reference to published specifications of manufacturer or published standard shall comply with said specification or standard. In case of conflict between referenced specifications, most stringent requirement shall govern. In case of conflict between referenced specifications and Project Specifications; Project Specifications shall govern.

1.06 RESPONSIBILITY OF CONTRACTOR

- A. The Contractor shall assume full responsibility for the design and detailing of all connections, as required to resist the loads and reactions shown on the drawings or specified herein.

Details shall supplement and be consistent with details shown on the drawings and their design shall be in accordance with accepted good engineering practice.

Proper account of eccentricity shall be taken in the design of connections so that there is no overstressing of any material either in the connections themselves or in the connected members. The design of all connections shall be subject to the approval of the Engineer.

- B. The Contractor is deemed 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, 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.

No part of steel work (brackets, stiffeners and the like) shall interfere with architectural clearances.

1.07 SUBSTITUTION

- A. Architect reserves the right to require substitute shapes of other makes than those indicated on the drawings when it is apparent that the shapes specified cannot be furnished within the time required for the progress of construction.

Make said substitutions without additional cost to the City of New York.

Should delay be created by Contractor's lack of timely order and process, said

substitutions will be accomplished without additional cost to the City of New York.

1.08 TESTING, INSPECTION AND CONTROL

- A. An organization, approved by the Engineer, shall be retained by the Owner, for testing and inspection.
- B. Testing, inspection and control shall be performed as directed by the Engineer and shall include, among other items, ultrasonic testing of the welding.
- C. All material and workmanship under this Section shall be subject to inspection, in the mill, shop or field by an inspection agency approved by the Engineer and paid for by the Contractor.
- D. However, such inspection, wherever conducted, shall not relieve the Contractor of his responsibility to furnish his own inspection, testing and quality control as necessary to furnish materials and workmanship in accordance with requirements of Contract Documents.

Part 2 - PRODUCTS

2.01 MATERIALS

- A. Structural Steel: ASTM A 992. GRADE 50
- B. Structural Tubes: ASTM A 500, Grade B, $F_y = 46$ ksi.
- C. Structural Pipe Columns: ASTM A 501, $F_y = 36$ ksi.
- D. Bolts:
 - 1. Anchor Type: ASTM A 307 or A 449.
 - 2. High strength bolts: ASTM A 325, Type 1; companion nuts and washers governed by standard. Connections shall be slip critical type. Provide both hex and square heads and nut as indicated on drawing or necessary to properly complete the work.
 - 3. All others - ASTM A 325 or A 449 as approved by the Engineer of Record.
- E. Filler Metal for Welding: E70XX low hydrogen as per Table J2.5 of AISC "Specifications for Structural Steel Buildings", latest edition.

Weld and joint details shall comply with the requirements of the "Code for

Welding in Building Construction" by the American Welding Society. Arc welding electrodes shall conform to "Mild Steel Covered ARC - Welding Electrodes", AWS AS.1, E70 Series.

- F. Anchor Systems: Provide hot dip galvanized or Stainless Steel materials for anchoring systems.
1. Special duty anchor for hollow masonry construction shall be drilled in place epoxy filled mesh screens with steel threaded rod inserts, by Hilti or approved equal as required for conditions encountered and/or as dimensioned on the Drawings.
 2. Anchor systems for structural attachment to concrete and solid masonry shall be drilled in place steel wedge anchors in sizes required for conditions encountered and/or as dimensioned on the Drawings.

2.02 FABRICATION – GENERAL

- A. Fabricate all structural steel members in accordance with AISC Specification referred to in Article 1.05 herein, approved shop drawings and with the modifications and additional requirements specified in this Section.
- B. The design of members and connections for any portions of the structure not indicated on the Drawings shall be completed by the fabricator. Connections shall be capable of supporting the maximum uniform load of the member for the span shown and the material specified. All connection designs shall be subject to final approval of the Engineer of Record.
- C. Shop connections shall be bolted or welded.
- D. Diameter of holes in bolted parts shall be 1/16 inch greater than the nominal diameter of the bolt. No unfair holes will be accepted, and enlargement of holes shall not be accomplished by burning. Burrs resulting from drilling or punching shall be ground to the surface of the material. Shearing and punching shall be done cleanly so as not to deform or mar adjacent surfaces.
- E. Provide holes and connections as required for site assembly of steel work. Holes shall be drilled or punched and reamed in the shop. Show sizes and locations of all such holes on the Shop Drawings.
- F. Field connections - Provide high strength bolted connections, except where welded connections are indicated on the plans, or where required to conform with AISC Section J1.12.
- G. High strength bolted construction assembly - Tightening shall be done in

accordance with the "Specifications for Structural Joints Using ASTM A 325 or A 490 Bolts".

H. Welding:

1. Provide quality control and qualification of welders and welding procedures and operations as specified under "Inspection, Testing, and Quality Control" in this Section.
 2. Shop Welding Process: Use shielded metal-arc, submerged arc, gas metal-arc, and flux cored-arc, or other process approved by Engineer.
 3. Groove Welds: Provide complete penetration unless otherwise noted on Drawings. At beam to column connections, backer bars shall be removed at all bottom flange welds made in the down hand position, and the root pass shall be back gouged and rewelded. A reinforcing fillet weld shall be added at the top and bottom of bottom flange full penetration welds. A reinforcing fillet shall be added at the top of top flange full penetration welds.
 4. Base metal shall be checked by Contractor to insure absence of laminations or other defects. Welds shall be sound throughout and have no cracks or imperfections.
 5. Where structural joints are required to be welded, details of joints, technique of welding employed, appearance and quality of welds made, and methods used in correcting defective work shall conform to applicable requirements noted under "STANDARDS" in this Section.
 6. Prepare joint welding procedures and program of welding sequence (for each component and for welding joining components to each other) and submit to Architect for approval before any welding is done. After approval, welding procedures and sequences shall be followed without deviation unless specific approval for change is obtained from Engineer. Architect may require requalification of these welding procedures by tests prescribed in AWS "Standard Qualification Procedure".
 7. Each welder working on the project shall be assigned an identification symbol or mark. Each welder shall mark or stamp his identification symbol at each weldment completed, whether in shop or field.
- I. Manual oxygen cutting shall be done only with a mechanically guided torch, except as permitted below.
1. Gas cut edges which are not welded and will be free of substantial stresses,

as determined by the Engineer, may be cut manually with an unguided torch provided that specified AISC edge distances to holes are maintained.

2. Gas cut edges which will be subjected to substantial stress (over one-half the allowable stress), as determined by the Engineer, or which are to be welded may be cut manually with an unguided torch to a line not within 1/8 inch of the finished dimension, with final removal of material completed by chipping or grinding to produce a surface quality equal to that of the base metal edges.
 3. Provide fire watch.
- J. Column bases and areas of bearing at column splices shall be milled.
- K. All framing members shall be supplied in continuous full lengths. Splices are only permitted where detailed on the drawings.
- L. Corrective work for structural steel members or assemblages having fabrication errors, or which exceed permissible tolerances shall be replaced. All corrective work and material shall be solely at Contractor's expense.
- M. Identification: All structural steel members shall have assigned positions and an identification mark or symbol, plainly indicated thereon near one end. Marks shall agree with those given on the shop drawings and erection drawings relating to or calling for the member.

2.03 COATING MATERIALS

- A. After Fabrication, All steel, steel assemblages, bolts, nuts, washers, lintels and plates shall be hot-dip galvanized by immersion in a tank of molten zinc, according to ASTM A 123.

All steel receiving this coating shall be safeguarded against embrittlement in conformance with ASTM A 143.

Part 3 - EXECUTION

3.01 INSPECTION AND ACCEPTANCE

- A. Examine all surfaces and contiguous elements to receive work of this section and correct, as part of the Work of this Contract, any defects affecting installation.

Commencement of work will be construed as complete acceptability of surfaces

and contiguous elements.

3.02 MISCELLANEOUS PROVISIONS

A. Handling and Shipping

1. No handling of steel work shall be done until galvanizing has thoroughly dried.

Care shall be taken to avoid abrasions and other damage.

2. Stacking at job site shall be out of mud and dirt, and shall drain dry of water.

Steel shall be protected from damage or soiling by adjacent construction operations.

- #### B. Field Touchup:
- After erection, areas damaged, areas abraded showing rust, bolt heads, connections, field welds and all other bare areas shall be thoroughly cleaned to the shop standard and touched up with material used for galvanizing repair.

3.03 FIELD/ERECTION WELDING

- #### A. Welding must be performed by welders who have been certified by within previous two period.

Provide quality control and qualification of welders and welding procedures and operations as specified under "Inspection, Testing, and Quality Control" in this Section.

Comply with AWS D1-1 "Structural Welding Code".

All welders must be licensed by the Commissioner of Buildings.

- #### B. Oxygen cutting - no steel cutting will be permitted inside the building.

3.04 GALVANIZING

- #### A. Hot-dip galvanize all steel items after fabrication. Galvanizer shall stamp galvanized steel items indicating ASTM number and weight of zinc in ounces per square foot.

3.05 ERECTION

- A. Except as otherwise indicated on Drawings or specified herein, erect structural steel in accordance with "STANDARDS" in this Section.
- B. Provide temporary flooring, planking, and scaffolding necessary in connection with erection of structural steel or support of erection machinery. Temporary floors shall be as required by laws of the jurisdiction of the Work governing safety regulations, and OSHA requirements.
- C. Field Connections (unless otherwise indicated): Use bearing or slip critical type high strength bolts installed by "modified turn-of-nut method". Beams shall have framed connections using 3/4 inch diameter (min.) high strength bolts in accordance with requirements of AISC "Manual of Steel Construction" and Contract Documents. Do not use one-sided or other eccentric connections, except in isolated cases where Engineer of Record has approved same.
- D. Errors in shop fabrication or deformations resulting from handling and/or transportation that prevent proper assembly and fitting of parts shall be reported immediately to Engineer for approval of method of correction. Approved corrections shall be made at Contractor's expense.
- E. Furnish templates and anchor bolts and instructions for setting of anchor bolts and other items to be embedded in cast-in-place concrete, in ample time so that this work will not be delayed.
- F. Setting Plates: Set base plates level to correct elevations and support temporarily on steel wedges, shims, leveling devices, or as shown on Drawings, until corresponding supported member has been positioned, plumbed and anchor bolted. Entire area under plates shall then be packed solidly with nonshrink grout. Leave protruding leveling devices in place until after grout has attained required strength, and then cut off flush with top or edges of base plates, or both, except as otherwise noted.
- G. Align, level, and adjust members accurately prior to final fastening. Maintain tolerances specified in the AISC Code of Standard Practice, Section 7.
- H. As erection progresses connect work securely and introduce temporary bracing wherever necessary. Leave such bracing in place as long as may be required for safety.
- I. High Strength Steel Bolts
 - 1. Bolt length shall provide at least two full threads beyond nut after

- tightening. Provide slip critical type bolt connections.
2. Perform installation by using pneumatic powered impact wrenches with sufficient capacity and adequate supply of compressed air.
 3. Perform installation in accordance with "turn-of-nut" method outlined in RCRBSJ "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts", with modifications noted below.
 - a. Use hardened washer under bolt head or nut, whichever is turned in tightening, unless oversize holes have been approved which require such washer under both head and nut. Use not more than two washers.
 - b. Qualification of high strength bolting procedures and operations shall be as specified under "Inspection, Testing and Quality Control", in this Section.
 - c. Refer to this bolting installation method as "Modified Turn-of-Nut Tightening Method".
 4. Make joints without use of erection bolts; high strength bolts required for joint shall serve that purpose.
 5. Correct poor matching of holes by drilling to next larger size and using larger size bolt, if approved by Engineer. Welding for redrilling will not be permitted.
- J. Field Welding: Execute in accordance with requirements under "FABRICATION" and "WELDING" each in this Section, excepting those requirements which manifestly apply to shop conditions only.
- K. Field Oxygen Cutting: Not to be performed.
- N. Openings in structural steel required in field:
1. Make no openings without the specific written approval of the Architect. All re-entrant corners shall be shaped notch-free to a radius of at least 1/2 inch at blocks, copes, cuts and openings.
 2. Openings in structural steel shall be cut and/or reinforced only by structural steel Contractor, and only with specific prior written approval of the Architect.

PART 4 – MEASUREMENT AND PAYMENT

For providing and installing **STRUCTURAL STEEL** including, but not limited to, all operations described in Part 1 of this Section other than those items subjected to unit price requests, the Contractor shall receive the a unit price per **POUND**.

The price bid per **POUND** shall include the cost of providing all labor, materials, tests, engineer's fees, and equipment necessary to complete the work of the Item in accordance with the plans and specifications and instructions of the Engineer.

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ITEM NO. 55 STEEL DECKING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
1. Composite floor deck.
 2. Roof Deck.
 3. Headed Shear studs.
 4. All necessary deck supports and reinforcing other than principal framing members including diagonals at columns, angles, planes, and etc.
 5. Flashing, cell closures, closure plates and sheet metal work required to contain
 6. Ceiling hanger tabs at new decking composite with concrete where new suspended ceilings are required.

1.2 SUBMITTALS

- A. Product Data: For each type of deck, accessory, and product indicated.
- B. Shop Drawings: Show layout and types of deck panels, anchorage details, reinforcing channels, pans, cut deck openings, special jointing, accessories, and attachments to other construction.
- C. Product certificates.
- D. Welding certificates.
- E. Field quality-control test and inspection reports.
- F. Research/Evaluation Reports: For steel deck.

1.3 QUALITY ASSURANCE

- A. Welding: Qualify procedures and personnel according to AWS D1.3, "Structural Welding Code - Sheet Steel."
- B. Fire-Test-Response Characteristics: Where indicated, provide steel deck units identical to tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.
1. Fire-Resistance Ratings: Indicated by design designations of applicable testing and inspecting agency.
 2. Steel deck units shall be identified with appropriate markings of applicable testing and inspecting agency.

- C. AISI Specifications: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."
- D. 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.
- E. Fabricator Qualifications: The work under this section shall be performed by a fabricator and erector submitting conclusive evidence of having satisfactorily completed work of similar scope and of having the necessary skill, equipment, facilities, and capacities to fabricate and perform the erection in accordance with the construction schedules and in full compliance with all requirements of the Contract Documents.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.
- B. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers products that may be incorporated into the Work include, but are not limited to, the
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. ASC Profiles, Inc.
 - 2. Canam Steel Corp.; The Canam Manac Group.
 - 3. Consolidated Systems, Inc.
 - 4. DACS, Inc.
 - 5. D-Mac Industries Inc.
 - 6. Epic Metals Corporation.
 - 7. Marlyn Steel Decks, Inc.
 - 8. New Millennium Building Systems, LLC.
 - 9. Nucor Corp.; Vulcraft Division.
 - 10. Roof Deck, Inc.
 - 11. United Steel Deck, Inc.
 - 12. Valley Joist; Division of EBSCO Industries, Inc.
 - 13. Verco Manufacturing Co.
 - 14. Wheeling Corrugating Company; Div. of Wheeling-Pittsburgh Steel Corporation.
 - 15. Architect Approved Equal.

2.2 COMPOSITE FLOOR DECK

- A. Composite Steel Floor Deck: Fabricate panels, with integrally embossed or raised pattern and interlocking side laps, to comply with "SDI Specifications and Commentary for Steel Floor Deck," in SDI Publication No. 31, with the minimum section properties and with the following:
1. Galvanized and Shop-Primed Steel Sheet: ASTM A 653/A 653M, Structural Steel Grade 33 (230), zinc coating; with unpainted top surface and cleaned and pretreated bottom surface primed with manufacturer's standard gray baked-on, rust-inhibitive primer.
 2. Profile Depth: 2 inches.

2.3 ROOF DECK

- A. Roof deck: Fabricate panels, without top-flange stiffening grooves, to comply with "SDI Specifications and Commentary for Steel Roof Deck," in SDI Publication No. 31 with the minimum section properties indicated on the drawings. Contractor shall provide heavier gauge if minimum gauge indicated is not adequate to support total loads as shown on the drawings.

2.4 ACCESSORIES

- A. General: Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.
- B. Mechanical Fasteners: Corrosion-resistant, low-velocity, power-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.
- C. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, No. 10 (4.8-mm) minimum diameter.
- D. Flexible Closure Strips: Vulcanized, closed-cell, synthetic rubber.
- E. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of 33,000 psi (230 MPa), not less than 0.0359-inch (0.91-mm) design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.
- F. Headed studs for shear connectors shall be per drawings manufactured from cold drawn wire and conforming to ASTM A 108, Grades 101 thru 1020
1. Subject to compliance with requirements, studs shall be manufactured by one of the following:
 - a. Nelson
 - b. KSM
- G. Paint: Where indicated on drawings, must be compatible with galvanized surfaces such that minimal preparation is required.
1. For decks exposed to exterior conditions or high humidity paint must:
 - a. Demonstrate corrosion resistance per standards ASTM B 117 & ASTM D 1580
 2. For all other decks paint must:
 - a. Demonstrate a minimum opacity as determined by ASTM D 2805.

- b. Demonstrate a minimum of adhesion as classified by 4B of ASTM D 3359 method A.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Inspection of the metal deck and shear stud installation will be performed by an inspection agency retained by the City of New York at no expense to the contractor. The inspection agency shall work under the direction of the Commissioner. Contractor shall provide the inspection agency with the following:
 1. Schedule of all work in both shop and field with at least ten days written notice before commencement of either activity
 2. A complete set of approved shop and erection drawings

3.2 INSTALLATION, GENERAL

- A. Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 31, manufacturer's written instructions, requirements in this Section. Erection shall closely follow the erection of structural steel.

3.3 ROOF DECK INSTALLATION

- A. Fasten roof-deck panels to steel supporting members per drawings.
- B. Side-lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports per drawings.
- C. End bearing: Install deck ends over supporting frame with a minimum end bearing per manufacturer's specification but not less than 1-1/2 inches, with end joints as follows:
 1. End Joints: Lapped 2 inches minimum or butted at Contractor's option.
- D. All unframed openings in roof deck shall be reinforced per the drawings
- E. Roof sump pans: Fabricate from a single piece of galvanized sheet steel of the same quality as the deck units; not less than normal .0757" (14 gauge) thick before galvanizing; with bottoms level after erection and sloping sides direct water flow to the drain, unless otherwise shown. Provide sump pans of adequate size to receive roof drains and with bearing flanges not less than 3" wide. Recess pans not less than 1-1/2" below the roof deck surface, unless otherwise shown or required by deck configuration. Weld to deck at maximum 12" o.c.
- F. Miscellaneous Roof-Deck Accessories: Install ridge and valley plates, finish strips, end closures, and reinforcing channels according to deck manufacturer's written instructions. Weld substrate to provide a complete deck installation.
 1. Weld cover plates at changes in direction of roof-deck panels unless otherwise indicated.

3.4 FLOOR DECK INSTALLATION

- A. Fasten floor-deck panels to steel supporting members per drawings. Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports per the drawings.
- B. End Bearing: install deck ends over supporting frame with a minimum end bearing per manufacturer's specification but not less than 1-1/2 inches, with end joints as follows
 - 1. End Joints: lapped 2' minimum or butted at Contractor's option.
- C. All unframed deck openings in composite deck with concrete larger than 6" shall be reinforced per the drawings.
- D. At composite deck with concrete, metal hanger tabs shall be installed at all panel side laps 24 inches o.c., longitudinally 24 inches o.c. to create a grid nominally 24 inches by 24 inches. Tabs shall be 18 gauge minimum, capable of supporting the specified ceiling, tabs shall be a minimum of 18 gauge capable of supporting ceiling and all other suspended loads or 200 pounds, whichever is greater.
- E. Pour Stops and Girder Fillers: Weld steel sheet pour stops and girder fillers to supporting structure according to SDI recommendations unless otherwise indicated.
- F. Sealing cellular deck openings, butt joints, and junctions with trench headers with tape is not included in this Section. Floor-Deck Closures: Weld steel sheet column closures, cell closures, and Z-closures to deck, according to SDI recommendations, to provide tight-fitting closures at open ends of ribs and sides of deck.
- G. The steel decking units shall be placed on the supporting steel framework and adjusted to final position before being permanently fastened. Each unit shall be brought to proper bearing on the supporting beams.
- H. Deck shall, where possible, span 3 or more supports.
- I. The side laps of adjacent units shall be fastened by approved method (to be shown on shop drawings) between supports at intervals as noted on the drawings.
- J. All welding shall be performed by competent experienced welding mechanics. All welds shall be given a protective coat of paint.
- K. All abraded or damaged protective surfaces of steel decking work shall be touched up with a protective coat of paint by this contractor as erected.
- L. Headed shear studs shall be installed by welding through metal deck onto beam below. Automatic welding machinery of approved design, amperage, duration of current, etc., shall be used. Studs shall be tested by testing laboratory in accordance with AWS Procedures for Bend Test; replace studs which do not pass test.
- M. Do not remove temporary shoring supporting composite deck construction until cast-in-place concrete has attained its designed compressive strength.

3.5 FIELD QUALITY CONTROL

- A. Special Inspection as required by the applicable Building Code of all metal decking will be performed by an inspection agency retained by the City of New York. The inspection agency shall work under the direction of the Commissioner. Contractor shall provide the inspection agency with the following:
1. Schedule of all work in the field with at least ten days written notice before commencement of either activity.
 2. A complete set of approved shop and erection drawings.
 3. Order sheets, material bulls, shipping bills and mill test reports.
 4. Representative sample pieces as requested by the testing agency.
 5. Full and ample means and assistance for testing all material.
 6. Proper facilities, including scaffolding, temporary work platforms, etc., for inspection of the work in the mills, shop and field.
- B. Each person installing connections shall be assigned an identifying symbol or mark and all shop and field connections shall be so identified so that the inspector can refer back to the person making the connection.
- C. The following minimum criteria shall be adhered to in testing of welds:
1. All welds shall be examined by visual means.
 2. 25% of all welds, selected randomly, shall be measured.
 3. In addition, all welds subject to tensile stress shall be examined by the Ultrasonic Method for 100% of their length.
 4. 10% of all manual fillet welds shall be tested by the magnetic particle method.
 5. 1'-0" at each end of automatic fillet welds shall be tested by the magnetic particle method.
 6. 100% of groove welds shall be tested by the ultrasonic method.
- D. Field inspection will include examination of decking for welding and touching-up of shop coat.
- E. Inspection of welding will be such as to assure that the work is within the quality requirements specified below and elsewhere in this section of the specifications and will include:
1. Ascertainment that the electrodes and flux used for the SAW, GMAW, and FCAW welding processes conform to the requirements of this section of the specifications.
 2. Ascertainment that the approved welding procedures and sequence are followed without deviation, unless specific approval for change is obtained from the architect.
 3. The testing agency shall be prepared to utilize the following approved methods of testing:
 - a. Liquid penetrant inspection: ASTM E 165
 - b. Magnetic particle: ASTM A 709
 - c. Radiographic inspection: ASTM E 94 and E 1032
 - d. Ultrasonic inspection: ASTM E 114 and AWS, Chapter 6, Section C.
- F. When defects are revealed, additional inspection by whatever method is deemed necessary by the inspector, shall be performed to the extent necessary to assure that the full amount of defect has been located. No further work shall be done on the assembly or sub-assembly in question until all the necessary corrections have been made. Defects shall be repaired, using the same welding procedure that was used initially in making the weld, unless otherwise approved by the architect. Inspection of the repaired weld shall be by the same method that was used to reveal the defect. A second repair of a defective area shall not be made without approval of the Architect.

- G. A distinguishing mark will be placed on all work that has been inspected and approved. Material or work that is not acceptable will be distinguished by words such as "REJECT" or "REPAIR" marked directly on the material or work.
- H. Testing agency will report inspection results promptly and in writing to Contractor and Architect.
- I. Remove and replace work that does not comply with specified requirements.
- J. Additional inspecting, at Contractor's expense, will be performed to determine compliance of corrected work with specified requirements.

PART 4 - MEASUREMENT AND PAYMENT

For furnishing and installing **STEEL DECKING**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **SQUARE FOOT** price bid.

The price bid shall be a **SQUARE FOOT**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

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ITEM NO. 56 METAL STAIRS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Preassembled steel stairs with abrasive-coating-finished traction-etched formed-metal treads and perforated risers.
2. Steel tube handrails attached to walls and railings adjacent to metal stairs.

1.2 PERFORMANCE REQUIREMENTS

A. Delegated Design: Design metal stairs, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

B. Structural Performance of Stairs: Metal stairs shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated.

1. Uniform Load: 100 lbf/sq. ft. (4.79 kN/sq. m).
2. Concentrated Load: 300 lbf (1.33 kN) applied on an area of 4 sq. in. (2580 sq. mm).
3. Uniform and concentrated loads need not be assumed to act concurrently.
4. Stair Framing: Capable of withstanding stresses resulting from railing loads in addition to loads specified above.
5. Limit deflection of treads, platforms, and framing members to L/240 or 1/4 inch (6.4 mm), whichever is less.

C. Structural Performance of Railings: Railings shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated.

1. Handrails and Top Rails of Guards:

- a. Uniform load of 50 lbf/ ft. (0.73 kN/m) applied in any direction.
- b. Concentrated load of 200 lbf (0.89 kN) applied in any direction.
- c. Uniform and concentrated loads need not be assumed to act concurrently.

2. Infill of Guards:

- a. Concentrated load of 50 lbf (0.22 kN) applied horizontally on an area of 1 sq. ft. (0.093 sq. m).
- b. Infill load and other loads need not be assumed to act concurrently.

D. Seismic Performance: Metal stairs shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1. Component Importance Factor is 1.5.

1.3 SUBMITTALS

- A. Product Data: For metal stairs.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
- C. Delegated-Design Submittal: For installed products indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.4 QUALITY ASSURANCE

- A. NAAMM Stair Standard: Comply with "Recommended Voluntary Minimum Standards for Fixed Metal Stairs" in NAAMM AMP 510, "Metal Stairs Manual," for class of stair designated, unless more stringent requirements are indicated.
 - 1. Preassembled Stairs: Service class.

PART 2 - PRODUCTS

2.1 METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For components exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. Recycled Content of Steel Products: Provide products with average recycled content of steel products so postconsumer recycled content plus one-half of preconsumer recycled content is not less than 25 percent.
- C. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- D. Steel Tubing: ASTM A 500 (cold formed) or ASTM A 513.
- E. Rolled-Steel Floor Plate: ASTM A 786/A 786M, rolled from plate complying with ASTM A 36/A 36M or ASTM A 283/A 283M, Grade C or D.
- F. Steel Bars for Grating Treads: ASTM A 36/A 36M or steel strip, ASTM A 1011/A 1011M or ASTM A 1018/A 1018M.
- G. Wire Rod for Grating Crossbars: ASTM A 510 (ASTM A 510M).
- H. Cast Iron: Either gray iron, ASTM A 48/A 48M, or malleable iron, ASTM A 47/A 47M, unless otherwise indicated.
- I. Uncoated, Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, either commercial steel, Type B, or structural steel, Grade 25 (Grade 170), unless another grade is required by design loads; exposed.

- J. Uncoated, Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, either commercial steel, Type B, or structural steel, Grade 30 (Grade 205), unless another grade is required by design loads.
- K. Expanded-Metal, Carbon Steel: ASTM F 1267, Class 1 (uncoated).
- L. Perforated Metal: Cold-rolled steel sheet, ASTM A 1008/A 1008M, or hot-rolled steel sheet, ASTM A 1011/A 1011M, commercial steel Type B.

2.2 FABRICATION, GENERAL

- A. Provide complete stair assemblies, including metal framing, hangers, struts, railings attached to walls adjacent to metal stairs, clips, brackets, bearing plates, and other components necessary to support and anchor stairs and platforms on supporting structure.
 - 1. Join components by welding unless otherwise indicated.
 - 2. Use connections that maintain structural value of joined pieces.
 - 3. Fabricate treads and platforms of exterior stairs so finished walking surfaces slope to drain.
- B. Preassembled Stairs: Assemble stairs in shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations.
- C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges. Remove sharp or rough areas on exposed surfaces.
- D. Form bent-metal corners to smallest radius possible without impairing work.
- E. Weld connections to comply with the following:
 - 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 welding flux immediately.
 - 4. Weld exposed corners and seams continuously unless otherwise indicated.
 - 5. At exposed connections, finish exposed welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Type 4 welds: good quality, uniform undressed weld with minimal splatter.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Locate joints where least conspicuous.
- G. Fabricate joints that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

2.3 STEEL-FRAMED STAIRS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Alfab, Inc.
2. American Stair, Inc.
3. Sharon Companies Ltd. (The).
4. Architect Approved Equal.

B. Stair Framing:

1. Fabricate stringers of steel plates or channels.
2. Construct platforms of steel plate or channel headers and miscellaneous framing members as needed to comply with performance requirements.
3. If using bolts, fabricate and join so bolts are not exposed on finished surfaces.
4. Where stairs are enclosed by gypsum board assemblies, provide hanger rods or struts to support landings from floor construction above or below.

C. Abrasive-Coating-Finished, Formed-Metal Stairs: Form risers, treads, and platforms to configurations shown from steel sheet of thickness needed to comply with performance requirements but not less than 0.097 inch (2.5 mm). Finish tread and platform surfaces with manufacturer's standard epoxy-bonded abrasive finish.

2.4 STAIR RAILINGS

A. Steel Tube Railings: Fabricate railings to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including wall thickness of tube, post spacings, and anchorage, but not less than that needed to withstand indicated loads.

1. Rails: 1-5/8-inch- (41-mm-) diameter or 1-1/2-inch- (38-mm-) square top and bottom rails.

B. Welded Connections: Fabricate railings with 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. Finish welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Type 4 welds: good quality, uniform undressed weld with minimal splatter.

C. Form changes in direction of railings by bending.

D. Form curves by bending members in jigs to produce uniform curvature without buckling.

E. Close exposed ends of railing members with prefabricated end fittings.

F. Provide wall returns at ends of wall-mounted handrails.

G. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, end closures, flanges, miscellaneous fittings, and anchors for interconnecting components and for attaching to other work.

1. Connect posts to stair framing by direct welding.

- H. Fillers: Provide fillers made from steel plate, or other suitably crush-resistant material, to transfer wall bracket loads through wall finishes. Size fillers to suit wall finish thicknesses.

2.5 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish metal stairs after assembly.
- C. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153/A 153M for steel and iron hardware and with ASTM A 123/A 123M for other steel and iron products.
- D. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with [SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning" or SSPC-SP 3, "Power Tool Cleaning."
- E. Apply shop primer to uncoated surfaces of metal stair components. Comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal stairs. Set units accurately in location, alignment, and elevation, measured from established lines and levels and free of rack.
- B. Install metal stairs by welding stair framing to steel structure or to weld plates cast into concrete unless otherwise indicated.
- C. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication.
- D. Field Welding: Comply with requirements for welding in "Fabrication, General" Article.
- E. Attach handrails to wall with wall brackets. Use type of bracket with flange tapped for concealed anchorage to threaded hanger bolt.

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 same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

PART 4 - MEASUREMENT AND PAYMENT

For furnishing and installing **METAL STAIRS**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

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ITEM NO. 59

VINYL BASE TRIM

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Vinyl base, factory-finished.

1.2 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product.
- B. Samples: For each type of running trim indicated.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Vinyl Wall Base
 1. Manufacturers
 - a. Johnsonite
 - b. Roppe
 - c. Architect Approved Equal

2.2 RUNNING TRIM

- A. Vinyl base trim
 1. Meet or exceeds the performance requirements for resistance to heat/light aging, chemicals, and dimensional stability when tested to the methods, as described, in ASTM F-1861.
 2. **Flexibility:** ASTM F 137 - Must not crack, break, or show any signs of fatigue when bent around a 1/4" (6.4 mm) diameter cylinder.
 3. **Resistance to Light:** ASTM F 1515 – Must pass $\Delta E \leq 8.0$
 4. **Chemical Resistance:** ASTM F 925 Passed – Acetic Acid 5%, Isopropyl Alcohol 70%, Sodium Hydroxide 5%, Hydrochloric Acid 5%, Ammonia 5%, Phenol 5%, and Acid Sulfuric 5%.
 5. **Fire Resistance:**
 - a. ASTM E 84/NFPA 255 (Flame/Smoke) – Class B, < 450

b. ASTM E 648 (NFPA 253): Critical Radiant Flux – Class 1

6. **Chemical Resistance (ASTM F 925):** Must pass- 5% Acetic acid, 70% Isopropyl alcohol, Sodium hydroxide solution (5% NaOH), Hydrochloric acid solution (5% HCl), Sulfuric acid solution (5% H₂SO₄), Household ammonia solution (5% NH₄OH), Household bleach (5.25% NaOCl), Disinfectant cleaner (5% active phenol)

2.3 MISCELLANEOUS MATERIALS

A. Glue: Use glue that has a VOC content of 30 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

PART 3 - EXECUTION

3.1 PREPARATION

A. Before installing vinyl base trim, condition materials to average prevailing humidity in installation areas for a minimum of 24 hours.

3.2 INSTALLATION, GENERAL

A. Install vinyl base trim level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.

1. Scribe and cut vinyl base trim to fit adjoining work.
2. Fill surface flush where face fastening is unavoidable.
3. Install to tolerance of 1/8 inch in 96 inches (3 mm in 2438 mm) for level and plumb. Install adjoining vinyl base trim with 1/32-inch (0.8-mm) maximum offset.

3.3 STANDING AND RUNNING TRIM INSTALLATION

A. Install with minimum number of joints practical, using full-length pieces from maximum lengths of vinyl available.

PART 4 - MEASUREMENT AND PAYMENT

For furnishing and installing **VINYL BASE TRIM**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

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ITEM NO. 60 ITEM DELETED

ITEM NO. 61 THERMAL INSULATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Glass-fiber blanket insulation.
 2. Rigid Insulation.
 3. Vapor retarders.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Product test reports.
- C. Research/evaluation reports.

PART 2 - PRODUCTS

2.1 GLASS-FIBER BLANKET INSULATION

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. CertainTeed Corporation.
 2. Guardian Building Products, Inc.
 3. Johns Manville.
 4. Knauf Insulation.
 5. Owens Corning.
 6. Architect Approved Equal.
- B. Unfaced, Glass-Fiber Blanket Insulation: ASTM C 665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.
- C. Polypropylene-Scrim-Kraft-Faced, Glass-Fiber Blanket Insulation: ASTM C 665, Type II (non-reflective faced), Class A (faced surface with a flame-spread index of 25 or less); Category 1 (membrane is a vapor barrier).
- D. Kraft-Faced, Glass-Fiber Blanket Insulation: ASTM C 665, Type II (non-reflective faced), Class C (faced surface not rated for flame propagation); Category 1 (membrane is a vapor barrier).

- E. Reinforced-Foil-Faced, Glass-Fiber Blanket Insulation: ASTM C 665, Type III (reflective faced), Class A (faced surface with a flame-spread index of 25 or less); Category 1 (membrane is a vapor barrier), faced with foil scrim, foil-scrim kraft, or foil-scrim polyethylene.
- F. Foil-Faced, Glass-Fiber Blanket Insulation: ASTM C 665, Type III (reflective faced), Class B (faced surface with a flame-propagation resistance of 0.12 W/sq. cm); Category 1 (membrane is a vapor barrier), faced with foil scrim, foil-scrim kraft, or foil-scrim polyethylene. Retain first paragraph below if required for vented eaves.

2.2 RIGID INSULATION

A. Manufacturers

- 1. Armstrong Insulation.
- 2. CertainTeed Corporation.
- 3. Owens Corning.
- 4. Architect Approved Equal.

B. Extruded Polystyrene Board Insulation: Comply with ASTM C 578, Type X, 15 psi minimum compressive strength, 1.30 lb/cu. ft. (21 kg/cu. m)

- 1. Thermal Resistance: (180 day real-time aging as mandated by ASTM C578, measured per ASTM C 518 at mean temperature of 75F): R- 5.6 per inch of thickness, with 90% lifetime limited warranty on thermal resistance
- 2. Blowing agent formulation: Shall be zero ozone depleting
- 3. Edge condition: Shall be square
- 4. Surface Burning Characteristics (ASTM E 84): Flame spread less than 25, smoke developed less than 450, certified by independent third party such as Underwriters Laboratories
- 5. Indoor Air Quality: Compliance certified by independent third party such as GREENGUARD Indoor Air Quality Certified® and/or GREENGUARD Children and Schools CertifiedSM
- 6. Recycle Content: Minimum 20%, certified by independent third party such as Scientific Certification Systems
- 7. Warranty: Limited lifetime warranty covering all ASTM C578 physical properties

2.3 VAPOR RETARDERS

- A. Polyethylene Vapor Retarders: ASTM D 4397, 6 mils (0.15 mm) thick, with maximum permeance rating of 0.13 perm (7.5 ng/Pa x s x sq. m).
- B. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and applications indicated.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.
- C. Extend insulation 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. 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.

3.2 INSTALLATION OF INSULATION FOR FRAMED CONSTRUCTION

- 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.
- B. Glass-Fiber or Mineral-Wool Blanket Insulation: Install in cavities formed by framing members according to the following requirements:
 - 1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
 - 2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
 - 3. Maintain 3-inch (76-mm) clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.
 - 4. For metal-framed wall cavities where cavity heights exceed 96 inches (2438 mm), support unfaced blankets mechanically and support faced blankets by taping flanges of insulation to flanges of metal studs.
 - 5. Vapor-Retarder-Faced Blankets: Tape joints and ruptures in vapor-retarder facings, and seal each continuous area of insulation to ensure airtight installation.
 - a. Interior Walls: Set units with facing placed as indicated on Drawings.

3.3 INSTALLATION OF VAPOR RETARDERS

- A. Place vapor retarders on side of construction indicated on Drawings. Extend vapor retarders to extremities of areas to protect from vapor transmission. Secure vapor retarders in place with

adhesives or other anchorage system as indicated. Extend vapor retarders 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 no fewer than two studs.
 - 1. Before installing vapor retarders, apply urethane sealant to flanges of metal framing including runner tracks, metal studs, and framing around door and window openings. Seal overlapping joints in vapor retarders with vapor-retarder tape according to vapor-retarder manufacturer's written instructions. Seal butt joints with vapor-retarder tape. Locate all joints over framing members or other solid substrates.
 - 2. Firmly attach vapor retarders to metal framing and solid substrates with vapor-retarder fasteners as recommended by vapor-retarder manufacturer.
- C. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-retarder tape to create an airtight seal between penetrating objects and vapor retarders.
- D. Repair tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarders.

PART 4 - MEASUREMENT AND PAYMENT

For furnishing and installing **THERMAL INSULATION – GLASS FIBER BLANKET**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **SQUARE FOOT** price bid.

The price bid shall be a **SQUARE FOOT**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

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ITEM NO. 62 JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Urethane joint sealants.
3. Latex joint sealants.
4. Preformed joint sealants.

1.2 PRECONSTRUCTION TESTING

- A. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant eight samples of materials that will contact or affect joint sealants. Use manufacturer's test method to determine whether priming and other specific joint preparation techniques required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
- B. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their Project joint substrates. Test joint sealants according to Method A, Field-Applied Sealant Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

1.3 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples: For each kind and color of joint sealant required.
- C. Product test reports.
- D. Preconstruction compatibility and adhesion test reports.
- E. Preconstruction field-adhesion test reports.
- F. Field-adhesion test reports.
- G. Warranties.

1.4 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.

1.5 WARRANTY

- A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

- B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish 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: Three years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. VOC Content of Interior Sealants: Provide sealants and sealant primers for use inside the weatherproofing system that comply with the following limits for VOC content when according to 40 CFR 59, Part 59, Subpart D (EPA Method 24):

1. Architectural Sealants: 250 g/L.
2. Sealant Primers for Nonporous Substrates: 250 g/L.
3. Sealant Primers for Porous Substrates: 775 g/L.

- B. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

1. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for that will be continuously immersed in liquids, provide products that have testing according to ASTM C 1247. Liquid used for testing sealants is deionized unless otherwise indicated.

- C. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to substrates, provide products that have undergone testing according to ASTM C 1248 and not stained porous joint substrates indicated for Project.

- D. Suitability for Contact with Food (for horses): Where sealants are indicated for joints come in repeated contact with food (for horses), provide products that comply with 21 CFR 177.2600.

2.2 SILICONE JOINT SEALANTS

A. Silicone Joint Sealant: ASTM C 920.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not the following:
 - a. BASF Building Systems.
 - b. Dow Corning Corporation.
 - c. GE Advanced Materials - Silicones.
 - d. May National Associates, Inc.
 - e. Pecora Corporation.
 - f. Polymeric Systems, Inc.
 - g. Schnee-Morehead, Inc.
 - h. Sika Corporation; Construction Products Division.
 - i. Tremco Incorporated.
 - j. Architect Approved Equal.
2. Type: Single component (S) or multicomponent (M).
3. Grade: Pourable (P) or nonsag (NS).
4. Class: 100/50, 50, or 25.
5. Uses Related to Exposure: Traffic (T) or Nontraffic (NT).

2.3 URETHANE JOINT SEALANTS

A. Urethane Joint Sealant: ASTM C 920.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not the following:
 - a. BASF Building Systems.
 - b. Bostik, Inc.
 - c. Lyntal, International, Inc.
 - d. May National Associates, Inc.
 - e. Pacific Polymers International, Inc.
 - f. Pecora Corporation.
 - g. Polymeric Systems, Inc.
 - h. Schnee-Morehead, Inc.
 - i. Sika Corporation; Construction Products Division.
 - j. Tremco Incorporated.
 - k. Architect Approved Equal.
2. Type: Single component (S) or multicomponent (M).
3. Grade: Pourable (P) or nonsag (NS).
4. Class: 100/50, 50, or 25.
5. Uses Related to Exposure: Traffic (T) or Nontraffic (NT).

2.4 LATEX JOINT SEALANTS

- A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not the following:
 - a. BASF Building Systems.
 - b. Bostik, Inc.
 - c. May National Associates, Inc.
 - d. Pecora Corporation.
 - e. Schnee-Morehead, Inc.
 - f. Tremco Incorporated.
 - g. Architect Approved Equal.

2.5 PREFORMED JOINT SEALANTS

- A. Preformed Foam Joint Sealant : Manufacturer's standard preformed, precompressed, foam sealant manufactured from urethane foam with minimum density of 10 lb/cu. ft. (kg/cu. m) and impregnated with a nondrying, water-repellent agent. Factory produce in precompressed sizes in roll or stick form to fit joint widths indicated; coated on one side pressure-sensitive adhesive and covered with protective wrapping.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not the following:
 - a. Dayton Superior Specialty Chemicals.
 - b. EMSEAL Joint Systems, Ltd.
 - c. Sandell Manufacturing Co.
 - d. Schul International, Inc.
 - e. Willseal USA, LLC.
 - f. Architect Approved Equal.

2.6 JOINT SEALANT BACKING

- A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), Type O (open-cell material), Type B (bicellular material with a surface skin), or any the preceding types, as approved in writing by joint-sealant manufacturer for joint indicated, and of size and density to control sealant depth and otherwise contribute to optimum sealant performance.
- B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

2.7 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for sealant to joint substrates indicated, as determined from preconstruction joint-sealant-tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.
 - 1. Remove laitance and form-release agents from concrete.
 - 2. Clean nonporous joint substrate 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 by joint-sealant manufacturer or as indicated by 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 or primer 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.

3.2 INSTALLATION

- A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- B. Install sealant backings of kind 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.

- C. Install bond-breaker tape behind sealants where sealant backings are not used between and backs of joints.
- D. Install sealants using proven techniques that 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 in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs 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 sealant from surfaces adjacent to joints.
 - 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 profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
- F. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.3 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
 - 1. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.
- B. Evaluation of Field-Adhesion Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.4 JOINT-SEALANT SCHEDULE

- A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces.
 - 1. Joint Locations:
 - a. Isolation and contraction joints in cast-in-place concrete.
 - b. Joints between concrete pavement and wood deck.
 - c. Joints between different materials listed above.

- d. Other joints as indicated.
 2. Joint Sealant: Silicone.
 3. Joint Sealant: Urethane.
 4. Joint Sealant: Preformed foam.
 5. Joint-Sealant Color: As selected by Architect from manufacturer's full range of
- B. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
1. Joint Locations:
 - a. Construction joints in cast-in-place concrete.
 - b. Joints between metal panels.
 - c. Joints between different materials listed above.
 - d. Perimeter joints between materials listed above and frames of doors and
 - e. ~~Other~~ joints as indicated.
 2. Joint Sealant: Silicone.
 3. Joint Sealant: Urethane.
 4. Joint Sealant: Preformed foam.
 5. Joint Sealant: One-part elastomeric polyurethane sealant.
 6. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- C. Joint-Sealant Application: Interior joints in horizontal traffic surfaces.
1. Joint Locations:
 - a. Isolation joints in cast-in-place concrete slabs.
 - b. Control and expansion joints in concrete topping.
 - c. Other joints as indicated.
 2. Joint Sealant: Silicone.
 3. Joint Sealant: Urethane.
 4. Joint Sealant: Preformed foam.
 5. Joint-Sealant Color: As selected by Architect from manufacturer's full range of
- D. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.
1. Joint Locations:
 - a. Control and expansion joints on exposed interior surfaces of exterior walls.
 - b. Perimeter joints of exterior openings where indicated.
 - c. Vertical joints on exposed surfaces of concrete retaining wall.
 - d. Perimeter joints between interior wall surfaces and frames of interior doors and windows.
 2. Joint Sealant: Latex.
 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of

- E. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.
 - 1. Joint Sealant Location:
 - a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
 - b. Tile control and expansion joints where indicated.
 - 2. Joint Sealant: Silicone.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of

PART 4 - MEASUREMENT AND PAYMENT

For furnishing and installing **JOINT SEALANTS**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

END OF PAGE

ITEM NO. 63 HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Standard hollow metal doors.
2. Metal frames.

B. Related Sections:

1. "Aluminum Frames".

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Include elevations, door edge details, metal thicknesses, preparations for hardware, and other details.

C. Samples for Initial Selection: For units with factory-applied color finishes.

D. Samples for Verification: For each type of exposed finish required.

E. Schedule: Prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Amweld Building Products, LLC.
2. Benchmark; a division of Therma-Tru Corporation.
3. Ceco Door Products; an Assa Abloy Group company.
4. Curries Company; an Assa Abloy Group company.
5. Deansteel Manufacturing Company, Inc.
6. Firedoor Corporation.
7. Fleming Door Products Ltd.; an Assa Abloy Group company.
8. Habersham Metal Products Company.
9. Kewanee Corporation (The).

10. Mesker Door Inc.
11. Pioneer Industries, Inc.
12. Security Metal Products Corp.
13. Steelcraft; an Ingersoll-Rand company.
14. Windsor Republic Doors.
15. Architect Approved Equal.

2.2 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, CS, Type B; suitable for exposed applications.
- B. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

2.3 STANDARD HOLLOW METAL DOORS

- A. General: Comply with ANSI/SDI A250.8.
 1. Design: Flush panel.
 2. Core Construction: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core.
 3. Vertical Edges for Single-Acting Doors: Manufacturer's standard.
 4. Top and Bottom Edges: Closed with flush or inverted 0.042-inch- (1.0-mm-) thick, end closures or channels of same material as face sheets.
 5. Tolerances: SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."
- B. Interior Doors: Face sheets fabricated from cold-rolled steel sheet. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:
 1. Level 1 and Physical Performance Level C (Standard Duty).
 - a. Width: 1-3/4 inches (44.5 mm).
- C. Insulated Interior Doors between Heated and Semi-heated Spaces:
 1. Core Performance: U-factor rating of at least 0.07 Btu/sq. ft. x h x deg F (0.40 W/sq. m x K).
- D. Hardware Reinforcement: ANSI/SDI A250.6.

2.4 METAL FRAMES

- A. Interior Steel Frames: Fabricate 2-inch- (51-mm-) wide face frames from 0.064-inch (1.63-mm) nominal-thickness, metallic-coated steel sheet.
 1. Type: Knock down.

2. Jamb Anchors: Welded flat strap anchors.
- B. Insulated Interior Steel Frames between Heated and Semi-heated Spaces: Fabricate 2-inch- (51-mm-) wide, thermally broken face frames from 0.064-inch (1.63-mm) nominal-thickness, metallic-coated steel sheet and integral 3/8-inch vinyl positive thermal break with compression type vinyl gasket (weatherstrip).
1. Type: Knock down.
 2. Jamb Anchors: Coated wire masonry anchors.
 3. Door frames to receive field-installed mineral fiber or polystyrene foam insulation. Do not fill with grout.

2.5 FABRICATION

- A. Tolerances: Fabricate hollow metal work to tolerances indicated in SDI 117.
- B. Hardware Preparation: Factory prepare hollow metal work to receive templated mortised hardware according to the Door Hardware Schedule and templates furnished as specified in Section "Door Hardware."
1. Locate hardware according to ANSI/SDI A250.8.
 2. Reinforce doors and frames to receive nontemplated, mortised and surface-mounted door hardware.
 3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.

2.6 STEEL FINISHES

- A. Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating.
1. Shop Primer: ANSI/SDI A250.10.
- B. Factory-Applied Paint Finish: ANSI/SDI A250.3.
1. Color and Gloss: As selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.
1. Non-Fire-Rated Standard Steel Doors:
 - a. Jambs and Head: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
 - b. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch (9.5 mm).

- c. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch (19 mm).

3.2 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.
- B. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

PART 4 - MEASUREMENT AND PAYMENT

For furnishing and installing **HOLLOW METAL DOORS AND FRAMES**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

END OF PAGE

ITEM NO. 64 ALUMINUM FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Pre-finished aluminum door frames for interior use for hollow metal doors and aluminum and glass door.
2. Pre-finished aluminum window frames for interior use for observation room windows.
3. Pre-finished aluminum and glass doors for interior use.

B. Related sections:

1. "Hollow Metal Doors".
2. "Glazing – Glass (Laminated)".

1.2 SUBMITTALS

A. Product data: Manufacturer's fabrication and installation instructions.

1. Include information on factory finish, glazing gaskets, accessories and other required components.

B. Shop drawings: Submit schedule indicating opening numbers, frame types, dimensions, swings and hardware requirements.

C. Include elevations and details indicating frame types, profiles, conditions at openings, methods and locations of anchoring, glazing requirements, hardware locations and reinforcements for hardware.

D. Samples: Submit the following:

1. Full range of manufacturer's standard finishes for the Architect's selection.
2. Where normal color variations are expected, include additional samples to show range of such variation.

E. Instructions: Provide copies of manufacturer's data for fabrication and installation of aluminum door frames.

1.3 QUALITY ASSURANCE

A. Single Source Responsibility: Provide aluminum frames, aluminum and glass doors and accessories produced by a single manufacturer for each type of product indicated.

B. Manufacturer's qualifications: Company specializing in the manufacturing of door frame systems with a minimum of 3 years of documented experience on a comparable sized project.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver frames and doors cartoned to provide protection during transit and storage at project site.
- B. Inspect frames and doors upon delivery for damage.
 - 1. Repair minor damage to pre-finished products by means as recommended by the manufacturer.
 - 2. Replace frames that cannot be satisfactorily repaired.
- C. Store frames at the project site under cover and as near as possible to the final installation location. Do not use covering material that will cause discoloration of aluminum finish.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Do not begin installation of the frames or doors until the area of work has been completely enclosed and the interior is protected from the elements.
- B. Maintain temperature and humidity in areas of installation within reasonable limits, as close as possible to final occupancy. If necessary, provide temperature control and ventilation to maintain required environmental conditions.

1.6 WARRANTY

- A. Warrant against defects in manufacturing of materials for a period of 2 years from date of substantial completion.
- B. Warrant framing finish against defects, including cracking, flaking, blistering, peeling and excessive fading, chalking and non-uniformity in color for a period of 5 years.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS AND PRODUCTS

- A. Provide products manufactured by:
 - 1. Wilson Partitions
 - 2. Kawneer Company, Inc., Series 8225TL IsoLock Window
 - 3. Architect Approved Equal.

2.2 MATERIALS AND ACCESSORIES

- A. Aluminum: Controlled alloy billets meeting requirements of ASTM B221, 6063 T5 alloy, to assure compliance with tight dimensional tolerances and maintain color uniformity.
- B. Door members: Extruded 6063-T5 aluminum alloy (ASTM B221-Alloy G.S. 10a T5).
- C. Screws, fastening devices, and internal components: Aluminum, stainless steel, or zinc plated steel in accordance with ASTM A-164. Shall be aluminum or steel, providing the steel is properly isolated from aluminum.

D. Glazing Gasket (compression-type design).

2.3 EXTRUDED ALUMINUM FRAMES

A. Snap-On Trim Profile: Provide frames with the following characteristics:

1. Rectilinear design.
2. Trim: 1".
3. 2 1/4" throat.
4. Accepts 1" Glass.

2.4 DOOR HARDWARE FOR ALUMINUM AND GLASS DOOR

A. Hardware furnished and installed by the door manufacturer, and include the following standard Hardware (as selected).

1. Weatherstripping: Hard-backed poly pile in door and/or frame.
2. Pivoting: Offset pivot.
3. Closers: Overhead concealed.
4. Latches/Strike: Dead-latch combination.
5. Latch Handle: Lever.
6. Cylinders: Mortise.
7. Push/Pulls: Standard.
8. Door Stop/Holder.

2.5 FABRICATION

- A. Pre-machine jambs and prepare for hardware, with concealed reinforcement plates, drilled and tapped as required, and fastened within the frame.
- B. Provide corner reinforcements and alignment clips for precise butt or mitered connections.
- C. Fabricate all components to allow secure installation without exposed fasteners.
- D. Manufacturer shall pre-cut and ship all frame materials knock-down.
- E. Stiles and rails of aluminum and glass door shall be tubular sections accurately joined, flush and hairline at corners with heavy concealed reinforcement brackets secured with machine bolts, with optional MIG weld. Exposed screws not permitted.
- F. Each door leaf equipped with an adjusting mechanism, located in the top rail near the lock stile.
- G. Prepare internal reinforcement for door hardware.

H. Custom hardware templates and physical hardware must be submitted prior to any fabrication.

2.6 FINISHES

- A. Factory finish extruded frame components so that any part exposed to view upon completion of installation will be uniform in finish and color.
- B. Finish all exposed areas of aluminum door and components as indicated.
- C. Fluorocarbon Coating: AAMA 2605.2.
 - 1. Resin: 70% PVDF Kynar 500/Hylar 5000.
 - 2. Substrate: cleaned and pretreated with chromium phosphate.
 - 3. Primer: Manufacturer's standard resin base compatible coating. Dry film thickness.
 - a. Extrusion: Minimum 0.20 mil.
 - 4. Color Coat: 70% PVDF, dry film thickness.
 - a. Extrusion: 1.0 mil.
 - 5. Color: As selected by Architect.
 - 6. Acceptable Coatings Manufacturers:
 - a. PPG Industries, Inc.
 - b. Valspar Corporation
 - c. BASF
 - d. Architect Approved Equal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine project conditions and verify that the work of this section may properly commence. Do not proceed with the installation until unsatisfactory conditions have been corrected.
- B. Verify that the wall thickness does not exceed manufacturer's recommended tolerances of specified frame throat size.

3.2 INSTALLATION

- A. Comply with frame manufacturer's printed installation instructions and approved shop drawings. Strictly adhere to maintaining specified wall thickness to insure dimension does not exceed frame throat size specified. Installation not to be attempted in areas where the wall thickness exceeds the tolerance of the specified throat size.
- B. Install frames plumb and square, securely anchored to substrates with fasteners recommended by frame manufacturer.
 - 1. Use concealed installation clips to assure that splices and connections are tightly butted and properly aligned.
 - 2. Secure clips to main structural extrusion components and not to snap-in or trim members.
 - 3. Do not use screws or other fasteners that will be exposed to view when installation is

complete.

3.3 FIELD QUALITY CONTROL

- A. Make all necessary final adjustments to attain normal operation of each door and its mechanical hardware.

3.4 ADJUSTING AND CLEANING

- A. Clean exposed frames promptly after installation, using cleaning methods recommended by frame manufacturer.
- B. Touch up marred areas so that touch-up is not visible from a distance of 4 feet. Remove and replace frames that cannot be satisfactorily adjusted.

3.5 PROTECTION

- A. Provide protection required to assure that frames will be without damage or deterioration upon substantial completion of the project.

PART 4 - MEASUREMENT AND PAYMENT

For furnishing and installing **ALUMINUM FRAMES**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

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ITEM NO. 65 ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Architectural Aluminum Storefront Systems, including perimeter trims, stools, accessories, shims and anchors, and perimeter framing.
2. Aluminum Entrances, door hardware, and components.

B. Related Sections:

1. "Glazing – Glass (Laminated)."

1.2 PERFORMANCE REQUIREMENTS

A. General Performance: Aluminum-framed systems shall withstand the effects of the following performance requirements without exceeding performance criteria or failure due to defective manufacture, fabrication, installation, or other defects in construction:

1. Movements of supporting structure indicated on Drawings including, but not limited to, story drift and deflection from uniformly distributed and concentrated live loads.
2. Dimensional tolerances of building frame and other adjacent construction.
3. Failure includes the following:
 - a. Deflection exceeding specified limits.
 - b. Thermal stresses transferring to building structure.
 - c. Framing members transferring stresses, including those caused by thermal and structural movements to glazing.
 - d. Noise or vibration created by wind and by thermal and structural movements.
 - e. Loosening or weakening of fasteners, attachments, and other components.
 - f. Failure of operating units.

B. Delegated Design: Design aluminum-framed systems, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

C. Wind Loads: Design for wind load as required by the New York City Construction Code, Wind Load 98 mph, Exposure C.

D. Deflection of Framing Members:

1. Deflection Normal to Wall Plane: Limited to edge of glass in a direction perpendicular to glass plane shall not exceed $L/175$ of the glass edge length for each individual glazing lite or an amount that restricts edge deflection of individual glazing lites to $3/4$ inch (19 mm), whichever is less.
 2. Deflection Parallel to Glazing Plane: Limited to amount not exceeding that which reduces glazing bite to less than 75 percent of design dimension and that which reduces edge clearance between framing members and glazing or other fixed components directly below them to less than $1/8$ inch (3.2 mm) and clearance between members and operable units directly below them to less than $1/16$ inch (1.5 mm).
- E. Structural-Test Performance: Provide aluminum-framed systems tested according to ASTM E 330 as follows:
1. When tested at 150 percent of positive and negative wind-load design pressures, systems, including anchorage, do not evidence material failures, structural distress, and permanent deformation of main framing members exceeding 0.2 percent of span.
 2. Test Durations: 10 seconds.
- F. Air Infiltration: Provide aluminum-framed systems with maximum air leakage through fixed glazing and framing areas of 0.06 cfm/sq. ft. (0.03 L/s per sq. m) fixed wall area when tested according to ASTM E 283 at a minimum static-air-pressure difference of 6.24 lbf/sq. ft. (300 Pa).
- G. Water Penetration under Static Pressure: Provide aluminum-framed systems that do not evidence water penetration through fixed glazing and framing areas when tested according to ASTM E 331 at a minimum static-air-pressure difference of 20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft. (300 Pa) as defined in AAMA 501.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For aluminum-framed systems. Include plans, elevations, sections, details, and attachments to other work.
 1. Include details of provisions for system expansion and contraction and for drainage of moisture in the system to the exterior.
- C. Samples: For each type of exposed finish required.
- D. Delegated-Design Submittal: For aluminum-framed systems indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- E. Product test reports.
- F. Field quality-control reports.
- G. Maintenance data.

- H. Warranties: Sample of special warranties.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Testing Agency Qualifications: Qualified according to ASTM E 699 for testing indicated.
- C. Engineering Responsibility: Prepare data for aluminum-framed systems, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in systems similar to those indicated for this Project.
- D. Product Options: Information on Drawings and in Specifications establishes requirements for systems' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.
- E. Accessible Entrances: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.
- F. Source Limitations for Aluminum-Framed Systems: Obtain from single source from single manufacturer.
- G. Preinstallation Conference: Conduct conference at Project site.

1.5 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of aluminum-framed systems that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Two years from date of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Ordering: Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.
- B. Packing, Shipping, handling, and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle storefront material and components to avoid damage. Protect storefront material against

damage from elements, construction activities, and other hazards before, during, and after storefront installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Basis-of-Design Product: Product design by Kawneer North America, Series: 1630 SS IR, Aluminum Entrances, Series: 190 Swing Doors. Subject to compliance with requirements, provide product indicated or comparable product by one of the following:
 - 1. Arcadia, Inc.
 - 2. EFCO Corp.
 - 3. Commissioner approved equal

2.2 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
 - 1. Sheet and Plate: ASTM B 209 (ASTM B 209M).
 - 2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221 (ASTM B 221M).
 - 3. Extruded Structural Pipe and Tubes: ASTM B 429.
 - 4. Structural Profiles: ASTM B 308/B 308M.
 - 5. Welding Rods and Bare Electrodes: AWS A5.10/A5.10M.
- B. Steel Reinforcement: Manufacturer's standard zinc-rich, corrosion-resistant primer, complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM and prepare surfaces according to applicable SSPC standard.
 - 1. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.
 - 2. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.
 - 3. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011M.

2.3 FRAMING SYSTEMS

- A. Framing Members: Manufacturer's standard extruded-aluminum framing members of thickness required and reinforced as required to support imposed loads.
 - 1. Construction: Nonthermal.
 - 2. Glazing System: Retained mechanically with gaskets on four sides.
 - 3. Glazing Plane: Center.

- B. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
 - 1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
 - 2. Reinforce members as required to receive fastener threads.
 - 3. Use exposed fasteners with countersunk Phillips screw heads, fabricated from stainless steel.
- D. Concealed Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials.
- E. Framing System Gaskets and Sealants: Manufacturer's standard, recommended by manufacturer for joint type.

2.4 GLAZING SYSTEMS

- A. Glazing: As specified in Section "Glazing – Glass (Laminated)."
- B. Glazing Gaskets: Manufacturer's standard compression types; replaceable, molded or extruded, of profile and hardness required to maintain watertight seal.
- C. Spacers and Setting Blocks: Manufacturer's standard elastomeric type.

2.5 ENTRANCE DOOR SYSTEMS

- A. Entrance Doors: Manufacturer's standard glazed entrance doors for manual-swing operation.
 - 1. Door Construction: 2-inch (50.8-mm) overall thickness, with minimum 0.125-inch- (3.2-mm-) thick, extruded-aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deeply penetrated and fillet welded or that incorporate concealed tie rods.
 - 2. Door Design: Narrow stile; 2-1/8-inch (54-mm) nominal width.
 - a. Accessible Doors: Smooth surfaced for width of door in area within 10 inches (255 mm) above floor or ground plane.
 - 3. Glazing Stops and Gaskets shall be either EPDM elastomeric extrusions or a thermoplastic elastomer.
 - 4. Provide adjustable glass jacks to help center the glass in the door opening.

2.6 ENTRANCE DOOR HARDWARE

- A. General: Provide entrance door hardware for each entrance door to comply with requirements in this Section.
 - 1. Entrance Door Hardware Sets: Provide manufacturers' standard continuous hinge entrance hardware products.
 - 2. Opening-Force Requirements:
 - a. Egress Doors: Not more than 15 lbf (67 N) to release the latch and not more than 30 lbf (133 N) to set the door in motion.
- B. Opening-Force Requirements:
 - 1. Delayed-Egress Locks: Lock releases within 15 seconds after applying a force of not more than 15 lbf (67 N) for not more than 3 seconds.
 - 2. Latches and Exit Devices: Not more than 15 lbf (67 N) required to release latch.
- C. Weather Stripping:
 - 1. Meeting stiles on pairs of doors shall be equipped with an adjustable astragal utilizing wool pile with polymeric fin.
 - 2. The door weathering on a single acting center pivot door and frame (pairs) shall be a thermoplastic elastomer weathering on a tubular shape with a semi-rigid polymeric backing.
- D. Sill Sweep Strips: EPDM blade gasket sweep strip in an aluminum extrusion applied to the interior exposed surface of the bottom rail with concealed fasteners.
- E. Threshold: Extruded aluminum, one piece per door opening, with ribbed surface.
- F. Center Pivot: Bottom.
- G. Push/Pull.
- H. Closer: Concealed Overhead/Single Acting.
- I. Security Lock/Dead Locks.
- J. Cylinders/Thumbturn.

2.7 ACCESSORY MATERIALS

- A. Bituminous Paint: Cold-applied, asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos; formulated for 30-mil (0.762-mm) thickness per coat.

- B. Perimeter Anchors: Aluminum. When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.

2.8 FABRICATION

- A. Form or extrude aluminum shapes before finishing.
- B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- C. Framing Members, General: Fabricate components that, when assembled, have the following characteristics:
 - 1. Profiles that are sharp, straight, and free of defects or deformations.
 - 2. Accurately fitted joints with ends coped or mitered.
 - 3. Means to drain water passing joints, condensation within framing members, and moisture migrating within the system to exterior.
 - 4. Physical and thermal isolation of glazing from framing members.
 - 5. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
 - 6. Provisions for field replacement of glazing from exterior.
 - 7. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
- D. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.
- E. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and for installing entrance door hardware.
- F. Entrance Doors: Reinforce doors as required for installing entrance door hardware.
- G. Entrance Door Hardware Installation: Factory install entrance door hardware to the greatest extent possible. Cut, drill, and tap for factory-installed entrance door hardware before applying finishes.
- H. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.9 ALUMINUM FINISHES

- A. Baked-Enamel or Powder-Coat Finish: AAMA 2604 except with a minimum dry film thickness of 1.5 mils (0.04 mm).
 - 1. Color and Gloss: As selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General:

1. Comply with manufacturer's written instructions.
2. Do not install damaged components.
3. Fit joints to produce hairline joints free of burrs and distortion.
4. Rigidly secure nonmovement joints.
5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration.
6. Seal joints watertight unless otherwise indicated.

B. Metal Protection:

1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or applying sealant or tape, or by installing nonconductive spacers as recommended by manufacturer for this purpose.
2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

C. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.

D. Set continuous sill members and flashing in full sealant bed as specified in Section "Joint Sealants" to produce weathertight installation.

E. Install components plumb and true in alignment with established lines and grades, and without warp or rack.

F. Install glazing as specified in Section "Glazing - Glass."

G. Entrance Doors: Install doors to produce smooth operation and tight fit at contact points.

1. Exterior Doors: Install to produce weathertight enclosure and tight fit at weather stripping.

3.2 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified independent testing and inspecting agency to perform field tests and inspections.

B. Testing Services: Testing and inspecting of representative areas to determine compliance of installed systems with specified requirements shall take place as follows. Do not proceed with installation of the next area until test results for previously completed areas show compliance with requirements.

1. Water Infiltration Tests: Conduct tests in accordance with ASTM E 1105. No uncontrolled water leakage is permitted when tested at a static test pressure of two-thirds the specified water penetration pressure but not less than 6.24 psf (300 Pa).
 2. Air Infiltration Tests: Conduct tests in accordance with ASTM E 783. Allowable air infiltration shall not exceed 1.5 times the amount indicated in the performance requirements or 0.09 cfm/sq. ft.
- C. Repair or remove work if test results and inspections indicate that it does not comply with specified requirements.
- D. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- E. Aluminum-framed assemblies will be considered defective if they do not pass tests and inspections.
- F. Prepare test and inspection reports.

3.3 PROTECTION AND CLEANING

- A. Protection: Protect installed product's finish surfaces from damage during construction. Protect aluminum storefront system from damage from grinding and polishing compounds, plaster, lime, acid, cement, or other harmful contaminants.
- B. Cleaning: Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose of debris.

PART 4 - MEASUREMENT AND PAYMENT

For furnishing and installing **ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

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ITEM NO. 66 ALUMINUM WINDOWS – FIXED

ITEM NO. 67 ALUMINUM WINDOWS - CASEMENT

PART 1 – GENERAL

1.1 SUMMARY

A. This section includes the following:

1. Fixed Windows.
2. Outswing Casement Windows.
2. Commercial Grade (C rating).

B. Related Sections:

1. Section “Joint Sealants” for joint sealants installed as part of aluminum window systems.
2. Section “Plastic Glazing”.

1.2 PERFORMANCE REQUIREMENTS

A. General: Commercial Grade Architectural Aluminum Windows, including glazing at window manufacturer’s factory, metal panels, perimeter trims, sills and stools, window installation hardware and accessories, shims and anchors, and perimeter sealing of window units.

B. Test Units:

1. All test unit sizes and configurations shall conform to the minimum size in accordance with AAMA 101/I.S.2-97 and NAFS 02 for the designation F-C60 and C-C60.
2. Units submitted for laboratory testing shall be units of the manufacturer’s standard construction, glazed and assembled in accordance with the manufacturer’s specifications and AAMA 101/I.S.2-97 and NAFS 02.

C. Fixed and Casement Window Performance Requirements:

1. Wind Loads: Design for wind load as required by the New York City Construction Code, Wind Load 98 mph, Exposure C.
2. Air Infiltration: The test specimen shall be tested in accordance with ASTM E283 at a minimum frame size of 60”x 60” for fixed windows and a minimum vent size of 32” x 60” for casement windows. Air infiltration rate shall not exceed 0.30 cfm/sf at a static air pressure differential of 6.24 psf.
3. Water Resistance: The test specimen shall be tested in accordance with ASTM E547 and ASTM E331 at a minimum frame size of 60” x 60” for fixed windows and a minimum vent size of 32” x 60” for casement windows. There shall be no leakage as defined in the test method at a static air pressure differential of 12 psf.
4. Uniform Load Deflection: A minimum static air pressure difference of 60 psf shall be applied in the positive and negative direction in accordance with ASTM E330. The unit shall be evaluated after each load.

5. Uniform Load Structural Test: A minimum static air pressure difference of 90 psf shall be applied in the positive and negative direction in accordance with ASTM E330. The unit shall be evaluated after each load.
6. Component Testing: Window components shall be tested in accordance with procedures described in AAMA 101/I.S.2-97.
7. Forced Entry Resistance: All windows shall conform to AAMA 1302.5.

1.3 SUBMITTALS

- A. Product Data: For each product specified, include details of construction relative to materials, dimensions of individual components, profiles, and finishes.
- B. Shop Drawings: Show details of fabrication and installation, including plans, elevations, sections, details of components, provisions for expansion and contraction, glazing details, and attachments to other work.
- C. Samples: Provide samples of each type of product section and exposed finish required in manufacturer's standard sizes.
- D. Test Reports: Submit certified test reports showing compliance with specified performance characteristics.

1.4 QUALITY ASSURANCE

- A. Qualifications:
 1. Installer Qualifications: Installer experienced (as determined by contractor) to perform work of this section who has specialized in the installation of work similar to that required for this project and who is acceptable to product manufacturer.
 2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction, approving acceptable installer and approving application method.
- B. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions, and manufacturer's warranty requirements.

1.5 DELIVERY, STORAGE, HANDLING

- A. Ordering: Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.
- B. Packing, Shipping, Handling, and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle materials and components to avoid damage. Protect materials against damage from elements, construction activities, and other hazards before, during and after installation.

1.6 WARRANTY

- A. Manufacturer's Product Warranty: Submit, for owner's acceptance, manufacturer's standard warranty.
 - 1. Warranty Period: Two (2) years from Date of Substantial Completion of the project provided however that the Limited Warranty shall begin in no event later than six months from date of shipment.
 - 2. Glazing: See Section "Plastic Glazing".

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design Product: Product design by Kawneer Company, Inc., Series 8225TL IsoLock Window. Subject to compliance with requirements, provide product indicated or comparable product by one of the following:
 - 1. Arcadia, Inc.
 - 2. EFCO Corp.
 - 3. Commissioner approved equal

2.2 MATERIALS

- A. Aluminum (Windows and Components): Alloy and temper recommended by manufacturer for type of use and finish indicated, complying with the requirements of standards indicated below.
 - 1. Extruded Material Standard: ASTM B 221, 6063-T6 alloy and temper.
- B. Steel Reinforcement: Complying with ASTM A 36/ A 36M for structural shapes, plates and bars; ASTM A 611 for cold-rolled sheet and strip or ASTM A 570/ A 570M for hot-rolled sheet and strip.
- C. Weather-stripping: Ventilators shall be double weather-stripped with a resilient foam core clad with UV-resistant elastomer.
- D. Glazing Gaskets: Standard glazing gaskets shall be a dry glazed elastomer in accordance with ASTM C509-91.
- E. Glazing Sealant: Glazing material shall be a 100 percent silicone, neutral-cure sealant in accordance with AAMA 805.2-94, Group A.
- F. Fasteners: Where exposed, shall be 300 Series Stainless Steel.

2.3 HARDWARE

- A. Typical Hardware for Casement Windows:
 - 1. Locking
 - a. Cast White Bronze Cam Locks (Standard).
 - b. Access Control Locks.

- c. Hook Lock Handle
- d. Roto-Operator
- e. Multipoint Lock
- 2. Hinging
 - a. 4-Bar Hinges (Standard)
 - b. Butt Hinges
 - c. Friction Adjusters
 - d. Limit Stop
- 3. Other
 - a. Pole Ring
 - b. Pole
- B. Optional Egress Hardware Set:
 - 1. Locking:
 - a. Multipoint Lock
 - 2. Hinging:
 - a. Butt Hinges
 - b. Friction Adjusters

2.4 ACCESSORIES

- A. Spacers, Setting Blocks, Gaskets, and Bond Breakers: Manufacturer's standard permanent, nonmigrating types in hardness recommended by manufacturer, compatible with sealants, and suitable for system performance requirements.
- B. Framing system gaskets, sealants, and joint fillers as recommended by manufacturer for joint type.
- C. Sealants and joint fillers for joints at perimeter of window system as specified in Section "Joint Sealants."
- D. Perimeter Anchors: When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.
- E. Glazing: Factory glazing as specified in Section "Plastic Glazing".
- F. Optional Exterior Panning and Interior Trims: Extruded aluminum, 6063-T6 alloy and temper, extruded to profiles and details indicated. Seal exterior joints with manufacturer's standard sealant to assure water-tight joints.
- G. Mullions and Cover Plates: Shall be extruded aluminum of 6063-T6 alloy and temper of profile and dimensions indicated on drawings. Mullions shall provide structural properties to resist wind pressure required by performance criteria and standards.

2.5 RELATED MATERIALS

- A. Sealants: Refer to Section "Joint Sealants".
- B. Glazing: Glazing thickness and type shall be in accordance with glazing manufacturer's recommendations for prescribed design pressure. Refer to Section "Plastic Glazing".

1. Factory glazing (if required) shall be in accordance with manufacturer's standard requirements.
 2. Glazing materials shall be compatible with aluminum and those sealants and sealing materials used in composite structure which have direct contact with the gasket.
- D. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements, except containing no asbestos, formulated for 30-mil (0.762-mm) thickness per coat.

2.6 COMPONENTS

- A. The frame and ventilator depth shall be not less than 2 1/4".
- B. All frame and ventilator members shall have minimum wall thickness of 0.070" and shall provide the structural strength sufficient to meet the specified performance requirements.
- C. Glazing beads shall be extruded aluminum and shall be a minimum thickness of 0.050".
- D. Reference to tolerances for wall thickness and other cross-sectional dimensions of window members are nominal and in compliance with AA Aluminum Standards and Data.
- E. All references to dimensions for wall thicknesses and other cross-sectional dimensions of window members are nominal and in compliance with ANSI H35.2-1990.
- F. All ventilators shall be tubular.

2.7 FABRICATION

- A. General: Fabricate components per manufacturer's installation instructions. When assembled, components will have accurately fitted joints to produce hairline joints.
 1. Window Frame Joinery: Screw-Spline.
 2. Window Vent Joinery: Mitered, Clip, Epoxy and Stake (CES).
 2. Factory sealed frame and vent corner Joints.

2.7 FINISHES

- A. All finishes shall be factory applied as recommended by the window manufacturer.
- B. Factory Finishes:
 1. Backed-Enamel or Powder-Coat Finish: AAMA 2604 except with a minimum dry film thickness of 1.5 mils (0.04 mm).
 - a. Color and Gloss: As selected by Architect from manufacturer's full range.

2.8 SOURCE QUALITY CONTROL

- A. Single Source Quality: Provide aluminum windows specified herein from a single source.

1. Building Enclosure System: When aluminum windows are part of a building enclosure system, including entrances, entrance hardware, curtain walls, storefront systems, sliding glass doors, slope glazing, and related products, provide building enclosure system products from a single source manufacturer.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Site Verification of Conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions. Verify openings are sized to receive window system and sill plate is level in accordance with manufacturer's acceptable tolerances. Do not proceed with installation until unsatisfactory conditions have been corrected.
 1. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements, fabrication schedule with construction progress to avoid construction delays.

3.2 INSTALLATION

- A. General: Install window units plumb, level, and true to line, without warp or rack of frames or sash with manufacturer's prescribed tolerances. Provide support and anchor in place.
 1. Dissimilar Materials: Provide separation of aluminum materials and other corrodible surfaces from sources of corrosion or electrolytic action contact points by complying with AAMA 101, Appendix, titled "Dissimilar Materials."
 2. Weather Tight Construction: Install sill members and other members in a bed of sealant or with joint filler or gaskets, to provide weather tight construction. Coordinate installation with wall flashings and other components of construction.
 - a. Refer to Section "Joint Sealants" for installation requirements.
- B. Related Products Installation Requirements:
 1. Sealants (Perimeter): Refer to Section "Joint Sealants".
 2. Refer to Section "Plastic Glazing".

3.3 FIELD QUALITY CONTROL

- A. Field Tests: Architect shall select window units to be tested as soon as a representative portion of the project has been installed, glazed, perimeter caulked and cured. Conduct tests for air infiltration and water penetration with manufacturer's representative present. Tests not meeting specified performance requirements and units having deficiencies shall be corrected as part of the contract amount.
 1. Testing: Testing shall be performed by a qualified independent testing agency. Testing Standard shall be per AAMA 502 including reference to ASTM E 783 for Air Infiltration Test and ASTM E 1105 for Water Penetration Test.

- a. Air Infiltration Tests: Conduct in accordance with ASTM E 783. Tests shall be conducted at a minimum uniform static test pressure of 1.57 psf or a specified, but not to exceed 6.24 psf. The maximum allowable rates of air leakage for field testing shall not exceed 1.5 times the project specifications.
 - b. Water Penetration Tests: Water penetration tests shall be conducted at a static test pressure of 8 psf for Architectural (AW), 6.00 psf for Heavy Commercial (HC) and 3.00 psf for Commercial (C).
- B. Manufacturer's Field Services: Upon Owner's request, provide manufacturer's field service consisting of product use recommendations and periodic site visit for inspection of product installation in accordance with manufacturer's instructions.

3.4 ADJUSTING

- A. Adjust operating window components to provide a tight fit at contact points and at weather-stripping for smooth operation and a weather tight closure.

3.5 CLEANING

- A. Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose of debris.

3.6 PROTECTION

- A. Protect installed product's finish surfaces from damage during construction. Protect aluminum windows from damage from grinding and polishing compounds, plaster, lime, acid, cement, or other harmful contaminants. Remove and replace damaged aluminum windows at no extra cost.
- B. Protect adjacent work areas and finish surfaces from damage during product installation.

PART 4 - MEASUREMENT AND PAYMENT

ITEM NO. 66

For furnishing and installing **ALUMINUM WINDOWS - FIXED**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

ITEM NO. 67

For furnishing and installing **ALUMINUM WINDOWS - CASEMENT**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

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ITEM NO. 68

DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.2 SUMMARY

- A. This Section includes commercial door hardware for the following:

1. Swinging doors.
2. Sliding door
3. Other doors to the extent indicated.

- B. Door hardware includes, but is not necessarily limited to, the following:

1. Mechanical door hardware.
2. Cylinders specified for doors in other sections.

- C. Related Sections:

1. Item No. 63 - Hollow Metal Doors and Frames
2. Item No. 69 - Glazing
3. Item No. 74 - Painting

- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
2. ANSII/SDI A250.13- Testing and Rating of Severe Windstorm Resistant Components for Swing Door Assemblies.
3. ASTM E1886- Test Method for Performance of Exterior Windows, Curtin Walls, Doors and Shutters Impacted by Missiles and Exposed to Cyclic Pressure Differentials.
4. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure difference.
5. ASTM E1996- Standard specification for performance of exterior windows, curtain walls, doors and storm shutters impacted by Windborne Debris in Hurricanes.
6. FEMA 361 2008- Design and Construction Guidance for Community Safe Rooms.
7. ICC 500- ICC/NSSA Standard for the Design and Construction of Storm Shelters.
8. ICC/IBC- International Building Code.
9. NFPA 70- National Electrical Code.
10. NFPA 80- Fire Doors and Windows.
11. NFPA 101 -Life Safety Code.
12. NFPA 105 - Installation of Smoke Door Assemblies.
13. TAS-201-94- Impact Test Procedures.
14. TAS-202-94- Criteria for Testing Impact and Non-Impact Resistant Building Envelope Components using Uniform Static Air Pressure.

15. TAS-203-94- Criteria for Testing Products Subject to Cyclic Wind Pressure Loading.
16. New York City Building Code

E. Standards: All hardware specified herein shall comply with the following industry standards:

1. ANSI/BHMA Certified Product Standards - A156 Series
2. UL10C- Positive Pressure Fire Tests of Door Assemblies

1.3 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."

2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.

3. Content: Include the following information:

- a. Type, style, function, size, label, hand, and finish of each door hardware item.
- b. Manufacturer of each item.
- c. Fastenings and other pertinent information.
- d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
- e. Explanation of abbreviations, symbols, and codes contained in schedule.
- f. Mounting locations for door hardware.
- g. Door and frame sizes and materials.

4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Keying Schedule: Prepared under the supervision of the Owner, separate schedule detailing final keying instructions for locksets and cylinders in writing. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner to approve submitted keying schedule prior to the ordering of permanent cylinders.

- D. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Submittals. The manual to include the name, address, and contact information of the manufacturers providing the hardware and their nearest service representatives. The final copies delivered after completion of the installation test to include "as built" modifications made during installation, checkout, and acceptance.
- E. Warranties and Maintenance: Special warranties and maintenance agreements specified in this Section.

1.4 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum three (3) years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
- B. Installer Qualifications: Installers, trained by the primary product manufacturers, with a minimum three (3) years documented experience installing both standard and electrified builders hardware 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.
- C. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum three (3) years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor in good standing by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Commissioner, and Owner concerning both standard and electromechanical door hardware and keying.
 - 1. Scheduling Responsibility: Preparation of door hardware and keying schedules.
- D. Regulatory Requirements: Comply with NFPA 70, NFPA 80, NFPA 101 and ANSI A117.1 requirements and guidelines as directed in the model building code including, but not limited to, the following:
 - 1. Where indicated to comply with accessibility requirements, comply with Americans with Disabilities Act (ADA), "Accessibility Guidelines for Buildings and Facilities (ADAAG)," ANSI A117.1 as follows:
 - a. Handles, Pulls, Latches, Locks, and other Operating Devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.
 - b. Door Closers: Comply with the following maximum opening-force requirements indicated:
 - 1) Interior Hinged Doors: 5 lbf applied perpendicular to door.
 - 2) Fire Doors: Minimum opening force allowable by authorities having jurisdiction.

- c. Thresholds: Not more than 1/2 inch high. Bevel raised thresholds with a slope of not more than 1:2.
- 2. NFP A 101: Comply with the following for means of egress doors:
 - a. Latches, Locks, and Exit Devices: Not more than 15 lbf to release the latch. Locks shall not require the use of a key, tool, or special knowledge for operation.
 - b. Thresholds: Not more than 1/2 inch high.
- E. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door and Frame Preparation: Related Division 08 Sections (Steel, Aluminum and Wood) doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner 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. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
 - 1. Structural failures including excessive deflection, cracking, or breakage.
 - 2. Faulty operation of the hardware.
 - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

- C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.
- D. Special Warranty Periods:
 - 1. Ten years for mortise locks and latches.
 - 2. Five years for exit hardware.
 - 3. Ten years for manual door closers.

1.8 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.
- B. Provide parts and supplies as used in the manufacture and installation of original products

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.
 - 1. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
 - a. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.
 - 2. Products furnished, but not installed, under this Section include the following. Coordinating, purchasing, delivering, and scheduling remain requirements of this Section.
 - a. Permanent cylinders, cores, and keys to be installed by Owner.
- B. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the Commissioner, owner, and their designated consultants.

2.2 HANGING DEVICES

- A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles as specified in the Door Hardware Sets.

1. Quantity: Provide the following hinge quantity, unless otherwise indicated:
 - a. Three Hinges: For doors with heights 61 to 90 inches.
2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
 - a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
 - b. Sizes from 3' 1" to 4' 0": 5" standard or heavy weight as specified.
3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
 - a. Exterior Doors: Heavy weight, non-ferrous, ball bearing hinges unless Hardware Sets indicate standard weight.
 - b. Interior Doors: Standard weight, steel, ball bearing hinges unless Hardware Sets indicate heavy weight.
4. Hinge Options: Comply with the following where indicated in the Hardware Sets or on Drawings:
 - a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the following applications:
 - 1) Out-swinging exterior doors.
 - 2) Out-swinging access controlled doors.
5. Acceptable Manufacturers:
 - a. Bommer Industries (BO).
 - b. Hager Companies (HA).
 - c. McKinney Products (MK)
 - d. Approved equal.

2.3 DOOR OPERATING TRIM

- A. Door Push Plates and Pulls: ANS/BHMA A156.6 certified door pushes and pulls of type and design specified below or in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.
 1. Push/Pull Plates: Minimum .050 inch thick, 4-inches wide by 16-inches high, with square corners and beveled edges, secured with exposed screws unless otherwise indicated.
 2. Straight Pull Design: Minimum 1-inch round diameter stainless steel bar or tube stock pulls with 2 1/2-inch projection from face of door unless otherwise indicated.
 3. Offset Pull Design: Minimum 1-inch round diameter stainless steel bar or tube stock pulls with 2 1/2-inch projection and offset of 90 degrees unless otherwise indicated.
 4. Push Bars: Minimum 1-inch round diameter horizontal push bars with minimum clearance of 2 1/2-inch projection from face of door unless otherwise indicated.
 5. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
 - a. Acceptable Manufacturers:
 - 1) Hiawatha, Inc. (HI).
 - 2) Rockwood Manufacturing (RO).

- 3) Trimco (TC).
- 4) Approved equal

2.4 CYLINDERS AND KEYING

- A. General: Cylinder manufacturer to have minimum (3) years experience designing secured master key systems and have on record a published security keying system policy.
- B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.
- C. Cylinders: Original manufacturer cylinders complying with the following:
 1. Mortise Type: Threaded cylinders with rings and straight- or clover-type cam.
 2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
 3. Bored-Lock Type: Cylinders with tailpieces to suit locks.
 4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
- D. Permanent Cores: Manufacturer's standard; finish face to match lockset; complying with the following:
 1. Interchangeable Cores: Core insert, removable by use of a special key; usable with other manufacturers' cylinders.
 2. Removable Cores: Core insert, removable by use of a special key, and for use with only the core manufacturer's cylinder and door hardware. Provide removable core (small or large format) as specified in Hardware Sets.
- E. Patented Cylinders: ANSIBHMA A156.5, Grade 1, certified cylinders employing a utility patented and restricted keyway requiring the use of patented controlled keys. Provide bump resistant, fixed core cylinders as standard with solid recessed cylinder collars. Cylinders are to be factory keyed where permanent keying records will be established and maintained.
 1. Provide a 6 pin multi-level master key system comprised of patented controlled keys and security and high security cylinders operated by one (1) key of the highest level. Geographical exclusivity to be provided for all security and high security cylinders and UIA37 certification where specified.
 - a. DG 1 Cylinders: Provide utility patented controlled keyway cylinders that are furnished with patented keys available only from authorized distribution.
 - b. DG2 Cylinders: Provide utility patented controlled keyway and side bar locking incorporating unique angled bottom pins for geographical exclusivity. Cylinders constructed to provide protection against bumping and picking.
 - c. DG3 Cylinders: Provide utility patented controlled keyway and side bar locking incorporating unique angled bottom pins for geographical exclusivity. Cylinders constructed to provide protection against bumping, picking, and drilling.
 2. Acceptable Manufacturer:
 - a. Sargent Manufacturing (SA) - Degree Series.
 - b. Approved equal

- F. Keying System: Each type of lock and cylinders to be factory keyed. Conduct specified "Keying Conference" to define and document keying system instructions and requirements. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner. Incorporate decisions made in keying conference, and as follows:
1. Master Key System: Cylinders are operated by a change key and a master key.
 2. Keyed Alike: Key all cylinders to same change key.
- G. Key Quantity: Provide the following minimum number of keys:
1. Top Master Key: Two (2)
 2. Change Keys per Cylinder: Two (2)
- H. Construction Keying: Provide construction master keyed cylinders or temporary keyed construction cores where specified. Provide construction master keys in quantity as required by project Contractor. Replace construction cores with permanent cores. Furnish permanent cores for installation as directed under specified "Keying Conference".
- I. Key Registration List: Provide keying transcript list to Owner's representative in the proper format for importing into key control software.

2.5 MECHANICAL LOCKS AND LATCHING DEVICES

- A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 certified mortise locksets furnished in the functions as specified in the Hardware Sets. Locksets to be manufactured with a corrosion resistant, stamped 12 gauge minimum formed steel case and be field-reversible for handing without disassembly of the lock body. Lockset trim (including knobs, levers, escutcheons, roses) to be the product of a single manufacturer. Furnish with standard 2 3/4" backset, 3/4" throw anti-friction stainless steel latchbolt, and a full 1" throw stainless steel bolt for deadbolt functions.
1. Mortise locks to be certified Security Grade 1 and include vandal resistant heavy gauge escutcheon or sectional type trim. .
 2. Provide mortise lock bodies functionally compatible with a rose~ less lever trim option.
 3. Acceptable Manufacturers:
 - a. Corbin Russwin Hardware (RU) - ML2000 Series.
 - b. Sargent Manufacturing (SA) - (R)8200 Series.
 - c. Yale Locks and Hardware (Y A) - 8800FL Series.
 - d. Approved equal
- B. Lock Trim Design: As specified in Hardware Sets.

2.6 LOCK AND LATCH STRIKES

- A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.

B. Standards: Comply with the following:

1. Strikes for Mortise Locks and Latches: BHMA A156.13.
2. Strikes for Bored Locks and Latches: BHMA A156.2.
3. Strikes for Auxiliary Deadlocks: BHMA A156.5.
4. Dustproof Strikes: BHMA A156.16.

2.7 CONVENTIONAL EXIT DEVICES

A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:

1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
2. Provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
3. Flush End Caps: Provide heavy weight impact resistant flush end caps made of architectural metal in the same finish as the devices as in the Hardware Sets. Plastic end caps will not be acceptable.
4. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty trim with cold forged escutcheons, beveled edges, and four threaded studs for thru-bolts.
 - a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets. Provided free-wheeling type trim where indicated.
 - b. Where function of exit device requires a cylinder, provide an interchangeable core type keyed cylinder (Rim or Mortise) as specified in Hardware Sets.
5. Vertical Rod Exit Devices: Provide and install interior surface and concealed vertical rod exit devices as Less Bottom Rod (LBR) unless otherwise indicated.
6. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
7. Rail Sizing: Provide exit device rails factory sized for-proper door width application.
8. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.

- B. Conventional Push Rail Exit Devices (Heavy Duty): ANSIBHMA A156.3, Grade 1 certified panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Mounting rails to be formed from smooth stainless steel, brass or bronze architectural materials no less than 0.072" thick, with push rails a minimum of 0.062" thickness. Painted or aluminum metal rails are not acceptable. Exit device latch to be investment cast stainless steel, pullman type, with deadlock feature.

1. Acceptable Manufacturers:
 - a. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.
 - b. Sargent Manufacturing (SA) - 80 Series.
 - c. Yale Locks and Hardware (Y A) - 7000 Series.
 - d. Approved equal

2.8 DOOR CLOSERS

- A. All door closers specified herein shall meet or exceed the following criteria:

1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.
2. Standards: Closers to comply with UL-10C and UBC 7-2 for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/ A117.1 provisions for door opening force and delayed action closing.
4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
 - a. Where closers are indicated to have mechanical dead-stop, provide heavy duty arms and brackets with an integral positive stop.
 - b. Where closers are indicated to have mechanical hold open, provide heavy duty units with an additional built-in mechanical holder assembly designed to hold open against normal wind and traffic conditions. Holder to be manually selectable to on-off position.
 - c. Where closers are indicated to have a cushion-type stop, provide heavy duty arms and brackets with spring stop mechanism to cushion door when opened to maximum degree.
5. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates, and through-bolt or security type fasteners as specified in the door Hardware Sets.

6. Hurricane and Tornado Resistance Compliance: Door closers to be U.L. listed for windstorm components where applicable. Provide the appropriate hurricane resistant products that have been independent third party tested, certified, and labeled to meet state and local windstorm building codes applicable to project.
- B. Door Closers, Surface Mounted (Heavy Duty): ANSVBHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units and high impact, non-corrosive plastic covers standard.
1. Acceptable Manufacturers:
 - a. Corbin Russwin Hardware (RU) - DC8000 Series.
 - b. Sargent Manufacturing (SA)- 351 Series.
 - c. Norton Door Controls (NO) - 7500 Series.
 - d. Yale Locks and Hardware (Y A) - 4400 Series.
 - e. Approved equal

2.9 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
3. Metal Protection Plates: ANSIIBHMA A156.6 certified metal protection plates (kick, armor, or mop), beveled on four edges (B4E), fabricated from the following.
 - a. Stainless Steel: 050-inch thick, with countersunk screw holes (CSK).
4. Fasteners: Provide manufacturer's designated fastener type as specified in. the Hardware Sets.
5. Acceptable Manufacturers:
 - a. Hiawatha, Inc. (HI).
 - b. Rockwood Manufacturing (RO).
 - c. Trimco (TC).
 - d. Approved equal

2.10 DOOR STOPS

- A. General: Door stops to be of type and design as specified below or in the Hardware Sets.

B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers: Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. When floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Acceptable Manufacturers:
 - a. Hiawatha, Inc. (HI).
 - b. Rockwood Manufacturing (RO).
 - c. Trimco (TC).
 - d. Sargent Manufacturing (SA).
 - e. Approved equal

2.11 ARCHITECTURAL SEALS.

A. General: Thresholds, weather stripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weather strip gasketing on exterior or interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

- C. Acceptable Manufacturers:
1. Pemko Manufacturing (PE).
 2. Reese Enterprises, Inc. (RS).
 3. Zero International (ZE).
 4. Approved equal

2.12 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.13 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.

C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Notify Commissioner of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

- A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.
- B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

- A. Install each item of mechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
 - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
 - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 - 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
 - 3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
 - 4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
- C. Install door hardware to comply with manufacturer's published templates and 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 work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved
- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

- E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

- A. Field Inspection: Supplier will perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating and adjusted.

3.5 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.

3.6 CLEANING AND PROTECTION

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. and provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

- A. Instruct Commissioner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SCHEDULE

- A. The hardware sets represent the design intent and direction of the owner and Commissioner. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the Commissioner with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
- B. Manufacturer's Abbreviations:
 - HE-HES
 - MK- McKinney
 - NO-Norton
 - PE-Pemko
 - RO - Rockwood

SA- Sargent

C. Finishes: As selected by Commissioner

Set 1 – Single Exterior Out-swing

Doors 13, 14

	Hinges	As required	MK
1	Exit Device	15 DGI 8888	SA
1	Closer	UNI-7500	NO
1	Kick Plate	Size as required	RO
1	Mop Plate	Size as required	RO
1	Set Weatherstrip	As required	PE
1	Door Sweep	As required	PE
1	Threshold	ADA compliant	PE

Set 2 – Interior Toilet

Door 4

	Hinges	As required	MK
1	Privacy/Bathroom Lock	65 – 7 line	SA
1	Closer	UNI -7500	NO
1	Kick Plate	Size as required	RO
1	Mop Plate	K1050 10" x 1" LDW x 4BE	RO
1	Door Stop	As required	RO
3	Silencers	608	RO

Set 3 –Interior Storage/Utility Doors

Doors 6, 7, 10

	Hinges	As required	MK
1	Classroom	37 – 7 line	SA
1	Closer	UNI-7500	NO
1	Kick Plate	Size as required	RO
1	Mop Plate	Size as required	RO
1	Threshold	ADA Compliant	PE
1	Set Weatherstrip	As required	PE
1	Door Sweep	As required	PE
1	Door Stops	As required	RO
3	Silencers	608	RO

Set 4 –Interior Storage/UtilityDoors

Doors 9,12

	Hinges	As required	MK
1	Classroom	37 – 7 line	SA
1	Closer	UNI-7500	NO
1	Kick Plate	Size as required	RO
1	Threshold	ADA Compliant	PE

1	Door Stops	As required	RO
3	Silencers	608	RO

Set 5 – Interior Janitor’s Closet

Door 5

	Hinges	As required	MK
1	Classroom	37 – 7 line	SA
1	Closer	UNI-7500	NO
1	Kick Plate	Size as required	RO
1	Threshold	ADA Compliant	PE
1	Door Stops	As required	RO
3	Silencers	608	RO

Set 6 – Interior Passage Door

Door 8

	Hinges	As required	MK
1	Passage	15 – 7 line	SA
1	Closer	UNI -7500	NO
1	Kick Plate	Size as required	RO
1	Mop Plate	Size as required	RO
1	Door Stop	As required	RO
1	Set Weatherstrip	As required	PE
1	Door Sweep	As required	PE
3	Silencers	608	RO

Set 7 – Interior Office Door

Doors 11

	Hinges	As required	MK
1	Office	05 – 7 line	SA
1	Closer	7500	NO
1	Kick Plate	Size as required	RO
1	Mop Plate	Size as required	RO
1	Door Stop	As required	RO
3	Silencers	608	RO

Set 8 – Interior Sliding Door

Door 18

2	Mini Barn Door Rollers	Flat track #3000 - black	Barn Door Hardware
2	Track and Standoffs 8'	Flat track #3008 - black	Barn Door Hardware
1	Acorn Cap Nuts & Carriage	Flat track #3020 - black	Barn Door Hardware
set	Bolts		
2	Door Pull Handle	Flat track # 3009 - black	Barn Door Hardware
1	Fin Guide	Flat track # 3064 - black	Barn Door Hardware
1	Track Stop	Flat track # 3030 – black	Barn Door Hardware

pr.			
1	Hex Lag Bolts	Flat track # 3018 - black	Barn Door Hardware
set			
2	Safety Brackets	Flat track # 3011 - black	Barn Door Hardware

PART 4 - MEASUREMENT AND PAYMENT

For furnishing and installing **DOOR HARDWARE**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

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ITEM NO. 69 GLAZING - GLASS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:
1. Aluminum-framed entrance and storefront.
 2. Aluminum window frames for interior use for observation room and office windows.
 3. Aluminum and glass door for interior use.
 4. Aluminum framed clerestory windows

1.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design glass, including comprehensive engineering analysis according to ASTM E 1300 and NYC Construction Codes by a qualified professional engineer, using the following design criteria:
1. Design Wind Pressures: As indicated in Section 2.1.B.
 2. Vertical Glazing: For glass surfaces sloped 15 degrees or less from vertical, design glass to resist design wind pressure based on glass type factors for short-duration load.

1.3 PRECONSTRUCTION TESTING

- A. Preconstruction Adhesion and Compatibility Testing: Test each glazing material type, tape sealant, gasket, glazing accessory, and glass-framing member for adhesion to and compatibility with elastomeric glazing sealants.
1. Testing will not be required if data are submitted based on previous testing of current sealant products and glazing materials matching those submitted.

1.4 SUBMITTALS

- A. Product Data: For each glass product and glazing material indicated.
- B. Glass Samples: For each type of glass product other than clear monolithic vision glass; 12 inches (300 mm) square.
- C. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.
- D. Delegated-Design Submittal: For glass indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

- E. Preconstruction adhesion and compatibility test report.
 - 1. Provide test reports indicating products meet or exceed specified requirements.
 - 2. Compatibility Test Report: From sealant manufacturer, indicating sealant compatibility with interlayer.

1.5 QUALITY ASSURANCE

- A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
 - 1. GANA Publications: GANA's "Laminated Glazing Reference Manual" and GANA's "Glazing Manual."
 - 2. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
- B. Safety Glazing Labeling: Where safety glazing labeling is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction or the manufacturer. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.

1.6 WARRANTY

- A. Manufacturer's Special Warranty on Laminated Glass and Insulated Glazing Units: Manufacturer's standard form in which glass manufacturer agrees to replace glass units that deteriorate within specified warranty period. Deterioration of glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning glass contrary to manufacturer's written instructions. Defects include fogging, gasket failure, edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GLASS PRODUCTS, GENERAL

- A. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass lites in thicknesses as needed to comply with requirements indicated.
- B. Windborne-Debris-Impact Resistance: Provide exterior glazing that passes basic protection testing requirements in ASTM E 1996 for Wind Zone 2 when tested according to ASTM E 1886. Test specimens shall be no smaller in width and length than glazing indicated for use on the Project and shall be installed in same manner as glazing indicated for use on the Project.

1. Large-Missile Test: For glazing located within 30 feet (9.1 m) of grade.

2.2 Glazing

A. Insulated Glazing Unit at Storefront

1. Outboard lite
 - a. Type: Fully Tempered
 - b. Thickness: 6.0 mm
 - c. Class: Class 1 – Clear
2. Inboard lite
Inner pane:
 - a. Type: Fully Tempered
 - b. Thickness: 3.0 mm
 - c. Class: Class 1 – ClearInterlayer:
 - d. Basis of Design: DuPont™ Butacite® Polyvinyl Butyral, as manufactured by DuPont™ Building Innovations™; 4417 Lancaster Pike, Wilmington, DE 19805 www.sentryglas.com.
 - e. Thickness: 0.030-inch
 - f. Color and Visible Light Transmittance (VLT): ClearOuter pane:
 - g. Type: Annealed
 - h. Thickness: 3.0 mm
 - i. Class: Class 1 – Clear

B. Insulated Glazing Unit at Clerestory

1. Outboard lite
 - a. Type: Fully Tempered
 - b. Thickness: 3.0 mm
 - c. Class: Class 1 – Clear
2. Inboard lite
 - a. Type: Fully Tempered
 - b. Thickness: 3.0 mm
 - c. Class: Class 1 – Clear

C. Insulated Spandrel Glazing Unit

1. Outboard lite
 - a. Type: Fully Tempered
 - b. Thickness: 6.0 mm
 - c. Class: Class 1 – Clear
2. Inboard lite
Inner pane:
 - a. Type: Fully Tempered
 - b. Thickness: 3.0 mm

- c. Class: Class 1 – Clear
Interlayer:
 - d. Basis of Design: DuPont™ Butacite® Polyvinyl Butyral, as manufactured by DuPont™ Building Innovations™; 4417 Lancaster Pike, Wilmington, DE 19805
www.sentryglas.com.
 - e. Thickness: 0.030-inch
 - f. Color and Visible Light Transmittance (VLT): ClearOuter pane:
 - g. Type: Annealed
 - h. Thickness: 3.0 mm
 - i. Class: Class 1 – Clear
- 3. Coating
 - a. OPACI-COAT-500® 5 mils dry. Factory applied. Color Warm Gray3-0770 or approved equal
 - b. The opacifying coating will not lose adhesion, flake, peel, chip, or develop any noticeable color change for a period of ten years from the date of installation.
- D. Insulating Glass Unit: Factory assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190, and complying with other requirements specified.
 - 1. Sealing System: Dual seal, with manufacturer's standard primary and secondary.
 - 2. Spacer: Thermally broken aluminum.
 - 3. Desiccant: Molecular sieve or silica gel, or blend of both.
- E. Laminated Glass: ASTM C 1172, and complying with testing requirements in 16 CFR 1201 for Category II materials, and with other requirements specified. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation.
 - 1. Construction: Laminate glass with polyvinyl butyral interlayer or cast-in-place and cured-transparent-resin interlayer to comply with interlayer manufacturer's written recommendations.
 - 2. Interlayer Thickness: Provide thickness not less than that indicated and as needed to comply with requirements.
 - 3. Interlayer Color: Clear unless otherwise indicated.
- F. Windborne-Debris-Impact-Resistant Laminated Glass: ASTM C 1172, and complying with testing requirements in 16 CFR 1201 for Category II materials, with "Windborne-Debris-Impact Resistance" Paragraph in "Glass Products, General" Article, and with other requirements specified. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation.
 - 1. Construction: Laminate glass with one of the following to comply with interlayer manufacturer's written recommendations:
 - a. Polyvinyl butyral interlayer.
 - b. Polyvinyl butyral interlayers reinforced with polyethylene terephthalate film.
 - c. Ionoplast interlayer.

- d. Cast-in-place and cured-transparent-resin interlayer.
 - e. Cast-in-place and cured-transparent-resin interlayer reinforced with polyethylene terephthalate film.
2. Interlayer Thickness: Provide thickness not less than that indicated and as needed to comply with requirements.
 3. Interlayer Color: Clear unless otherwise indicated.

2.3 GLAZING GASKETS

- A. Dense Compression Gaskets: Molded or extruded gaskets of profile and hardness required to maintain watertight seal, made from one of the following:
 1. Neoprene complying with ASTM C 864.
 2. EPDM complying with ASTM C 864.
 3. Silicone complying with ASTM C 1115.
 4. Thermoplastic polyolefin rubber complying with ASTM C 1115.
- B. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned neoprene, EPDM, silicone, or thermoplastic polyolefin rubber gaskets complying with ASTM C 509, Type II, black; of profile and hardness required to maintain watertight seal.
 1. Application: Use where soft compression gaskets will be compressed by inserting dense compression gaskets on opposite side of glazing or pressure applied by means of pressure-glazing stops on opposite side of glazing.

2.4 GLAZING SEALANTS

- A. General:
 1. Compatibility: Provide glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
 2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
 3. VOC Content: For sealants used inside of the weatherproofing system, not more than 250 g/L when calculated according to 40 CFR 59, Subpart D.
 4. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.
- B. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 100/50, Use NT.
- C. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 50, Use NT.

- D. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 25, Use NT.
- E. Glazing Sealant: Acid-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 25, Use NT.

2.5 GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C 1281 and AAMA 800 for products indicated below:
 - 1. AAMA 804.3 tape, where indicated.
 - 2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
 - 3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.
- B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:
 - 1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
 - 2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.6 MISCELLANEOUS GLAZING MATERIALS

- A. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- B. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
- C. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- D. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
- E. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.
- F. Perimeter Insulation for Fire-Resistive Glazing: Product that is approved by testing agency that listed and labeled fire-resistant glazing product with which it is used for application and fire-protection rating indicated.

PART 3 - EXECUTION

3.1 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Adjust glazing channel dimensions as required by Project conditions during installation to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from project site and legally dispose of off project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
- E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- G. Provide spacers for glass lites where length plus width is larger than 50 inches (1270 mm).
- H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.

3.2 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover horizontal framing joints by applying tapes to jambs and then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Apply heel bead of elastomeric sealant.

- F. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- G. Apply cap bead of elastomeric sealant over exposed edge of tape.

3.3 GASKET GLAZING (DRY)

- A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
- B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
- C. Installation with Drive-in Wedge Gaskets: Center glass lites in openings on setting blocks and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- D. Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- E. Install gaskets so they protrude past face of glazing stops.

3.4 SEALANT GLAZING (WET)

- A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
- C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

3.5 CLEANING AND PROTECTION

- A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels and clean surfaces.

- B. Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer.
- C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.
- D. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.

PART 4 - MEASUREMENT AND PAYMENT

ITEM NO.

For furnishing and installing **GLAZING – GLASS (LAMINATED)**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **SQUARE FOOT** price bid.

The price bid shall be a **SQUARE FOOT**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

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ITEM NO. 70 PLASTIC GLAZING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Monolithic polycarbonate glazing.

1.2 PRECONSTRUCTION TESTING

- A. Preconstruction Adhesion and Compatibility Testing: Test each plastic glazing type, tape sealant, gasket, glazing accessory, and glazing-framing member for adhesion to and compatibility with elastomeric glazing sealants.

1. Testing will not be required if data are submitted based on previous testing of current sealant products and plastic glazing matching those submitted.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Plastic Glazing Samples: For each color and finish of plastic glazing indicated.
- C. Glazing Accessory Samples: For gaskets and sealants.
- D. Plastic Glazing Schedule: Use same designations indicated on Drawings.
- E. Preconstruction adhesion and compatibility test report.
- F. Research/Evaluation Reports: For plastic glazing.
- G. Maintenance Data: For plastic glazing to include in maintenance manuals.
- H. Warranty: Sample of special warranty.

1.4 QUALITY ASSURANCE

- A. Glazing Publication: Comply with published recommendations of plastic glazing manufacturers and with GANA's "Glazing Manual" unless more stringent requirements are indicated.
- B. Plastic Glazing Labeling: Identify plastic sheets with appropriate markings of applicable testing and inspecting agency, indicating compliance with required fire-test-response characteristics.

1.5 WARRANTY

- A. Manufacturer's Special Warranty for Abrasion- and UV-Resistant, Monolithic Polycarbonate: Manufacturer's standard form, made out to Owner and signed by polycarbonate manufacturer, in which manufacturer agrees to replace polycarbonate products that break or develop defects from normal use that are attributable to manufacturing process and not to practices for maintaining and cleaning plastic glazing contrary to manufacturer's written instructions. Defects include coating delamination, haze, excessive yellowing, and loss of light transmission beyond the limits stated in plastic glazing manufacturer's standard form.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PLASTIC GLAZING, GENERAL

- A. Sizes: Fabricate plastic glazing to sizes required for openings indicated. Allow for thermal expansion and contraction of plastic glazing without restraint and without withdrawal of edges from frames, with edge clearances and tolerances complying with plastic glazing manufacturer's written instructions.

- B. Fire-Test-Response Characteristics of Plastic Glazing: As determined by testing plastic glazing by a qualified testing agency acceptable to authorities having jurisdiction.

1. Self-ignition temperature of 650 deg F (343 deg C) or higher when tested according to ASTM D 1929 on plastic sheets in thicknesses indicated for the Work.
2. Smoke-developed index of 450 or less when tested according to ASTM E 84, or smoke density of 75 or less when tested according to ASTM D 2843 on plastic sheets in thicknesses indicated for the Work.
3. Burning extent of 1 inch (25 mm) or less when tested according to ASTM D 635 at a nominal thickness of 0.060 inch (1.52 mm) or thickness indicated for the Work.
4. Burning rate of 2.5 in./min. (1.06 mm/s) or less when tested according to ASTM D 635 at a nominal thickness of 0.060 inch (1.52 mm) or thickness indicated for the Work.
5. Flame-spread index not less than that indicated when tested according to ASTM E 84.

- C. Windborne-Debris-Impact Resistance: Provide exterior plastic glazing that passes basic-protection testing requirements in ASTM E 1996 for Wind Zone 2 when tested according to ASTM E 1886. Test specimens shall be no smaller in width and length than plastic glazing indicated for use on Project and shall be installed in same manner as indicated for use on Project.

1. Large-Missile Test: For plastic glazing located within 30 feet (9.1 m) of grade.

2.2 SPECIALTY FILM AND SHEET GLAZING

- A. Plastic Glazing: LTC40/4X 4.0 Lexan sheet by General Electric

1. Nominal Thickness: 1 1/2 inch. (40mm)

2. Color: Clear Color 112
3. Combustibility Class: CC1.
4. Flame-Spread Index: 200 or less.

B. Approved Equal

2.3 GLAZING GASKETS

- A. Dense Compression Gaskets: Molded or extruded gaskets, EPDM, ASTM C 864 or silicone, ASTM C 1115; and of profile and hardness required to maintain watertight seal.
- B. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned EPDM or silicone gaskets complying with ASTM C 509, Type II, black; and of profile and hardness required to maintain watertight seal.

2.4 GLAZING SEALANTS

A. General:

1. Compatibility: Provide glazing sealants that are compatible with one another and with other materials they will contact, including plastic glazing products and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
 2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
 3. VOC Content: For sealants used inside the weatherproofing system, not more than 250 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 4. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.
- B. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 100/50, Use NT.
 - C. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 50, Use NT.
 - D. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 25, Use NT.
 - E. Glazing Sealant: Acid-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 25, Use NT.

2.5 GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer

rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C 1281 and AAMA 800 for products indicated below:

1. AAMA 804.3 tape, where indicated.
 2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
 3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.
- B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:
1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
 2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.6 MISCELLANEOUS GLAZING MATERIALS

- A. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- B. Setting Blocks: EPDM or silicone as required for compatibility with glazing sealant and plastic glazing, and of hardness recommended by plastic glazing manufacturer for application indicated.
- C. Compressible Filler Rods: Closed cell of waterproof-jacketed rod stock of synthetic rubber or plastic foam, flexible and resilient, with 5- to 10-psi (35- to 70-kPa) compression strength for 25 percent deflection.

PART 3 - EXECUTION

3.1 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of plastic glazing materials, sealants, gaskets, and other glazing materials unless more stringent requirements are indicated, including those in referenced glazing publication.
- B. Glazing channel dimensions indicated on Drawings are designed to provide the necessary bite on plastic glazing, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust plastic glazing lites during installation to ensure that bite is equal on all sides.
- C. Sand or scrape cut edges of plastic glazing to provide smooth edges, free of chips and hairline cracks.
- D. Remove burrs and other projections from glazing channel surfaces.
- E. Protect plastic glazing surfaces from abrasion and other damage during handling and installation, according to the following requirements:

1. Retain plastic glazing manufacturer's protective covering or protect by other methods according to plastic glazing manufacturer's written instructions.
 2. Remove covering at border of each piece before glazing; remove remainder of covering immediately after installation where plastic glazing will be exposed to sunlight or where other conditions make later removal difficult.
 3. Remove damaged plastic glazing sheets from Project site and legally dispose of off-site. Damaged plastic glazing sheets are those containing imperfections that, when installed, result in weakened glazing and impaired performance and appearance.
- F. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.
- G. Install elastomeric setting blocks in sill channels, sized and located to comply with referenced glazing publication, unless otherwise instructed by plastic glazing manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- H. Provide edge blocking to comply with referenced glazing publication unless otherwise instructed by plastic glazing manufacturer.

3.2 TAPE GLAZING

- A. Install tapes continuously, but not in one continuous length. Do not stretch tapes to make them fit opening.
- B. Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover horizontal framing joints by applying tapes to jambs and then to heads and sills.
- C. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant recommended by tape manufacturer.
- D. Apply heel bead of glazing sealant.
- E. Center plastic glazing lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- F. Apply cap bead of glazing sealant over exposed edge of tape.

3.3 GASKET GLAZING (DRY)

- A. Fabricate compression gaskets in lengths recommended in writing by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
- B. Insert soft compression gasket between plastic glazing and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
- C. Center plastic glazing lites in openings on setting blocks and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward

centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in plastic glazing. Seal gasket joints with sealant recommended by gasket manufacturer.

- D. Install gaskets so they protrude past face of glazing stops.

3.4 SEALANT GLAZING (WET)

- A. Install continuous spacers between plastic glazing lites and glazing stops to maintain plastic glazing face clearances and to prevent sealant from extruding into glazing channel weep systems until sealants cure. Secure spacers in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to plastic glazing and channel surfaces.
- C. Tool exposed surfaces of sealants to provide a substantial wash away from plastic glazing.

3.5 PROTECTING AND CLEANING

- A. Protect plastic glazing from contact with contaminating substances from construction operations. If, despite such protection, contaminating substances do come into contact with plastic glazing, remove immediately and wash plastic glazing according to plastic glazing manufacturer's written instructions.
- B. Remove and replace plastic glazing that is broken, chipped, cracked, abraded, or damaged in other ways during construction period, including natural causes, accidents, and vandalism.

PART 4 - MEASUREMENT AND PAYMENT

For furnishing and installing **PLASTIC GLAZING**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **SQUARE FOOT** price bid.

The price bid shall be a **SQUARE FOOT**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

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ITEM NO. 71 NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Non-load-bearing steel framing systems for interior gypsum board assemblies.
2. Suspension systems for interior gypsum ceilings and soffits.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: Provide materials and construction identical to those tested according to ASTM E 119.
- B. 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.
- C. Recycled Content of Steel Products: Provide products with average recycled content of steel products such that postconsumer recycled content plus one-half of preconsumer recycled content is not less than 25 percent.

2.2 FRAMING SYSTEMS

- A. Steel Studs and Runners: ASTM C 645.

1. Minimum Base-Metal Thickness: 0.018 inch (0.45 mm).
2. Depth: 5 ½ inches (139.7 mm).

- B. Slip-Type Head Joints: Where indicated, provide one of the following in thickness not less than indicated for studs and in width to accommodate depth of studs:

1. Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch- (51-mm-) deep flanges, installed with studs friction fit into top runner and with continuous bridging located within 12 inches (305 mm) of the top of studs to provide lateral bracing.
2. Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch- (51-mm-) deep flanges and fastened to studs, and outer runner sized to friction fit inside runner.

3. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes due to deflection of structure above.
 - a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Dietrich Metal Framing; SLP-TRK Slotted Deflection Track.
 - 2) MBA Building Supplies.
 - 3) Steel Network Inc. (The).
 - 4) Superior Metal Trim; Superior Flex Track System (SFT).
 - 5) Telling Industries.
 - 6) Architect Approved Equal.
- C. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
 1. Minimum Base-Metal Thickness: 0.018 inch (0.45 mm).
- D. Cold-Rolled Channel Bridging: Steel, 0.053-inch (1.34-mm) minimum base-metal thickness, with minimum 1/2-inch- (13-mm-) wide flanges.
 1. Depth: 1-1/2 inches (38 mm).
 2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches (38 by 38 mm), 0.068-inch- (1.72-mm-) thick, galvanized steel.

2.3 SUSPENSION SYSTEMS

- A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch- (1.59-mm-) diameter wire, or double strand of 0.048-inch- (1.21-mm-) diameter wire.
- B. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.16 inch (4.12 mm) in diameter.
- C. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.053 inch (1.34 mm) and minimum 1/2-inch- (13-mm-) wide flanges.
 1. Depth: 1-1/2 inches (38 mm).
- D. Furring Channels (Furring Members):
 1. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch (22 mm) deep.
 - a. Minimum Base-Metal Thickness: 0.018 inch (0.45 mm).

2.4 AUXILIARY MATERIALS

- A. 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 asphalt saturated organic felt or foam gasket.

PART 3 - EXECUTION

3.1 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 supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- C. Install bracing at terminations in assemblies.
- D. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.2 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.
- B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install compressible filler 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 penetrating 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. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
 - a. Install two studs at each jamb unless otherwise indicated.
 - b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch (13-mm) clearance from jamb stud to allow for installation of control joint in finished assembly.
 - c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.

3. 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.

- E. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by faces of adjacent framing.

3.3 INSTALLING SUSPENSION SYSTEMS

- A. Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
- B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.
- C. Suspend hangers from building structure as follows:
 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.
 - a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
 3. Do not attach hangers to steel roof deck.
 4. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
 5. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
 6. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- D. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet (3 mm in 3.6 m) measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

PART 4 - MEASUREMENT AND PAYMENT

For furnishing and installing **NON-STRUCTURAL METAL FRAMING**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **LINEAR FOOT** price bid.

The price bid shall be a **LINEAR FOOT**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

END OF PAGE

ITEM NO. 72 GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Interior gypsum board.
 2. Soffit Walls
 3. Ceilings where indicated

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.

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.
- 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. Low Emitting Materials: For ceiling and wall assemblies, provide materials and construction identical to those tested in assembly and complying with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.2 GYPSUM BOARD, GENERAL

- A. Recycled Content of Gypsum Panel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25% percent.
- B. Regional Materials: Gypsum panel products shall be manufactured within 500 miles (800 km) of Project site.

2.3 INTERIOR GYPSUM BOARD

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. American Gypsum.
 - 2. CertainTeed Corp.
 - 3. Georgia-Pacific Gypsum LLC.
 - 4. Lafarge North America Inc.
 - 5. National Gypsum Company.
 - 6. PABCO Gypsum.
 - 7. Temple-Inland.
 - 8. USG Corporation.
 - 9. Architect Approved Equal.
- B. Gypsum Board, Type X: ASTM C 1396/C 1396M..
 - 1. Thickness: 5/8 inch (15.9 mm).
 - 2. Long Edges: Tapered.
- C. Gypsum Ceiling Board: ASTM C 1396/C 1396M.
 - 1. Thickness: 1/2 inch (12.7 mm).
 - 2. 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.
- B. Aluminum Trim: ASTM B 221 (ASTM B 221M), Alloy 6063-T5.

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.

2.6 AUXILIARY MATERIALS

- A. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.

1. Laminating adhesive shall have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- B. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
- C. Thermal Insulation: As specified in Section "Thermal Insulation – Glass Fiber Insulation."
- D. Vapor Retarder: As specified in Section "Thermal Insulation – Glass Fiber Insulation."

PART 3 - EXECUTION

3.1 APPLYING AND FINISHING PANELS

- A. Comply with ASTM C 840.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- (6.4- to 12.7-mm-) 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.
- D. Install 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.
 1. Aluminum Trim: Install in locations.
 2. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.
- E. Prefill open joints and damaged surface areas.
- F. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- G. 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.
 2. Level 5: At panel surfaces that will be exposed to view unless otherwise indicated.
 - a. Primer and its application to surfaces are specified in Section "Interior Painting".
- H. Protect adjacent surfaces from drywall compound and texture finishes and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- I. Remove and replace panels that are wet, moisture damaged, and mold damaged.

PART 4 - MEASUREMENT AND PAYMENT

For furnishing and installing **GYPSUM BOARD**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

END OF PAGE

ITEM NO. 73 TILING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Ceramic tile.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples:

1. Each type and composition of tile and for each color and finish required.
2. Assembled samples, with grouted joints, for each type and composition of tile and for each color and finish required.

PART 2 - PRODUCTS

2.1 TILE PRODUCTS

A. ANSI Ceramic Tile Standard: Provide Standard grade tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.

B. Tile Type: Glazed wall tile.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Basis-of-Design Product: Subject to compliance with requirements, provide product or comparable product by one of the following:
 - a. American Marazzi Tile, Inc.
 - b. American Olean; Division of Dal-Tile International Inc.
 - c. Daltile; Division of Dal-Tile International Inc.
 - d. Deutsche Steinzeug America, Inc.
 - e. Florida Tile Industries, Inc.
 - f. Florim USA.
 - g. Laufen.
 - h. Grupo Porcelanite.
 - i. Portobello America, Inc.
 - j. Seneca Tiles, Inc.
 - k. United States Ceramic Tile Company.

- l. Architect Approved Equal.
3. Module Size: 4 by 4 inches (101.6 by 101.6 mm).
4. Thickness: 5/16 inch (8 mm).
5. Face: Plain with modified square edges or cushion edges.
6. Finish: Matte glaze.
7. Tile Color and Pattern: As selected by Architect from manufacturer's full range.
8. Grout Color: As selected by Architect from manufacturer's full range.
9. Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable and matching characteristics of adjoining flat tile. Provide shapes as follows, selected from manufacturer's standard shapes:
 - a. Base: Straight, module size 6 by 6 inches (152 by 152 mm).
 - b. Internal Corners: Field-buttet square corners.

2.2 SETTING MATERIALS

- A. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4.
 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 2. Basis-of-Design Product: Subject to compliance with requirements, provide product or comparable product by one of the following:
 - a. Boiardi Products; a QEP company.
 - b. Bonsal American; an Oldcastle company.
 - c. Bostik, Inc.
 - d. C-Cure.
 - e. Custom Building Products.
 - f. Jamo Inc.
 - g. Laticrete International, Inc.
 - h. MAPEI Corporation.
 - i. Mer-Kote Products, Inc.
 - j. Southern Grouts & Mortars, Inc.
 - k. Summitville Tiles, Inc.
 - l. TEC; a subsidiary of H. B. Fuller Company.
 - m. Architect Approved Equal.
 3. Prepackaged, dry-mortar mix to which only water must be added.
 4. Prepackaged, dry-mortar mix combined with liquid-latex additive.
 5. For wall applications, provide nonsagging mortar.

2.3 GROUT MATERIALS

- A. Standard Cement Grout: ANSI A118.6.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Basis-of-Design Product: Subject to compliance with requirements, provide product or comparable product by one of the following:
 - a. Boiardi Products; a QEP company.
 - b. Bonsal American; an Oldcastle company.
 - c. Bostik, Inc.
 - d. C-Cure.
 - e. Custom Building Products.
 - f. Jamo Inc.
 - g. Laticrete International, Inc.
 - h. MAPEI Corporation.
 - i. Southern Grouts & Mortars, Inc.
 - j. Summitville Tiles, Inc.
 - k. TEC; a subsidiary of H. B. Fuller Company.
 - l. Architect Approved Equal.

2.4 ELASTOMERIC SEALANTS

- A. General: Provide sealants, primers, backer rods, and other sealant accessories that comply with the following requirements:
 1. Use sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- B. One-Part, Mildew-Resistant Silicone Sealant: ASTM C 920; Type S; Grade NS; Class 25; Uses NT, G, A, and, as applicable to nonporous joint substrates indicated, O; formulated with fungicide, intended for sealing interior ceramic tile joints and other nonporous substrates that are subject to in-service exposures of high humidity and extreme temperatures.
 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. DAP Inc.; Titanium Enriched Kitchen and Bath Sealant, 100 percent Silicone Kitchen and Bath Sealant.
 - b. Dow Corning Corporation; Dow Corning 786.
 - c. GE Silicones, a division of GE Specialty Materials; Sanitary 1700.
 - d. Laticrete International, Inc.; Latasil Tile & Stone Sealant.
 - e. Pecora Corporation; Pecora 898 Sanitary Silicone Sealant.
 - f. Tremco Incorporated; Tremsil 600 White.
 - g. Architect Approved Equal.

2.5 MISCELLANEOUS MATERIALS

- A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.

- B. Grout Sealer: Manufacturer's standard product for sealing grout joints and that does not change color or appearance of grout.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Bonsal American, an Oldcastle company; Grout Sealer.
 - b. Bostik, Inc.; CeramaSeal Grout & Tile Sealer.
 - c. C-Cure; Penetrating Sealer 978.
 - d. Custom Building Products; Surfaceguard Sealer.
 - e. Jamo Inc.; Matte Finish Sealer.
 - f. MAPEI Corporation; KER 003, Silicone Spray Sealer for Cementitious Tile Grout.
 - g. Southern Grouts & Mortars, Inc.; Silicone Grout Sealer.
 - h. Summitville Tiles, Inc.; SL-15, Invisible Seal Penetrating Grout and Tile Sealer.
 - i. TEC, a subsidiary of H. B. Fuller Company; TA-256 Penetrating Silicone Grout Sealer.
 - j. Architect Approved Equal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
 - 1. Verify that substrates for setting tile are firm, dry, clean, free of coatings that are incompatible with tile-setting materials including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.

3.2 PREPARATION

- A. Blending: For tile exhibiting color variations, use factory blended tile or blend tiles at Project site before installing.
- B. Field-Applied Temporary Protective Coating: If indicated under tile type or needed to prevent grout from staining or adhering to exposed tile surfaces, precoat them with continuous film of temporary protective coating, taking care not to coat unexposed tile surfaces.

3.3 INSTALLATION

- A. Comply with TCA's "Handbook for Ceramic Tile Installation" for TCA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 Series "Specifications for Installation of Ceramic Tile" that are referenced in TCA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.

- B. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- C. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
- D. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.
- E. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:
 - 1. Glazed Wall Tile: 1/16 inch (1.6 mm).
- F. Grout Sealer: Apply grout sealer to grout joints according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer from tile faces by wiping with soft cloth.

3.4 INTERIOR TILE INSTALLATION SCHEDULE

- A. Interior Wall Installations, Metal Studs or Furring:
 - 1. Tile Installation W244: Thin-set mortar on cementitious backer units or fiber cement underlayment; TCA W244.
 - a. Tile Type: Glazed wall tile.
 - b. Thin-Set Mortar: Latex-portland cement mortar.
 - c. Grout: Standard unsanded cement grout.

PART 4 - MEASUREMENT AND PAYMENT

For furnishing and installing **TILING**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

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ITEM NO. 74 INTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes surface preparation and the application of paint systems on the following interior substrates:
1. Gypsum board.
 2. Concrete Masonry Units

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples: For each finish and for each color and texture required.
- C. Product List: Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.3 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 selected to verify preliminary selections made under sample submittals and to aesthetic effects and set quality standards for materials and execution.
1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
 - a. Wall and Ceiling Surfaces: Provide samples of at least 20 sq. ft.
 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 Architect at no added cost to Owner.

1.4 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) 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. (3.8 L) of each and color applied.

PART 2 - PRODUCTS

2.1 PAINT, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one and substrates indicated, under conditions of service and application as 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. VOC Content of Field-Applied Interior Paints and Coatings: Provide products that the following limits for VOC content, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24); these requirements do apply to paints and coatings that are applied in a fabrication or finishing shop:

1. Flat Paints, Coatings, and Primers: VOC content of not more than 50 g/L.
2. Nonflat Paints, Coatings, and Primers: VOC content of not more than 150 g/L.
3. Anti-Corrosive and Anti-Rust Paints Applied to Ferrous Metals: VOC not more than 250 g/L.
4. Floor Coatings: VOC not more than 100 g/L.
5. Shellacs, Clear: VOC not more than 730 g/L.
6. Shellacs, Pigmented: VOC not more than 550 g/L.
7. Flat Topcoat Paints: VOC content of not more than 50 g/L.
8. Nonflat Topcoat Paints: VOC content of not more than 150 g/L.
9. Anti-Corrosive and Anti-Rust Paints Applied to Ferrous Metals: VOC not more than 250 g/L.
10. Floor Coatings: VOC not more than 100 g/L.
11. Shellacs, Clear: VOC not more than 730 g/L.
12. Shellacs, Pigmented: VOC not more than 550 g/L.
13. Primers, Sealers, and Undercoaters: VOC content of not more than 200 g/L.
14. Dry-Fog Coatings: VOC content of not more than 400 g/L.
15. Zinc-Rich Industrial Maintenance Primers: VOC content of not more than 340 g/L.
16. Pre-Treatment Wash Primers: VOC content of not more than 420 g/L.

C. Chemical Components of Field-Applied Interior Paints and Coatings: Provide topcoat and anti-corrosive and anti-rust paints applied to ferrous metals that comply with the chemical restrictions; these requirements do not apply to paints and coatings that are a fabrication or finishing shop:

1. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
2. 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.

D. Colors: As selected by Architect from manufacturer's full range.

2.2 PRIMERS/SEALERS

A. Interior Latex Primer/Sealer: MPI #50.

1. VOC Content: E Range of E1.
2. Environmental Performance Rating: EPR 1.

2.3 LATEX PAINTS

A. Interior Latex (Flat): MPI #53 (Gloss Level 1).

1. VOC Content: E Range of E1.
2. Environmental Performance Rating: EPR 0.5.

B. Interior Latex (Eggshell): MPI #52 (Gloss Level 3).

1. VOC Content: E Range of E1.
2. Environmental Performance Rating: EPR 1.

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. Gypsum Board: 12 percent.
 2. Concrete Masonry Units 12 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 AND APPLICATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Painting Specification Manual" applicable to substrates 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 to produce paint systems indicated.
- C. 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.
- D. Protect adjacent work against damage from paint application. Correct damage to surfaces by cleaning, repairing, replacing, and refinishing, as approved by Architect, and in an undamaged condition.
- E. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.3 INTERIOR PAINTING SCHEDULE

A. Gypsum Board Substrates:

1. Latex System: MPI INT 9.2A.
 - a. Prime Coat: Interior latex primer/sealer.
 - b. Intermediate Coat: Interior latex matching topcoat.
 - c. Topcoat: Interior latex flat: ceiling.
 - d. Topcoat: Interior latex eggshell: walls.

B. Concrete Masonry Unit Substrates

1. Latex System: MPI INT 9.2A.
 - a. Prime Coat: Interior latex primer/sealer.
 - b. Intermediate Coat: Interior latex matching topcoat.
 - c. Topcoat: Interior latex eggshell: walls.

PART 4 - MEASUREMENT AND PAYMENT

For furnishing and installing **INTERIOR PAINTING**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **SQUARE FOOT** price bid.

The price bid shall be a **SQUARE FOOT**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

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ITEM NO. 75

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ITEM NO. 76

TOILET ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes toilet accessory items as scheduled:

1. Toilet Tissue Dispenser.
2. Mirror.
3. Soap Dispenser.
4. Coat Hooks.
5. Electric Hand Dryer.
6. Grab Bars.

1.2 SUBMITTALS

- A. Product data for each toilet accessory item specified, including construction details relative to materials, dimensions, gages, profiles, mounting method, specified options, and finishes.
- B. Samples of each toilet accessory item to verify design, operation, and finish requirements. Acceptable full-size samples will be returned and may be used in the work.

1.3 QUALITY ASSURANCE

- A. Single-Source Responsibility: Provide products of same manufacturer for each type of accessory unit and for units exposed to view in same areas, unless otherwise acceptable to Architect.

1.4 PROJECT CONDITIONS

- A. Coordination: Coordinate accessory locations, installation, and sequencing with other work to avoid interference with and ensure proper installation, operation, adjustment, cleaning, and servicing of toilet accessory items.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering toilet accessories that may be incorporated in the Work include, but are not limited to, the following:

1. Bobrick Washroom Equipment, Inc.
2. Georgia-Pacific Corp.
3. McKinney/Parker.
4. General Accessory Manufacturing Co.
5. Architect Approved Equal.

2.2 MATERIALS, GENERAL

- A. Stainless Steel: AISI Type 302/304, with polished No. 4 finish, 0.034-inch (22-gage) minimum thickness.
- B. Sheet Steel: Cold-rolled, commercial quality ASTM A 366, 0.04-inch (20-gage) minimum. Surface preparation and metal pretreatment as required for applied finish.
- C. Galvanized Steel Sheet: ASTM A 527, G60.
- D. Galvanized Steel Mounting Devices: ASTM A 153, hot-dip galvanized after fabrication.
- E. Fasteners: Screws, bolts, and other devices of same material as accessory unit, or of galvanized steel where concealed.

2.3 ACCESSORIES

- A. In new toilet, install the following:
 1. Stainless Steel Classic Series Twin Jumbo Roll Toilet Tissue Dispenser – Bobrick (B-2892) or Architect Approved Equal.
 2. Glass Mirror Stainless Steel Angle-Frame ¾" thick – Bobrick (B-290) or Architect Approved Equal.
 3. Lavatory Mounted Soap Dispenser – Bobrick (B-82216) or Architect Approved Equal.
 4. Coat Hook: SS Surface Mounted Satin Finish - Bobrick (B-76717) or Architect Approved Equal.
 5. Hand Dryers: Xlerator / Excel Dryer / Model No. XL-C Suft.-Mtd., Chrome Cover or Architect Approved Equal. ADA installation as noted by manufacturer.
 6. Stainless Steel ADA Grab Bars - Bobrick (B-6806) or Architect Approved Equal.
- B. Mirrors – All mirrors to be centered at location noted.

2.4 FABRICATION

- A. General: Only a maximum 1-1/2-inch-diameter, unobtrusive stamped manufacturer logo, as approved by Architect, is permitted on exposed face of toilet or bath accessory units. On either interior surface not exposed to view or back surface, provide additional identification by either a printed, waterproof label or a stamped nameplate, indicating manufacturer's name and product model number.
- B. Surface-Mounted Toilet Accessories, General: Except where otherwise indicated, fabricate units with tight seams and joints, exposed edges rolled. Hang doors or access

panels with continuous stainless steel piano hinge. Provide concealed anchorage wherever possible.

- C. Recessed Toilet Accessories: General: Except where otherwise indicated, fabricate units with tight seams and joints and no exposed edges. Provide anchorage that is fully concealed when unit is closed.
- D. Toilet Accessories, General: Except where otherwise indicated, fabricate units of all-welded construction, without mitered corners. Hang doors or access panels with full-length, stainless steel piano hinge. Provide anchorage that is fully concealed when unit is closed.
- E. Mirror Unit Hangers: Provide system for mounting mirror units that will permit rigid, tamperproof, and theft-proof installation, as follows:
 - 1. Heavy-duty wall brackets of galvanized steel, equipped with concealed locking devices requiring a special tool to remove.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install toilet accessory units according to manufacturers' instructions, using fasteners appropriate to substrate as recommended by unit manufacturer. Install units plumb and level, firmly anchored in locations and at heights indicated.
- B. Secure mirrors to walls in concealed, tamper proof manner with special hangers, toggle bolts, or screws. Set units plumb, level, and square at locations indicated, according to manufacturer's instructions for type of substrate involved.

3.2 ADJUSTING AND CLEANING

- A. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly. Replace damaged or defective items.
- B. Clean and polish all exposed surfaces strictly according to manufacturer's recommendations after removing temporary labels and protective coatings.

PART 4 - MEASUREMENT AND PAYMENT

For furnishing and installing **TOILET ACCESSORIES**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

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ITEM NO. 77 **METAL BUILDING SYSTEMS**

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Structural-steel framing.
2. Metal roof panels Battenlok Type.
3. Metal wall panels. Lokseam Type.
4. Cold Form Metal Framing.
5. BI Fold Sectional Hanger Doors and required structural steel framing attached to the building framing.
6. Thermal insulation.
7. Doors and frames.
8. Accessories.
9. Coordinate ITEM NOS. 65-67 Window fabrication and installation into the Metal Building System.

1.2 DEFINITIONS

- A. Terminology Standard: See MBMA's "Metal Building Systems Manual" for definitions of terms for metal building system construction not otherwise defined in this Section or in referenced standards.

1.3 SUBMITTALS

- A. Product Data: For each type of metal building system component. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:

1. Structural-steel-framing system.
2. Metal roof panels.
3. Metal wall panels.
4. Metal liner panels.
5. Insulation and vapor retarder facings.
6. Flashing and trim.
7. Man Doors and BI Fold Sectional Hanger Doors.
8. Cold Form Metal Framing.
9. Accessories.

- B. Shop Drawings: For the following metal building system components. Include plans, elevations, sections, details, and attachments to other work.

1. Anchor-Bolt Plans: Submit anchor-bolt plans and templates before foundation work begins. Include location, diameter, and projection of anchor bolts required to attach metal building to foundation. Indicate column reactions at each location.
 2. Structural-Framing Drawings: Show complete fabrication of primary and secondary framing; include provisions for openings. Indicate welds and bolted connections, distinguishing between shop and field applications. Include transverse cross-sections.
 3. All Structural-Framing and Shop Drawings shall be signed and sealed by a Professional Engineer Licensed in the State of New York.
 4. Metal Roof and Wall Panel Layout Drawings: Show layouts of metal panels including methods of support. Include details of edge conditions, joints, panel profiles, corners, anchorages, trim, flashings, closures, and special details. Distinguish between factory- and field-assembled work; show locations of exposed fasteners.
 - a. Show roof-mounted items including roof hatches, equipment supports, pipe supports and penetrations, lighting fixtures, and items mounted on roof curbs.
 - b. Show wall-mounted items including man doors, sectional doors, louvers, and lighting fixtures.
 5. Accessory Drawings: Include details of the following items, at a scale of not less than 1-1/2 inches per 12 inches (1:8)
 - a. Flashing and trim.
 - b. Gutters.
 - c. Downspouts.
 - d. Sectional doors and required framing.
 - e. Doors and frames.
 - f. Cold Metal Framing.
- C. Samples for Initial Selection: For units with factory-applied color finish.
- D. Samples for Verification: For each type of exposed finish required, prepared on Samples of sizes indicated below:
1. Metal Panels: Nominal 12 inches (300 mm) long by actual panel width. Include fasteners, closures, and other exposed panel accessories.
 2. Flashing and Trim: Nominal 12 inches (300 mm) long. Include fasteners and other exposed accessories.
 3. Vapor-Retarder Facings: Nominal 6-inch- (150-mm-) square Samples.
 4. Accessories: Nominal 12-inch- (300-mm-) long Samples for each type of accessory.

- E. Door Schedule: For doors and frames and Sectional doors and framing. Use same designations indicated on Drawings. Include details of reinforcement and additional framing required to support the loads and forces applied to the structure by the Sectional doors.
 - 1. Door Hardware Schedule: Include details of fabrication and assembly of door hardware. Organize schedule into door hardware sets indicating complete designations of every item required for each door or opening.
 - 2. Keying Schedule: Detail Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations.
- F. Delegated-Design Submittal: For metal building systems indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- G. Qualification Data: For qualified erector, manufacturer, professional , engineer, land surveyor.
- H. Welding certificates.
- I. Metal Building System Certificates: For each type of metal building system, from manufacturer.
 - 1. Letter of Design Certification: Signed and sealed by a qualified professional engineer. Include the following:
 - a. Name and location of Project.
 - b. Order number.
 - c. Name of manufacturer.
 - d. Name of Contractor.
 - e. Building dimensions including width, length, height, and roof slope.
 - f. Indicate compliance with AISC standards for hot-rolled steel and AISI standards for cold-rolled steel, including edition dates of each standard.
 - g. Governing building code and year of edition.
 - h. Design Loads: Include dead load, roof live load, collateral loads, roof snow load, deflection, wind loads/speeds and exposure, seismic design category or effective peak velocity-related acceleration/peak acceleration, and auxiliary loads (cranes).
 - i. Load Combinations: Indicate that loads were applied acting simultaneously with concentrated loads, according to governing building code.
 - j. Building-Use Category: Indicate category of building use and its effect on load importance factors.
 - k. AISC Certification for Category MB: Include statement that metal building system and components were designed and produced in an AISC-Certified Facility by an AISC-Certified Manufacturer.
- J. Erector Certificates: For each product, from manufacturer.
- K. Manufacturer Certificates: For each product, from manufacturer.
- L. Material Test Reports: For each of the following products:

1. Structural steel including chemical and physical properties.
 2. Bolts, nuts, and washers including mechanical properties and chemical analysis.
 3. Tension-control, high-strength, bolt-nut-washer assemblies.
 4. Shop primers.
 5. Nonshrink grout.
 6. Cold Formed Metal Framing
- M. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for insulation and vapor-retarder facings. Include reports for thermal resistance, fire-test-response characteristics, water-vapor transmission, and water absorption.
- N. Source quality-control reports.
- O. Field quality-control reports.
- P. Surveys: Show final elevations and locations of major members. Indicate discrepancies between actual installation and the Contract Documents. Have surveyor who performed surveys certify their accuracy.
- Q. Maintenance Data: For metal panel finishes and door hardware to include in maintenance manuals.
- R. Warranties: Sample of special warranties.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer and member of MBMA.
1. AISC Certification for Category MB: An AISC-Certified Manufacturer that designs and produces metal building systems and components in an AISC-Certified Facility.
 2. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.
- B. Land Surveyor Qualifications: A professional land surveyor who practices in jurisdiction where Project is located and who is experienced in providing surveying services of the kind indicated.
- C. Erector Qualifications: An experienced erector who specializes in erecting and installing work similar in material, design, and extent to that indicated for this Project and who is acceptable to manufacturer.
- D. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.
- E. Source Limitations: Obtain metal building system components, including primary and secondary framing and metal panel assemblies, from single source from single manufacturer.
- F. Welding Qualifications: Qualify procedures and personnel according to the following:
1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."

2. AWS D1.3, "Structural Welding Code - Sheet Steel."
- G. Structural Steel: Comply with AISC 360, "Specification for Structural Steel Buildings," for design requirements and allowable stresses.
- H. Cold-Formed Steel: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members" for design requirements and allowable stresses.
- I. Fire-Resistance Ratings: Where indicated, provide metal panel 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.
1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.
 2. Combustion Characteristics: ASTM E 136.
- J. Fire-Rated Door Assemblies: 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.
1. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
- K. 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 mockups for typical roof and wall metal panel including accessories.
 - a. Size: 48 inches (1200 mm) long by 48 inches (1200 mm)
 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
- L. Preinstallation Conference: Conduct conference at Project site.
1. Review methods and procedures related to metal building systems including, but not limited to, the following:
 - a. Condition of foundations and other preparatory work performed by other trades.
 - b. Structural load limitations.
 - c. Construction schedule. Verify availability of materials and erector's personnel, equipment, and facilities needed to make progress and avoid delays.
 - d. Required tests, inspections, and certifications.
 - e. Unfavorable weather and forecasted weather conditions.

2. Review methods and procedures related to metal roof panel assemblies including, but not limited to, the following:
 - a. Compliance with requirements for purlin and rafter conditions, including flatness and attachment to structural members.
 - b. Structural limitations of purlins and rafters during and after roofing.
 - c. Flashings, special roof details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect metal roof panels.
 - d. Temporary protection requirements for metal roof panel assembly during and after installation.
 - e. Roof observation and repair after metal roof panel installation.

3. Review methods and procedures related to metal wall panel assemblies including, but not limited to, the following:
 - a. Compliance with requirements for support conditions, including alignment between and attachment to structural members.
 - b. Structural limitations of girts and columns during and after wall panel installation.
 - c. Flashings, special siding details, wall penetrations, openings, and condition of other construction that will affect metal wall panels.
 - d. Temporary protection requirements for metal wall panel assembly during and after installation.
 - e. Wall observation and repair after metal wall panel installation.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, sheets, panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.
- B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.
- D. Protect foam-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 foam-plastic insulation materials to Project site before installation time.
 3. Complete installation and concealment of foam-plastic materials as rapidly as possible in each area of construction.

1.6 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when weather conditions permit metal panels to be installed according to manufacturers' written instructions and warranty requirements.
- B. Field Measurements:
 - 1. Established Dimensions for Foundations: Comply with established dimensions on approved anchor-bolt plans, establishing foundation dimensions and proceeding with fabricating structural framing without field measurements. Coordinate anchor-bolt installation to ensure that actual anchorage dimensions correspond to established dimensions.
 - 2. Established Dimensions for Metal Panels: Where field measurements cannot be made without delaying the Work, either establish framing and opening dimensions and proceed with fabricating metal panels without field measurements, or allow for field trimming metal panels. Coordinate construction to ensure that actual building dimensions, locations of structural members, and openings correspond to established dimensions.

1.7 COORDINATION

- A. Coordinate sizes and locations of concrete foundations and casting of anchor-bolt inserts into foundation walls and footings.
- B. Coordinate installation of roof penetrations and equipment supports.
- C. Coordinate metal panel assemblies with rain drainage work, flashing, trim, and construction of supports and other adjoining work to provide a leak proof, secure, and noncorrosive installation.
- D. Coordinate ITEM NOS. 65-67 Window fabrication and installation into the Metal Building System.

1.8 WARRANTY

- A. Special Warranty on Metal Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Finish Warranty Period: 20 years from date of Substantial Completion.

- B. Special Weathertightness Warranty for Standing-Seam Metal Roof Panels: Manufacturer's standard form in which manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that leak or otherwise fail to remain weathertight within specified warranty period.
 - 1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, the available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Mesco Building Solutions; Division of NCI Building Systems, L.P.
 - 2. Nucor Building Systems
 - 3. Or Approved Equal

2.2 METAL BUILDING SYSTEMS

- A. Description: Provide a complete, integrated set of metal building system manufacturer's standard mutually dependent components and assemblies that form a metal building system capable of withstanding structural and other loads, thermally induced movement, and exposure to weather without failure or infiltration of water into building interior.
 - 1. Provide metal building system of size and with bay spacing, roof slopes, and spans indicated.
- B. Primary-Frame Type:
 - 1. Rigid Clear Span: Solid-member, structural-framing system without interior columns.
- C. End-Wall Framing: Manufacturer's standard, for buildings not required to be expandable, consisting of primary frame, capable of supporting one-half of a bay design load, and end-wall columns.
- D. End-Wall Framing: Engineer end walls to be expandable. Provide primary frame, capable of supporting full-bay design loads, and end-wall columns.
- E. Secondary-Frame Type: Manufacturer's standard purlins and joists and partially inset-framed girts.
- F. Eave Height: As indicated on the Drawings.
- G. Bay Spacing: As indicated on the Drawings.
- H. Roof Slope: As indicated on the Drawings
- I. Roof System: Battenlok panel type with field-installed insulation.

- J. Exterior Wall System: Lokseam panel type with field-installed insulation.

2.3 METAL BUILDING SYSTEM PERFORMANCE

- A. Delegated Design: Design metal building system, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- B. Structural Performance: Metal building systems shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated according to procedures in MBMA's "Metal Building Systems Manual."
1. Design Loads: As indicated on Drawings.
 2. Design Loads: As required by the New York City Building Code latest edition.
 3. Deflection Limits: Design metal building system assemblies to withstand design loads with deflections no greater than the following:
 - a. Purlins and Rafters: Vertical deflection of 1/180 of the span.
 - b. Girts: Horizontal deflection of 1/180 of the span.
 - c. Metal Roof Panels: Vertical deflection of 1/180 of the span.
 - d. Metal Wall Panels: Horizontal deflection of 1/180 of the span.
 - e. Design secondary-framing system to accommodate deflection of primary framing and construction tolerances, and to maintain clearances at openings.
 4. Drift Limits: Engineer building structure to withstand design loads with drift limits no greater than the following:
 - a. Lateral Drift: Maximum of 1/200 of the building height.
 5. Metal panel assemblies shall withstand the effects of gravity loads and loads and stresses within limits and under conditions indicated according to ASTM E 1592.
- C. Seismic Performance: Metal building systems shall withstand the effects of earthquake motions determined according to New York City Building Code latest edition.
- D. Thermal Movements: 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 calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. Temperature Change (Range): 180 deg F (100 deg C) material surfaces.
- E. Air Infiltration for Metal Roof Panels: Air leakage through assembly of not more than .019 cfm/sq. ft. of roof area when tested according to ASTM E 1680-95 at negative test-pressure difference of 6.24 lbf/sq. ft.

- F. Air Infiltration for Metal Wall Panels: Air leakage through assembly of not more than .019 cfm/sq. ft. > of wall area when tested according to ASTM E 283 at static-air-pressure difference of 6.24 lbf/sq. ft.
- G. Water Penetration for Metal Roof Panels: No water penetration when tested according to ASTM E 1646 at test-pressure difference of 12.00 lbf/sq.
- H. Water Penetration for Metal Wall Panels: No water penetration when tested according to ASTM E 331 at a wind-load design pressure of not less than 12.00 lbf/sq. ft.
- I. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for Class 90.
- J. Thermal Performance: Provide field installed insulation with the following R values.
 - 1. Metal Roof Panel Assemblies:
 - a. R-Value: 19
 - 2. Metal Wall Panel Assemblies:
 - a. R-Value: 19
- K. Energy Performance: Provide roof panels with Solar Reflectance Index not less than 78 when calculated according to ASTM E 1980 based on testing identical products by a qualified testing agency.
- L. Energy Performance: Provide roof panels that are listed on the DOE's ENERGY STAR Roof Products Qualified Product List for low slope roof products.
- M. Energy Performance: Provide roof panels with initial solar reflectance not less than 0.70 and emissivity not less than 0.75 when tested according to CRRC.

2.4 STRUCTURAL-STEEL FRAMING

- A. Primary Framing: Manufacturer's standard primary-framing system, designed to withstand required loads and specified requirements. Primary framing includes transverse and lean-to frames; rafter, rake, and canopy beams; sidewall, intermediate, end-wall, and corner columns; and wind bracing.
 - 1. General: Provide frames with attachment plates, bearing plates, and splice members. Factory drill for field-bolted assembly. Provide frame span and spacing indicated.
 - a. Slight variations in span and spacing may be acceptable if necessary to comply with manufacturer's standard, as approved by Architect.
 - 2. Rigid Clear-Span Frames: I-shaped frame sections fabricated from shop-welded, built-up steel plates or structural-steel shapes. Interior columns are not permitted.
 - 3. Frame Configuration: One-directional sloped.
 - 4. Exterior Column Type: Uniform depth.
 - 5. Rafter Type: Uniform depth.

- B. End-Wall Framing: Manufacturer's standard primary end-wall framing fabricated for field-bolted assembly to comply with the following:
1. End-Wall and Corner Columns: I-shaped sections fabricated from structural-steel shapes; shop-welded, built-up steel plates; or C-shaped, cold-formed, structural-steel sheet.
 2. End-Wall Rafters: C-shaped, cold-formed, structural-steel sheet; or I-shaped sections fabricated from shop-welded, built-up steel plates or structural-steel shapes.
- C. Secondary Framing: Manufacturer's standard secondary framing, including purlins, girts, eave struts, flange bracing, base members, gable angles, clips, headers, jambs, and other miscellaneous structural members. Unless otherwise indicated, fabricate framing from either cold-formed, structural-steel sheet or roll-formed, metallic-coated steel sheet, prepainted with coil coating, to comply with the following:
1. Purlins: C- or Z-shaped sections; fabricated from built-up steel plates, steel sheet, or structural-steel shapes; minimum 2-1/2-inch- (64-mm-) wide flanges.
 - a. Depth: As needed to comply with system performance requirements.
 2. Purlins: Steel joists of depths indicated.
 3. Girts: C- or Z-shaped sections; fabricated from built-up steel plates, steel sheet, or structural-steel shapes. Form ends of Z-sections with stiffening lips angled 40 to 50 degrees from flange, with minimum 2-1/2-inch- (64-mm-) wide flanges.
 - a. Depth: As required to comply with system performance requirements.
 4. Eave Struts: Unequal-flange, C-shaped sections; fabricated from built-up steel plates, steel sheet, or structural-steel shapes; to provide adequate backup for metal panels.
 5. Flange Bracing: Minimum 2-by-2-by-1/8-inch (51-by-51-by-3-mm) structural-steel angles or 1-inch (25-mm-) diameter, cold-formed structural tubing to stiffen primary-frame flanges.
 6. Sag Bracing: Minimum 1-by-1-by-1/8-inch (25-by-25-by-3-mm) structural-steel angles.
 7. Base or Sill Angles: Minimum 3-by-2-inch (76-by-51-mm) zinc-coated (galvanized) steel sheet.
 8. Purlin and Girt Clips: Manufacturer's standard clips fabricated from steel sheet. Provide galvanized clips where clips are connected to galvanized framing members.
 9. Secondary End-Wall Framing: Manufacturer's standard sections fabricated from zinc-coated (galvanized) steel sheet.
 10. Framing for Openings: Channel shapes; fabricated from cold-formed, structural-steel sheet or structural-steel shapes. Frame head and jamb of door openings and head, jamb, and sill of other openings.
 11. Miscellaneous Structural Members: Manufacturer's standard sections fabricated from cold-formed, structural-steel sheet; built-up steel plates; or zinc-coated (galvanized) steel sheet; designed to withstand required loads.
- D. Canopy Framing: Manufacturer's standard structural-framing system, designed to withstand required loads; fabricated from shop-welded, built-up steel plates or structural-steel shapes. Provide frames with attachment plates and splice members, factory drilled for field-bolted assembly.

1. Type: Straight-beam, eave type.
- E. Bracing: Provide adjustable wind bracing as follows:
1. Rods: ASTM A 529/A 529M, Grade 50 (345); minimum 1/2-inch- (13-mm-) diameter steel; threaded full length or threaded a minimum of 6 inches (152 mm) at each end.
 2. Cable: ASTM A 475, 1/4-inch- (6-mm-) diameter, extra-high-strength grade, Class B, zinc-coated, seven-strand steel; with threaded end anchors.
 3. Angles: Fabricated from structural-steel shapes to match primary framing, of size required to withstand design loads.
 4. Rigid Portal Frames: Fabricated from shop-welded, built-up steel plates or structural-steel shapes to match primary framing; of size required to withstand design loads.
 5. Fixed-Base Columns: Fabricated from shop-welded, built-up steel plates or structural-steel shapes to match primary framing; of size required to withstand design loads.
 6. Diaphragm Action of Metal Panels: Design metal building to resist wind forces through diaphragm action of metal panels.
 7. Bracing: Provide wind bracing using any method specified above, at manufacturer's option.
- F. Bolts: Provide plain-finish bolts for structural-framing components that are primed or finish painted. Provide hot-dip galvanized bolts for structural-framing components that are galvanized.
- G. Materials:
1. W-Shapes: ASTM A 572/A 572M, Grade 50 or 55 (345 or 380);
 2. Channels, Angles, M-Shapes, and S-Shapes: ; ASTM A 572/A 572M, Grade 50 or 55 (345 or 380);
 3. Plate and Bar: ASTM A 572/A 572M, Grade 50 or 55 (345 or 380);
 4. Steel Pipe: ASTM A 53/A 53M, Type E or S, Grade B.
 5. Cold-Formed Hollow Structural Sections: ASTM A 500, Grade B or C, structural tubing.
 6. Structural-Steel Sheet: Hot-rolled, ASTM A 1011/A 1011M, Structural Steel (SS), Grades 30 through 55 (205 through 380),
 7. Metallic-Coated Steel Sheet: High-Strength Low-Alloy Steel (HSLAS), Grades 50 through 80 (340 through 550); with G60 (Z180) coating designation; mill phosphatized.
 8. Metallic-Coated Steel Sheet Prepainted with Coil Coating: Steel sheet, metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755/A 755M.
 - a. Zinc-Coated (Galvanized) Steel Sheet: High-Strength Low-Alloy Steel (HSLAS), Grades 50 through 80 (340 through 550); with G90 (Z275) coating designation.
 9. Non-High-Strength Bolts, Nuts, and Washers: ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6), carbon-steel, hex-head bolts; ASTM A 563 (ASTM A 563M) carbon-steel hex nuts; and ASTM F 844 plain (flat) steel washers.
 - a. Finish: Hot-dip zinc coating, ASTM A 153/A 153M, Class C

10. High-Strength Bolts, Nuts, and Washers: ASTM A 325 (ASTM A 325M), Type 1, heavy-hex steel structural bolts; ASTM A 563 (ASTM A 563M) heavy-hex carbon-steel nuts; and ASTM F 436 (ASTM F 436M) hardened carbon-steel washers.
 - a. Finish: Hot-dip zinc coating, ASTM A 153/A 153M, Class C
 11. Tension-Control, High-Strength Bolt-Nut-Washer Assemblies: ASTM F 1852, Type 1, heavy-hex-head steel structural bolts with spline ends.
 - a. Finish: Mechanically deposited zinc coating, ASTM B 695, Class 50, baked-epoxy coated.
 12. Unheaded Anchor Rods: ASTM A 572/A 572M, Grade 50 (345)
 - a. Configuration: Straight.
 - b. Nuts: ASTM A 563 (ASTM A 563M) heavy-hex carbon steel.
 - c. Plate Washers: ASTM A 36/A 36M carbon steel.
 - d. Washers: ASTM F 436 (ASTM F 436M) hardened carbon steel.
 - e. Finish: Hot-dip zinc coating, ASTM A 153/A 153M, Class C
 13. Headed Anchor Rods: ASTM A 307, Grade A
 - a. Configuration: Straight.
 - b. Nuts: ASTM A 563 (ASTM A 563M) heavy-hex carbon steel.
 - c. Plate Washers: ASTM A 36/A 36M carbon steel.
 - d. Washers: ASTM F 436 (ASTM F 436M) hardened carbon steel.
 - e. Finish: Hot-dip zinc coating, ASTM A 153/A 153M, Class C
 14. Threaded Rods: ASTM A 572/A 572M, Grade 50 (345)
 - a. Nuts: ASTM A 563 (ASTM A 563M) heavy-hex carbon steel.
 - b. Washers: ASTM F 436 (ASTM F 436M) hardened
 - c. Finish: Hot-dip zinc coating, ASTM A 153/A 153M, Class C
 15. Recycled Content of Steel Products: Provide steel products with an average recycled content so postconsumer recycled content plus one-half of preconsumer recycled content is not less than 25 percent.
- H. Finish: Factory primed. Apply specified primer immediately after cleaning and pretreating.
1. Apply primer to primary and secondary framing to a minimum dry film thickness of 1 mil (0.025 mm).
 - a. Prime secondary framing formed from uncoated steel sheet to a minimum dry film thickness of 0.5 mil (0.013 mm) on each side.
 2. Prime galvanized members with specified primer after phosphoric acid pretreatment.

3. Primer: SSPC-Paint 15, Type I, red oxide.

2.5 METAL ROOF PANELS

- A. Vertical-Rib, Standing Seam Battenlok Metal Roof Panels formed with vertical ribs at panel edges and intermediate stiffening ribs as selected by Architect from manufacturer's full range of panel profiles and styles. Symmetrically spaced between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels and engaging opposite edge of adjacent panels.
 1. Material: Zinc-coated (galvanized) steel sheet, 0.034-inch (0.86-mm) nominal thickness.
 - a. Exterior Finish: Siliconized polyester Signature 200 Premium or Approved Equal.
 - b. Color as selected by Architect from manufacturer's full range of colors.
 2. Clips: Manufacturer's standard, floating type to accommodate thermal movement fabricated from zinc-coated (galvanized) steel.
 3. Joint Type: Mechanically seamed, double folded
 4. Panel Coverage: 16 inches (406 mm)
 5. Panel Height: 2 inches (51 mm)
 6. Uplift Rating: UL 90
- B. Materials:
 1. Metallic-Coated Steel Sheet: Restricted-flatness steel sheet, metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755/A 755M.
 - a. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coating designation; structural quality.
 - b. Surface: As selected by Architect from manufacturer's full range panel profiles and styles.
- C. Finishes:
 1. Exposed Coil-Coated Finish:
 - a. Siliconized Polyester: Epoxy primer and silicone-modified, polyester-enamel topcoat; with a dry film thickness of not less than 0.2 mil (0.005 mm) for primer and 0.8 mil (0.02 mm) for topcoat.
 2. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil (0.013 mm).

2.6 METAL WALL PANELS

- A. Concealed Fastener Lokseam Metal Wall Panels formed with vertical panel edges and intermediate stiffening ribs as selected by Architect from manufacturer's full range panel profiles and styles symmetrically spaced between ribs with flush joint between panels; with 1-inch- (25-mm-) wide flange for attaching interior finish; designed to be installed by lapping and interconnecting side edges of adjacent panels and mechanically attaching through panel to supports using concealed fasteners and factory-applied sealant in side laps.

1. Material: Zinc-coated (galvanized) steel sheet, 0.034-inch (0.86-mm) nominal thickness.
 - a. Exterior Finish: Siliconized polyester. Signature 200 Premium or Approved Equal.
 - b. Color: As selected by Architect from manufacturer's full range.
2. Panel Coverage: 16 inches (406 mm)
3. Panel Height: 1-3/4" inches

B. Materials:

1. Metallic-Coated Steel Sheet: Restricted-flatness steel sheet, metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755/A 755M.
 - a. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coating designation; structural quality.
 - b. Surface: As selected by Architect from manufacturer's full range panel profiles and styles.

C. Finishes:

1. Exposed Coil-Coated Finish:
 - a. Siliconized Polyester: Epoxy primer and silicone-modified, polyester-enamel topcoat; with a dry film thickness of not less than 0.2 mil (0.005 mm) for primer and 0.8 mil (0.02 mm) for topcoat.
2. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil (0.013 mm).

2.7 THERMAL INSULATION

- A. Faced Metal Building Insulation: ASTM C 991, Type II, glass-fiber-blanket insulation; 0.5-lb/cu. ft. (8-kg/cu. m) density; 2-inch- (51-mm-) wide, continuous, vapor-tight edge tabs; with a flame-spread index of 25 or less.
1. Vapor-Retarder Facing: ASTM C 1136, with permeance not greater than 0.02 perm (1.15 ng/Pa x s x sq. m) when tested according to ASTM E 96/E 96M, Desiccant Method.

- a. Composition: White vinyl facing, fiberglass scrim reinforcement, and metalized-polyester film backing.
- B. Retainer Strips: 0.025-inch (0.64-mm) nominal-thickness, formed, metallic-coated steel or PVC retainer clips colored to match insulation facing.
- C. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.

2.8 DOORS AND FRAMES

- A. Swinging Personnel Doors and Frames: Metal building system manufacturer's standard doors and frames; prepared and reinforced at strike and at hinges to receive factory- and field-applied hardware according to BHMA A156 Series.
 1. Steel Doors: 1-3/4 inches (44 mm) thick; fabricated from 0.040-inch (1.02-mm) nominal-thickness, metallic-coated steel face sheets; of seamless, hollow-metal construction; with 0.064-inch (1.63-mm) nominal-thickness, inverted metallic-coated steel channels welded to face sheets at top and bottom of door.
 - a. Design: Flush panel
 - b. Core: Polyurethane foam with U-factor rating of at least 0.07 Btu/sq. ft. x h x deg F (0.40 W/sq. m x K).
 - c. Glazing Frames: Steel frames to receive field-installed laminated safety glazing.
 2. Steel Frames: Fabricate 2-inch- (51-mm-) wide face frames from 0.064-inch (1.63-mm) nominal-thickness, metallic-coated steel sheet.
 - a. Type: Factory welded.
 3. Fabricate concealed stiffeners, reinforcement, edge channels, and moldings from either cold- or hot-rolled steel sheet.
 4. Hardware:
 - a. Provide hardware for each door leaf, as follows:
 - 1) Hinges: BHMA A156.1. Three antifriction-bearing, standard-weight, full-mortise, stainless-steel or bronze, template-type hinges; 4-1/2 by 4-1/2 inches (114 by 114 mm), with nonremovable pin.
 - 2) Exit Device: BHMA A156.3. Touch- or push-bar type.
 - 3) Threshold: BHMA A156.21. Extruded aluminum.
 - 4) Silencers: Pneumatic rubber; three silencers on strike jambs of single door frames and two silencers on heads of double door frames.
 - 5) Closer: BHMA A156.4. Surface-applied, standard-duty hydraulic type.
 - 6) Weather Stripping: Vinyl applied to head and jambs, with vinyl sweep at sill.

5. Anchors and Accessories: Manufacturer's standard units, galvanized according to ASTM A 123/A 123M.
6. Fabrication: Fabricate doors and frames to be rigid; neat in appearance; and free from defects, warp, or buckle. Provide continuous welds on exposed joints; grind, dress, and make welds smooth, flush, and invisible.
7. Provide metallic-coated steel handle for each leaf, and slide bolt or padlock hasp. Flash top of track with metallic-coated steel sheet hood.
8. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with G60 (Z180) zinc (galvanized) coating designation.

B. Finishes for Personnel Doors and Frames:

1. Prime Finish: Factory-apply manufacturer's standard primer immediately after cleaning and pretreating.
 - a. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.
2. Factory-Applied Paint Finish: Manufacturer's standard, complying with SDI A250.3 for performance and acceptance criteria.
 - a. Color and Gloss: As selected by Architect from manufacturer's full range of colors and gloss.

2.9 ACCESSORIES

- A. General: Provide accessories as standard with metal building system manufacturer and as specified. Fabricate and finish accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes. Comply with indicated profiles and with dimensional and structural requirements.
1. Form exposed sheet metal accessories that are without excessive oil-canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
- B. Roof Panel Accessories: Provide components required for a complete metal roof panel assembly including copings, fasciae, corner units, ridge closures, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal roof panels unless otherwise indicated.
1. Closures: Provide closures at eaves and ridges, fabricated of same material as metal roof panels.
 2. Clips: Manufacturer's standard, formed from stainless-steel sheet, designed to withstand negative-load requirements.
 3. Cleats: Manufacturer's standard, mechanically seamed cleats formed from stainless-steel sheet.

4. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
 5. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible closure strips; cut or premolded to match metal roof panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
 6. Thermal Spacer Blocks: Where metal panels attach directly to purlins, provide thermal spacer blocks of thickness required to provide 1-inch (25-mm) standoff; fabricated from extruded polystyrene.
- C. Wall Panel Accessories: Provide components required for a complete metal wall panel assembly including copings, fasciae, mullions, sills, corner units, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal wall panels unless otherwise indicated.
1. Closures: Provide closures at eaves and rakes, fabricated of same material as metal wall panels.
 2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
 3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible closure strips; cut or premolded to match metal wall panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
- D. Flashing and Trim: Formed from 0.022-inch (0.56-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match adjacent metal panels.
1. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers.
 2. Opening Trim: Formed from 0.034-inch (0.86-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating. Trim head and jamb of door openings, and head, jamb, and sill of other openings.
- E. Gutters: Formed from 0.022-inch (0.56-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match roof fascia and rake trim. Match profile of gable trim, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch- (2438-mm-) long sections, sized according to SMACNA's "Architectural Sheet Metal Manual."
1. Gutter Supports: Fabricated from same material and finish as gutters.
 2. Strainers: Bronze, copper, or aluminum wire ball type at outlets.
- F. Downspouts: Formed from 0.022-inch (0.56-mm) nominal-thickness, zinc-coated (galvanized) steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match metal wall panels. Fabricate in minimum 10-foot- (3-m-) long sections; complete with formed elbows and offsets.
- G. Pipe Flashing: Premolded, EPDM pipe collar with flexible aluminum ring bonded to base.

H. Materials:

1. Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets and bolts, end-welded studs, and other suitable fasteners designed to withstand design loads. Provide fasteners with heads matching color of materials being fastened by means of plastic caps or factory-applied coating.
 - a. Fasteners for Metal Roof Panels: Self-drilling, Type 410 stainless-steel or self-tapping, Type 304 stainless-steel or zinc-alloy-steel hex washer head, with EPDM washer under heads of fasteners bearing on weather side of metal panels.
 - b. Fasteners for Metal Wall Panels: Self-drilling, Type 410 stainless-steel or self-tapping, Type 304 stainless-steel or zinc-alloy-steel hex washer head, with EPDM sealing washers bearing on weather side of metal panels.
 - c. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws with hex washer head.
 - d. Blind Fasteners: High-strength aluminum or stainless-steel rivets.
2. Corrosion-Resistant Coating: Cold-applied asphalt mastic, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.
3. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.
4. Metal Panel Sealants:
 - a. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene-compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape of manufacturer's standard size.
 - b. Joint Sealant: ASTM C 920; one-part elastomeric polyurethane or polysulfide; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended by metal building system manufacturer.

2.10 SOURCE QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to evaluate product.
- B. Special Inspector: Owner will engage a qualified special inspector to perform the following tests and inspections and to submit reports. Special inspector will verify that manufacturer maintains detailed fabrication and quality-control procedures and will review the completeness and adequacy of those procedures to perform the Work.
 1. Special inspections will not be required if fabrication is performed by manufacturer registered and approved by authorities having jurisdiction to perform such Work without special inspection.
 - a. After fabrication, submit copy of certificate of compliance to authorities having jurisdiction, certifying that Work was performed according to Contract requirements.
- C. Testing: Test and inspect shop connections for metal buildings according to the following:

1. Bolted Connections: Shop-bolted connections shall be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
 2. Welded Connections: In addition to visual inspection, shop-welded connections shall be tested and inspected according to AWS D1.1/D1.1M and the following inspection procedures, at inspector's option:
 - a. Liquid Penetrant Inspection: ASTM E 165.
 - b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
 - c. Ultrasonic Inspection: ASTM E 164.
 - d. Radiographic Inspection: ASTM E 94.
- D. Product will be considered defective if it does not pass tests and inspections.
- E. Prepare test and inspection reports.

2.11 FABRICATION

- A. General: Design components and field connections required for erection to permit easy assembly.
1. Mark each piece and part of the assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.
 2. Fabricate structural framing to produce clean, smooth cuts and bends. Punch holes of proper size, shape, and location. Members shall be free of cracks, tears, and ruptures.
- B. Tolerances: Comply with MBMA's "Metal Building Systems Manual" for fabrication and erection tolerances.
- C. Primary Framing: Shop fabricate framing components to indicated size and section, with baseplates, bearing plates, stiffeners, and other items required for erection welded into place. Cut, form, punch, drill, and weld framing for bolted field assembly.
1. Make shop connections by welding or by using high-strength bolts.
 2. Join flanges to webs of built-up members by a continuous, submerged arc-welding process.
 3. Brace compression flange of primary framing with steel angles or cold-formed structural tubing between frame web and purlin web or girt web, so flange compressive strength is within allowable limits for any combination of loadings.
 4. Weld clips to frames for attaching secondary framing.
 5. Shop Priming: Prepare surfaces for shop priming according to SSPC-SP 2. Shop prime primary framing with specified primer after fabrication.
- D. Secondary Framing: Shop fabricate framing components to indicated size and section by roll-forming or break-forming, with baseplates, bearing plates, stiffeners, and other plates required for erection welded into place. Cut, form, punch, drill, and weld secondary framing for bolted field connections to primary framing.

1. Make shop connections by welding or by using non-high-strength bolts.
 2. Shop Priming: Prepare uncoated surfaces for shop priming according to SSPC-SP 2. Shop prime uncoated secondary framing with specified primer after fabrication.
- E. Metal Panels: Fabricate and finish metal panels at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements.
1. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of metal panel.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with erector present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Before erection proceeds, survey elevations and locations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments to receive structural framing, with erector present, for compliance with requirements and metal building system manufacturer's tolerances.
 1. Engage land surveyor to perform surveying.
- C. Proceed with erection only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition.
- B. Provide temporary shores, guys, braces, and other supports during erection to keep structural framing secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural framing, connections, and bracing are in place unless otherwise indicated.

3.3 ERECTION OF STRUCTURAL FRAMING

- A. Erect metal building system according to manufacturer's written erection instructions and erection drawings.
- B. Do not field cut, drill, or alter structural members without written approval from metal building system manufacturer's professional engineer.

- C. Set structural framing accurately in locations and to elevations indicated, according to AISC specifications referenced in this Section. Maintain structural stability of frame during erection.
- D. Base and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.
 - 1. Set plates for structural members on wedges, shims, or setting nuts as required.
 - 2. Tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
 - 3. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.
- E. Align and adjust structural framing before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with framing. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
 - 1. Level and plumb individual members of structure.
 - 2. Make allowances for difference between temperature at time of erection and mean temperature when structure will be completed and in service.
- F. Primary Framing and End Walls: Erect framing level, plumb, rigid, secure, and true to line. Level baseplates to a true even plane with full bearing to supporting structures, set with double-nutted anchor bolts. Use grout to obtain uniform bearing and to maintain a level base-line elevation. Moist-cure grout for not less than seven days after placement.
 - 1. Make field connections using high-strength bolts installed according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for bolt type and joint type specified.
 - a. Joint Type: Snug tightened or pretensioned.
- G. Secondary Framing: Erect framing level, plumb, rigid, secure, and true to line. Field bolt secondary framing to clips attached to primary framing.
 - 1. Provide rake or gable purlins with tight-fitting closure channels and fasciae.
 - 2. Locate and space wall girts to suit openings such as doors and windows.
 - 3. Locate canopy framing as indicated.
 - 4. Provide supplemental framing at entire perimeter of openings, including doors, windows, louvers, ventilators, and other penetrations of roof and walls.
- H. Bracing: Install bracing in roof and sidewalls where indicated on erection drawings.
 - 1. Tighten rod and cable bracing to avoid sag.
 - 2. Locate interior end-bay bracing only where indicated.
- I. Framing for Openings: Provide shapes of proper design and size to reinforce openings and to carry loads and vibrations imposed, including equipment furnished under mechanical and electrical work. Securely attach to structural framing.

- J. Erection Tolerances: Maintain erection tolerances of structural framing within AISC 303.

3.4 METAL PANEL INSTALLATION, GENERAL

- A. Examination: Examine primary and secondary framing to verify that structural-panel support members and anchorages have been installed within alignment tolerances required by manufacturer.
1. Examine roughing-in for components and systems penetrating metal panels, to verify actual locations of penetrations relative to seams before metal panel installation.
- B. General: Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.
1. Field cut metal panels as required for doors, windows, and other openings. Cut openings as small as possible, neatly to size required, and without damage to adjacent metal panel finishes.
 - a. Field cutting of metal panels by torch is not permitted unless approved in writing by manufacturer.
 2. Install metal panels perpendicular to structural supports unless otherwise indicated.
 3. Flash and seal metal panels with weather closures at perimeter of openings and similar elements. Fasten with self-tapping screws.
 4. Locate and space fastenings in uniform vertical and horizontal alignment.
 5. Locate metal panel splices over, but not attached to, structural supports with end laps in alignment.
 6. Lap metal flashing over metal panels to allow moisture to run over and off the material.
- C. Lap-Seam Metal Panels: Install screw fasteners using power tools with controlled torque adjusted to compress EPDM washers tightly without damage to washers, screw threads, or metal panels. Install screws in predrilled holes.
1. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints. Lap ribbed or fluted sheets one full rib corrugation. Apply metal panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.
- D. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal roof panel manufacturer.
- E. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal panel assemblies. Provide types of gaskets, fillers, and sealants indicated; or, if not indicated, provide types recommended by metal panel manufacturer.

1. Seal metal panel end laps with double beads of tape or sealant the full width of panel. Seal side joints where recommended by metal panel manufacturer.
2. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."

3.5 METAL ROOF PANEL INSTALLATION

- A. General: Provide metal roof panels of full length from eave to ridge unless otherwise indicated or restricted by shipping limitations.
1. Install ridge caps as metal roof panel work proceeds.
 2. Flash and seal metal roof panels with weather closures at eaves and rakes. Fasten with self-tapping screws.
- B. Standing-Seam Metal Roof Panels: Fasten metal roof panels to supports with concealed clips at each standing-seam joint, at location and spacing and with fasteners recommended by manufacturer.
1. Install clips to supports with self-drilling or self-tapping fasteners.
 2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
 3. Snap Joint: Nest standing seams and fasten together by interlocking and completely engaging factory-applied sealant.
 4. Seamed Joint: Crimp standing seams with manufacturer-approved motorized seamer tool so that clip, metal roof panel, and factory-applied sealant are completely engaged.
 5. Rigidly fasten eave end of metal roof panels and allow ridge end free movement due to thermal expansion and contraction. Predrill panels for fasteners.
 6. Provide metal closures as required at all panel ends and panel edges at all openings.
- C. Lap-Seam Metal Roof Panels: Fasten metal roof panels to supports with exposed fasteners at each lapped joint, at location and spacing recommended by manufacturer.
1. Provide metal-backed sealing washers under heads of exposed fasteners bearing on weather side of metal roof panels.
 2. Provide sealant tape at lapped joints of metal roof panels and between panels and protruding equipment, vents, and accessories.
 3. Apply a continuous ribbon of sealant tape to weather-side surface of fastenings on end laps and on side laps of nesting-type metal panels, on side laps of ribbed or fluted metal panels, and elsewhere as needed to make metal panels weatherproof to driving rains.
 4. At metal panel splices, nest panels with minimum 6-inch (152-mm) end lap, sealed with butyl-rubber sealant and fastened together by interlocking clamping plates.
- D. Metal Fascia Panels: Align bottom of metal panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws. Flash and seal metal panels with weather closures where fasciae meet soffits, along lower panel edges, and at perimeter of all openings.
- E. Metal Roof Panel Installation Tolerances: Shim and align metal roof panels within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines as indicated and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

3.6 METAL WALL PANEL INSTALLATION

- A. General: Install metal wall panels in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to girts, extending full height of building, unless otherwise indicated. Anchor metal wall panels and other components of the Work securely in place, with provisions for thermal and structural movement.
1. Unless otherwise indicated, begin metal panel installation at corners with center of rib lined up with line of framing.
 2. Shim or otherwise plumb substrates receiving metal wall panels.
 3. When two rows of metal panels are required, lap panels 4 inches (102 mm) minimum.
 4. When building height requires two rows of metal panels at gable ends, align lap of gable panels over metal wall panels at eave height.
 5. Rigidly fasten base end of metal wall panels and allow eave end free movement due to thermal expansion and contraction. Predrill panels.
 6. Flash and seal metal wall panels with weather closures at eaves, rakes, and at perimeter of all openings. Fasten with self-tapping screws.
 7. Install screw fasteners in predrilled holes.
 8. Install flashing and trim as metal wall panel work proceeds.
 9. Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete, and elsewhere as indicated; or, if not indicated, as necessary for waterproofing.
 10. Align bottom of metal wall panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws.
 11. Provide weatherproof escutcheons for pipe and conduit penetrating exterior walls.
- B. Metal Wall Panels: Install metal wall panels on exterior side of girts. Attach metal wall panels to supports with fasteners as recommended by manufacturer.
- C. Installation Tolerances: Shim and align metal wall panels within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m), nonaccumulative, on level, plumb, and on location lines as indicated, and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

3.7 THERMAL INSULATION INSTALLATION

- A. General: Install insulation concurrently with metal panel installation, in thickness indicated to cover entire surface, according to manufacturer's written instructions.
1. Set vapor-retarder-faced units with vapor retarder toward warm side of construction unless otherwise indicated. Do not obstruct ventilation spaces except for firestopping.
 2. Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to the surrounding construction to ensure airtight installation.
 3. Install factory-laminated, vapor-retarder-faced blankets straight and true in one-piece lengths, with both sets of facing tabs sealed, to provide a complete vapor retarder.
 4. Install blankets straight and true in one-piece lengths. Install vapor retarder over insulation, with both sets of facing tabs sealed, to provide a complete vapor retarder.
- B. Blanket Roof Insulation: Comply with the following installation method:

1. Over-Framing Installation: Extend insulation and vapor retarder over and perpendicular to top flange of secondary framing. Hold in place by metal roof panels fastened to secondary framing.
 2. Between-Purlin Installation: Extend insulation and vapor retarder between purlins. Carry vapor-retarder-facing tabs up and over purlin, overlapping adjoining facing of next insulation course and maintaining continuity of retarder. Hold in place with bands and crossbands below insulation.
 3. Over-Purlin-with-Spacer-Block Installation: Extend insulation and vapor retarder over and perpendicular to top flange of secondary framing. Install layer of filler insulation over first layer to fill space formed by metal roof panel standoffs. Hold in place by panels fastened to standoffs.
 - a. Thermal Spacer Blocks: Where metal roof panels attach directly to purlins, install thermal spacer blocks.
 4. Two-Layers-between-Purlin-with-Spacer-Block Installation: Extend insulation and vapor retarder between purlins. Carry vapor-retarder-facing tabs up and over purlin, overlapping adjoining facing of next insulation course and maintaining continuity of retarder. Install layer of filler insulation over first layer to fill space between purlins formed by thermal spacer blocks. Hold in place with bands and crossbands below insulation.
 - a. Thermal Spacer Blocks: Where metal roof panels attach directly to purlins, install thermal spacer blocks.
 5. Retainer Strips: Install retainer strips at each longitudinal insulation joint, straight and taut, nesting with secondary framing to hold insulation in place.
- C. Blanket Wall Insulation: Extend insulation and vapor retarder over and perpendicular to top flange of secondary framing. Hold in place by metal wall panels fastened to secondary framing.
1. Retainer Strips: Install retainer strips at each longitudinal insulation joint, straight and taut, nesting with secondary framing to hold insulation in place.
 2. Sound-Absorption Insulation: Where sound-absorption requirement is indicated for metal liner panels, cover insulation with polyethylene film and provide inserts of wire mesh to form acoustical spacer grid.

3.8 DOOR AND FRAME, BI FOLD SECTIONAL HANGER DOORS INSTALLATION

- A. General: Install doors and frames plumb, rigid, properly aligned, and securely fastened in place according to manufacturers' written instructions. Coordinate installation with wall flashings and other components. Seal perimeter of each door frame with elastomeric sealant used for metal wall panels.
- B. Personnel Doors and Frames: Install doors and frames according to SDI A250.8. Fit non-fire-rated doors accurately in their respective frames, with the following clearances:
 1. Between Doors and Frames at Jambs and Head: 1/8 inch (3 mm).
 2. Between Edges of Pairs of Doors: 1/8 inch (3 mm).

3. At Door Sills with Threshold: 3/8 inch (9.5 mm).
 4. At Door Sills without Threshold: 3/4 inch (19.1 mm).
 5. At fire-rated openings, install frames according to, and doors with clearances specified in, NFPA 80.
- C. BI Fold Sectional Hanger Door: Provide the necessary structural framing system attached to the Metal Build Framing to support the load and forces applied to the framing systems as provided by the BI Fold Door manufacture. Set doors and operating equipment with necessary hardware, jamb and head mold stops, continuous hood flashing, anchors, inserts, hangers, and equipment supports.
- D. Field Glazing: Comply with installation requirements in "Glazing" Items.
- E. Door Hardware: Mount units at heights indicated in DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
1. Install surface-mounted items after finishes have been completed on substrates involved.
 2. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
 3. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
 4. Set thresholds for exterior doors in full bed of butyl-rubber sealant complying with requirements specified in Division 07 Section "Joint Sealants."

3.9 ACCESSORY INSTALLATION

- A. General: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
1. Install components required for a complete metal roof panel assembly, including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
 2. Install components for a complete metal wall panel assembly, including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
 3. Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by manufacturer.
- B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
1. Install exposed flashing and trim that is without excessive 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 and to result in waterproof and weather-resistant performance.

2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).
- C. Gutters: Join sections with riveted-and-soldered or lapped-and-sealed joints. Attach gutters to eave with gutter hangers spaced as required for gutter size, but not more than 36 inches (914 mm) o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.
- D. Downspouts: Join sections with 1-1/2-inch (38-mm) telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1524 mm) o.c. in between.
 1. Provide elbows at base of downspouts to direct water away from building.
 2. Tie downspouts to underground drainage system indicated.
- E. Circular Roof Ventilators: Set ventilators complete with necessary hardware, anchors, dampers, weather guards, rain caps, and equipment supports. Mount ventilators on flat level base. Install preformed filler strips at base to seal ventilator to metal roof panels.
- F. Continuous Roof Ventilators: Set ventilators complete with necessary hardware, anchors, dampers, weather guards, rain caps, and equipment supports. Join sections with splice plates and end-cap skirt assemblies where required to achieve indicated length. Install preformed filler strips at base to seal ventilator to metal roof panels.
- G. Louvers: Locate and place louver units level, plumb, and at indicated alignment with adjacent work.
 1. 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.
 2. Provide perimeter reveals and openings of uniform width for sealants and joint fillers.
 3. Protect galvanized- and nonferrous-metal surfaces from corrosion or galvanic action by applying a heavy coating of corrosion-resistant paint on surfaces that will be in contact with concrete, masonry, or dissimilar metals.
 4. Install concealed gaskets, flashings, joint fillers, and insulation as louver installation progresses, where weathertight louver joints are required. Comply with Division 07 Section "Joint Sealants" for sealants applied during louver installation.
- H. Roof Curbs: Install curbs at locations indicated on Drawings. Install flashing around bases where they meet metal roof panels.
- I. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to panel as recommended by manufacturer.

3.10 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:
 - 1. Inspection of fabricators.
 - 2. Steel construction.
- B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- C. Tests and Inspections:
 - 1. High-Strength, Field-Bolted Connections: Connections shall be tested and inspected during installation according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
 - 2. Welded Connections: In addition to visual inspection, field-welded connections shall be tested and inspected according to AWS D1.1/D1.1M and the following inspection procedures, at inspector's option:
 - a. Liquid Penetrant Inspection: ASTM E 165.
 - b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
 - c. Ultrasonic Inspection: ASTM E 164.
 - d. Radiographic Inspection: ASTM E 94.
- D. Product will be considered defective if it does not pass tests and inspections.
- E. Prepare test and inspection reports.

3.11 ADJUSTING

- A. Doors: After completing installation, test and adjust doors to operate easily, free of warp, twist, or distortion.
- B. Door Hardware: Adjust and check each operating item of door hardware and each door to ensure proper operation and function of every unit. Replace units that cannot be adjusted to operate as intended.
- C. Windows: Adjust operating sashes and ventilators, screens, hardware, and accessories for a tight fit at contact points and at weather stripping to ensure smooth operation and weathertight closure. Lubricate hardware and moving parts.

3.12 CLEANING AND PROTECTION

- A. Repair damaged galvanized coatings on galvanized items with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.

- B. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.
- C. Touchup Painting: After erection, promptly clean, prepare, and prime or reprime field connections, rust spots, and abraded surfaces of prime-painted structural framing bearing plates, and accessories.
 - 1. Clean and prepare surfaces by SSPC-SP 2, "Hand Tool Cleaning," or by SSPC-SP 3, "Power Tool Cleaning."
 - 2. Apply a compatible primer of same type as shop primer used on adjacent surfaces.
- D. Touchup Painting: Cleaning and touchup painting are specified in Division 09 painting Sections.
- E. Metal Panels: Remove temporary protective coverings and strippable films, if any, as metal panels are installed. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.
 - 1. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.
- F. Doors and Frames: Immediately after installation, sand rusted or damaged areas of prime coat until smooth and apply touchup of compatible air-drying primer.
 - 1. Immediately before final inspection, remove protective wrappings from doors and frames.
- G. Windows: Clean metal surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances. Clean factory-glazed glass immediately after installing windows.
- H. Louvers: Clean exposed surfaces that are not protected by temporary covering, to remove fingerprints and soil during construction period. Do not let soil accumulate until final cleaning.
 - 1. Restore louvers damaged during installation and construction period so no evidence remains of corrective work. If results of restoration are unsuccessful, as determined by Architect, remove damaged units and replace with new units.
 - a. Touch up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating.

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ITEM NO. 78

SAND

WORK: Under this item this Contractor shall furnish and install **SAND** in accordance with the plans and specifications and the directions of the Engineer.

MATERIALS: Unless otherwise herein specified, all materials and methods of construction shall conform to the requirements of Appendix Item, Section B, "Materials and Methods of Construction."

Sand: Sand shall consist of clean, hard, durable, angular, uncoated particles, free from weed seeds and all deleterious substances. Sand shall be from an approved source and shall contain no pulverized concrete fill material.

Sand shall be so graded as to meet the following physical requirements.

<u>Sieve Size</u>	<u>% Passing by Weight</u>
1"	100%
#4	85-95%
#100	20-30%
#200	0-5%

SUBMITTAL: All submittals shall be submitted in accordance with the requirements of the General Conditions.

The Contractor shall furnish samples with a certified report of an approved analytical chemist showing the mechanical and chemical analysis of representative samples of the sand which he proposes to use. The price bid shall include laboratory and inspection charges.

No material shall be delivered until the approval of samples by the Engineer, but such approval does not constitute final acceptance. The Engineer reserves the right to reject on or after delivery, any material which does not, in his opinion, meet these specifications. When the sand is stored on the site, it shall be done as directed by the Engineer.

MEASUREMENT AND PAYMENT: The quantity of **SAND** to be paid for under this item shall be the number of **CUBIC YARDS** installed in accordance with the plans, specifications and to the satisfaction of the Engineer.

The price bid shall be a unit price per **CUBIC YARD** of **SAND** furnished and installed and shall include all labor, material and equipment necessary to complete the work in accordance with the plans and specifications to the satisfaction of the Engineer.

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ITEM NO. 79 **PLUMBING WORK**

SCOPE OF WORK: This item together with the provisions of the General Conditions is intended to cover the fabrication and installation of a Plumbing System; including but not limited to all materials, labor, equipment and method of performing the plumbing work for Horse Riding Arena, located west of Father Capodanno Boulevard and North of Seaview Avenue in Ocean Breeze, Borough of Staten Island.

REQUIREMENTS: The work specified under this item shall be performed by a New York State Licensed Plumber. The contractor shall submit a copy of a valid N.Y.S. Plumber's License to the Resident Engineer prior to commencing any plumbing work.

COORDINATION: This contractor shall coordinate his work with other trades who are working on this site and cooperate to expedite the job. This contractor shall inform the DDC Resident Engineer prior the beginning of any work for discrepancies, which will cause interruption of his work and request written advisement to follow accordingly. Failure of the contractor to comply with this coordination shall be undertaken by the contractor at his own expense and at **NO ADDITIONAL COST TO THE CITY.**

WORK INCLUDED: Under this item, the Contractor shall furnish and install all labor, materials and equipment together with all work incidental thereto necessary or required for the following:

1. Furnish & Install new plumbing fixtures in restrooms as shown in the contract drawings.
2. Furnish & Install all sanitary, waste, vent, hot, cold water piping (distribution header and branch lines), valves and fittings inside the Horse Riding Arena and also utility service piping, valves and fittings, Utility marker, curb valve, valve boxes necessary to connect to the DEP water supply and sanitary sewer, storm sewer outside the building/ at the property line to accommodate and serve the new fixtures and as shown in the contract drawings.
3. Furnish & Install all specified fixtures: Water closet, lavatory, Service sink, Pantry sink, Wall Hydrants, Horse Waterer, Wall faucet, Floor drains, Trench drains specified herein, as shown in the approved shop drawings and as shown in the contract drawings.
4. Furnish & install new RPZ system and Water Meter with remote reader including water piping to connect to all header and distribution piping throughout the building and site piping in accordance with the plans and specifications.
5. Furnish & install new Double Check Valve Detector Assembly system including water piping to connect to site piping for Fire Sprinkler System in accordance with the plans and specifications.

6. Furnish & install Cement Lined Ductile Iron Water Pipe, Utility marker, Property line valve, Curb valve, Valve boxes necessary to connect to the DEP water supply in accordance with the plans, specifications.
7. Furnish & Install new house Trap including underground manhole with cover, F.A.I with all required and necessary piping, fittings, terminal caps, sleeves and underground extra heavy duty cast iron sewer piping up to 5 (five) feet from the building for site connection to street sanitary sewer as shown in the contract drawings.
8. Furnish and install new Storage Hot water heaters and associated piping and fittings as shown in the contract drawings.
9. Furnish and install electrical heat tracing for all above ground plumbing piping as detailed in the specification and shown in the contract drawings.
10. Furnish and install new vertical conductors/down spouts for gutter drain, including underground extra heavy duty cast iron storm piping, valves, fittings, supports for storm drainage system in accordance with the plans, specifications.
11. All cutting, patching, excavation and restoration of ground, wall, floors and ceilings required to install the fixtures, waste, vent and domestic water piping shall be included as part of the installation of all work specified herein.
12. Electrical power and control wiring for fixtures and other plumbing equipment.
13. Test and start-up.
14. Insulation.
15. Cutting, Patching and Core Drilling.
16. Paintings.
17. Furnish all labor and material to perform the installation of all transformer, solenoid valves, control modules including all associated electrical and control wiring and conduit for a fully automatic operation of all the fixtures flush valve and faucet solenoid valve.
18. All cutting, excavation, backfill and all other restoration required for the installation of the fixtures, waste, sewer, vent, water piping, floor drains, flush valves and solenoid valve including the s/s wall access panels, and all associated transformers and associated electrical and control wiring and conduit.
19. Furnish and install protective covering on adjacent floors, doors, exhaust vents and wall opening to protect adjacent areas from dust, dirt and construction debris. Floors shall be covered with canvas tarps, doors and openings shall be covered with 40 mil clear polyethylene film. The film shall be installed both inside and outside of the door frames and secured to two opposite sides of the door frames on at least two sides. The contractor

shall cover all areas he uses to enter and leave with equipment and supplies for the duration of the contract. Tarps used to cover hallways and entrances shall be installed prior to commencing daily work and remove at the end of work days. No work shall be performed in the hallway or adjacent offices. All coverings shall be installed and maintained flat, taugth, and secure to prevent tripping and entanglement.

This Contractor shall furnish all labor, materials and appliances required for a complete plumbing system for the building as shown on the drawing, including, but not limited to, the following principal items:

1. Plumbing Fixtures.
2. Wall Hydrant faucets and Wall faucets
3. Water, Waste, and Vent Pipes & Fittings.
4. Automatic Flush Valves, Lavatory Valves and Sensor Controls.
5. S/S access panels and cabinets.
6. Branch Isolation Valves for pipe chase including s/s access panels.
7. RPZ & Water Meter with remote reader
8. Reduced pressure principal assembly double check with bypass meter
9. Property line valve, Curb valve, Valve boxes, Utility marker
10. Cement Lined Ductile Iron Water Pipe
11. Floor Drains.
12. Trench Drains.
13. Storm Drains.
14. Cleanouts, deck plates and wall plates.
15. Insulation.
16. Electric Heat Tracing for all above ground CW/HW piping
17. Dielectric Fittings/Unions.
18. Painting, tagging & Pipe identification.
19. Electrical power and Control Conduit and Wiring.
20. Cutting, Patching and Core Drilling.
21. Hangers and Supports.
22. Tests and start-up.

CONTRACT PLANS/DRAWING: The contractor shall utilize the plumbing drawings as well as mechanical, electrical and architectural drawings for the contract to perform all required work under this contract. The included drawings are diagrammatic, but the general scheme of the drawings shall be followed as closely as possible. Any changes from the plumbing layout shall be submitted to the DDC Engineer for approval and work on these changes shall not be started until such approval is received in writing.

Pipe Rerouting Shall Not Be Considered as Change Order Work.

APPROVED EQUIPMENT: The Contractor shall not order or install any equipment which are not approved by the New York City Regulatory Agencies, such as the Dept. of Buildings & the Dept. of Environmental Protection, etc.

Under this contract, any equipment installed which is not approved by DDC, shall be removed by this Contractor and approved equipment shall be installed by the Contractor, AT NO ADDITIONAL COST TO THE CITY.

DELIVERY OF MATERIALS & EQUIPMENT: Store materials and equipment where acceptable to Owner and Resident Engineer. Any damage caused by an overloading of the structure shall be repaired at no additional cost to the Owner.

The aforementioned equipment and materials shall be removed from the premises and disposed of by the Contractor at **NO ADDITIONAL COST TO THE CITY**. Such equipment as pumps, toilet fixtures, valves, etc., as designated by the M & O representatives or the Resident Engineer, shall remain the property of the DDC's Department. This Contractor shall inform the M & O office and the resident 72- hours prior to the start of any removals. The M & O staff will tag all the valves and equipment needed to be salvaged. **This contractor shall furnish all labor, material and equipment necessary to remove all valves and equipment and hand over all tagged items to the M & O staff at a place designated by the DDC Resident engineer.** All other removals, equipment, valves, fixtures, piping, etc. are the Contractor's property and are to be properly disposed of by him **AT NO EXTRA COST TO THE CITY**.

CORE DRILLING

Work: The work to be performed under this contract consists of drilling holes in masonry for the passage of piping through footings, foundation walls and other structures as required or as directed by the Resident Engineer.

Methods: Holes shall be drilled in masonry by approved core drilling methods and equipment. The holes shall be of the sizes and depths necessary to pass the required piping and steel sleeve as required by local conditions or as directed by the Engineer. Care shall be taken while drilling in masonry that no damage will be done. Any damage to masonry resulting from drilling operations shall be repaired by the Contractor at his own cost and expense.

CUTTING, PATCHING & RESTORATION: The contractor shall do all necessary cutting of floors, exterior & interior walls, ceilings, foundations, roof/roof flashing, cabinets, etc., to install all necessary equipment, piping, conduit, fittings, controls, etc., necessary or required for the installation of the specified system. After the installation and testing the disturbed areas shall be neatly patched and restored to match the existing surrounding area to the complete satisfaction of the Engineer.

1. Provide and place required sleeves, forms and inserts where required.

2. No cutting or altering the work of other Sections will be permitted without the approval of the Resident Engineer.
3. **All cutting of building walls, ceilings, floors and foundations shall be done by core drilling and/or saw cutting, at the direction of the Engineer.**

CLEANING: All piping, equipment, etc., installed under this contract shall be thoroughly cleaned and protected during construction and put into first-class operating conditions before being offered for acceptance.

SUBMISSION OF "AS EQUAL" MATERIALS: Under this entire contract if the Contractor wishes to submit any item of this contract "AS EQUAL", it shall be submitted to the Agency's Design Office for Approval prior to the purchase or delivery of the item. If the contractor installs any item that is not approved and fails to comply and submit any item "AS EQUAL" during construction the item will not be acceptable and the contractor shall remove the item and install the correct and approved item **AT NO ADDITIONAL COST TO THE CITY.**

All items submitted for approval "AS EQUAL" must be clearly marked and / or labeled with the phrase "AS EQUAL" or "AS EQUAL SUBSTITUTION". The contract must also indicate the manufacturer and model # of the contract specified item being substituted including the location that the item will be installed in . Any "AS EQUAL" submissions not including the requested information shall be disapproved.

PIPING INSTALLATION (GENERAL): The run and arrangement of all piping shall be approximately as indicated on the contract drawings, subject to changes and modifications as may be necessary to suit conditions at the building, and avoid interference and conflicts with the work of other trades. Rerouting of pipes will not be considered grounds for a change order. The design and installation of piping shall be as necessary and proper for convenient and accessible location of all parts of the piping systems with a view toward control and repair or replacement of such parts as usually require replacement after a reasonable length of time.

HOT/COLD WATER, WASTE, AND VENT PIPING (GENERAL):

This contractor shall furnish and install Hot / Cold water, Waste and Vent piping required to provide a complete plumbing system for all the new fixtures installed and specified under this item. The plumbing work shall include all necessary main pipes and fittings, isolation valves, in the building and all required branch valves and piping to individual new fixtures incorporated in the new plumbing system.

Pipe, fittings, valves and other sundries for Hot / Cold, Waste and Vent piping and lines are specified under "Materials".

WORKMANSHIP

1. **Soil, Waste & Vent Piping:** All horizontal runs of soil, waste, storm and vent piping shall be furnished and installed at a uniform grade of one-eighth (1/8") inch to the foot unless otherwise noted on the drawings. Horizontal runs of vent piping shall be pitched toward the fixture. Vertical piping shall be installed plumb and supported at maximum intervals of 10'-0". Changes in pipe sizes shall be made with reducing fittings and not with bushings. All piping shall be properly supported by means of hangers, supports, piers, etc. All clean-outs on traps and piping shall be readily accessible so that the entire system can be drained easily to avoid freezing.
2. **Water Piping:** All horizontal runs of water piping shall be furnished, installed and properly supported at intervals of not more than 5'-0" and at a uniform pitch of one eighth (1/8") inch to one foot to low points where drips are to be installed so that the entire water piping system can be drained. Vertical piping shall be installed plumb and supported at maximum intervals of 10'-0". All water piping shall be run as directly as possible with provisions made for free expansion and contraction. Changes in pipe sizes shall be made with reducing fittings and not with bushings. Unions may be used on exposed piping only. On concealed piping, use right and left couplings. No bull-headed connections shall be made. Provide sleeves for all through walls and floors piping penetrations as specified under "Pipe Sleeves".
3. **Fixtures & Equipment:** All fixtures and equipment shall be furnished and installed level, plumb, and in the proper positions. They shall be set on foundations, chair carriers, brackets or hangers as hereinafter specified. At the completion of the work, all fixtures and equipment shall be thoroughly cleaned.
4. **Laws & Ordinances:** The method of performing the work and quality of materials furnished shall conform to the laws of the City Department having jurisdiction. Such laws, ordinances, regulations, etc., shall take precedence over the specifications where a conflict occurs.

PIPE COVERING: All hot and cold water piping shall be covered as outlined under materials.

MATERIALS: All materials furnished shall be new, free from defects of any character and of the best grade of their kind as hereinafter specified.

PIPE & FITTINGS: The Contractor shall furnish and install hot water, cold water, drain, waste, vent and soil piping to the all plumbing fixtures and mechanical equipment as required to make them operational, in accordance with the manufacturer's specifications and as directed by the Engineer.

The run and arrangement of all piping shall be approx. as indicated on the contract drawings, subject to such changes and modifications as may be necessary to suit conditions at the building, and avoid interference and conflicts with the work of other trades. The installation of piping shall

be as necessary and proper for convenient and accessible location of all parts of the piping systems with a view toward control and repair or replacement of such parts as usually require replacement after a reasonable length of time.

1. **Domestic Hot & Cold Water Piping:** The hot water, cold water, and distribution pipe 2" in diameter and smaller to all building fixtures and equipment, shall be Type "L" copper tubing of the size shown in accordance with the plans, specifications and directions of the Engineer. The copper pipe shall be rigid hard temper type "L" copper tubing in straight lengths meeting the specification for ASTM designation No. B88. The fittings shall be approved wrought copper and bronze solder - joint pressure fittings (ANSI B 16.22). The contractor shall install Di-Electric fittings on all connections of dissimilar metals as required. The joints shall be made by soldering, using silver solder. Solder shall be lead free as per ASTM B-32.

Water service and distribution pipe above 2" and larger in diameter shall be Ductile Iron Class 56, cement lined, conforming to ANSI 21.4, A-21.51 and AWWA specifications C-151. Ductile Iron pipe joints above 2", shall be victaulic, flanged or mechanical joint fittings.

On mechanical joints fittings both sides of the joint shall use restraint rods and collars.

- 2] **Sanitary house drain, storm drains, vertical down spouts, main vertical vent stack and all the underground sanitary and storm waste, drainage pipe and fittings:** All of these drainage pipes and fittings, shall be extra-heavy cast iron bell/hub and spigot soil pipe and fittings.
- 3] **Waste, drain & vent piping:** Waste, drain & vent pipe up to 1½" size above the floor level, shall be standard weight, galvanized, SCH. 40 steel pipe with threaded connections. Pipes 2" and up shall be with hub joints and all pipes shall be extra heavy cast iron. Soil pipe 2" and above, above the floor shall be extra heavy weight cast iron pipe, and consist of Bell/hub and Spigot. All vent piping up to 1½" sizes shall be standard weight, galvanized, SCH. 40 steel pipe. Vent piping shall have galvanized malleable iron fittings. All storm piping shall be extra heavyweight cast iron pipe, consist of Bell and Spigot with lead and oakum joints.
- 4) **Nipples:** All pipe nipples on screwed pipe shall be "Standard Weight" pipe, as specified above, except "Close" and "Shoulder" nipples which shall be of "Extra Heavy" pipe. Threaded nipples of all sizes shall be Schedule 80 hot dipped galvanized pipe.

Joints: All joints on cast-iron, soil pipe, shall be caulked gas-tight with packed oakum and molten pig lead. Joints on threaded galvanized steel piping shall be made up with teflon tape or an approved pipe dope compound.

Reaming: The ends of all screwed pipe and nipples shall be reamed to the full inside diameter of the pipe or nipple. All ends shall be squarely cut and all burrs removed.

Unions: On exposed water piping, use Dart Fig. No. 0832 bronze to bronze seat unions, or approved equal.

Ferrules:

- 1) For extra-heavy cast-iron pipe & fittings: Ferrules with a brass trap screw shall be Central Foundry Co. Fig. 165K or approved equal, extra-heavy, N.Y.C. regulation cast-iron body with solid brass screw plug with 6 full thread ferrule.
- 2) Ferrules (for W.C. and urinal connection) shall be New York City Regulation.

Plugs:

- 1) All fittings shall be Flagg Co., or approved equal solid brass, square extended head, screw plug.
- 2) Clean out plug for extra-heavy cast-iron pipe (at grade) shall be Josam Series 58500, or approved equal, cast-iron body and threaded plug with 6 full threads and inside caulking, New York City Regulation.

Oakum: Shall be untarred stranded hemp.

Pig Lead: Shall be pure pig lead.

Solder: Solder shall be Class "A" 95% tin and 5% antimony.

Lampwick: Shall be Eagle Cotton Mills "Perfection" Brand, or approved equal.

Pipe Sleeves:

1. In walls below grade, shall be galvanized link seal sleeves.
2. In walls above grade, floor partition shall be #24 U.S. gauge galvanized iron sleeves.
3. In roof penetrations, pipe sleeve shall be #24 U.S. gauge galvanized iron sleeve with appropriate flashing and caulking. The Contractor shall submit a shop drawing for the Architect's approval.
4. In fire rated walls, sleeves shall be installed to meet NYC DOB & FD requirements.

Shock Suppressors: The contractor shall furnish and install shock suppressors on the domestic supply lines to all plumbing fixtures. Shock suppressors shall be Zurn Shoktrol, Z#1700 or approved equal, as shown on drawings.

Valves: All valves of each type shall be of one manufacturer.

1. **Isolation/Gate Valves:** The contractor shall furnish & install isolation/gate valves on all domestic water supply lines leading to the plumbing fixtures and hot water heater throughout the entire building and as directed by the Engineer. Isolation/gate valves shall be furnished and installed on all branch distribution lines adjacent to the main domestic water supply header.

- a) **Rising Stem:** Isolation/gate valves 1½" in size & smaller shall be Stockham B-122 or

approved equal, class 150, all bronze, solid disc, union (B-120)/ or screwed (B-122) bonnet, threaded/or solder ends (B-124). Isolation/gate valves 2" in size and larger with the exception of main shut-off valve, shall be Stockham #G-623 or approved equal, Class 125, IBBM, rising stem, bolted bonnet, solid Wedge Disc, OS & Y, flanged.

- b) **Non-Rising Stem:** Isolation/gate valves 1½" in size & smaller shall be Stockham B-128, or B-130 approved equal, Class 150, all bronze, solid disc, screwed (B-128) or union (B-130) bonnet, threaded ends. Isolation/gate valves 2" in size & larger shall be Stockham #G-612, or approved equal, IBBM, bolted bonnet, solid Wedge Disc, flanged.

NOTE: All gate valves shall be installed with the stems as close to the upright position as possible. All valves shall be installed in accessible locations to facilitate easy removal for repair or replacement.

2. **Check Valves:** Check valves 1½" in size and smaller shall be bronze, swing check with screwed cap as manufactured by Stockham, or approved equal. Model B-309 for solder ends and/or model B-319 for threaded ends. Check valves 2" in size to 3" in size shall be Stockham G-927, or approved equal, IBBM, swing check, screwed cap, threaded ends. Check valves 3½" in size and larger shall be Stockham G-931, or approved equal, IBBM, swing check, bolted cap, flanged. Check valves used for the siamese connections in the fire protection piping, shall have automatic ball drips. Contractor to submit shop drawings, prior to the purchasing of the valves, for the Engineer's approval.

NOTE: All gate valves shall be installed with the stems as close to the upright position as possible. All check valves shall be installed in the horizontal position. All valves shall be installed in accessible locations to facilitate easy removal for repair or replacement.

3. **Drain Valves:** Drain valves shall be ¾" size, hose outlet, Nibco Fig. 72 for sweat joints or Fig. 73 for threaded joints, or approved equal. Ball valves hose bibs shall be ¾" size, hose outlet Apollo 78-200 Series for sweat joints or 78-100 Series for threaded joints, or approved equal. All drain valves must be supplied with a pressure rated brass caps. All low points of the domestic water supply system shall have ¾" drain ball valves with hose connections for winterization purposes. **All low points of the domestic water supply system shall have ¾" drain valves with hose connections for winterization purposes.**

4. **Gas cocks:** Gas cocks shall be all brass with flat head, Walworth Co. Fig. 555 or approved equal.

5. **Ball Valves:** Ball valves shall be bronze with a stainless steel ball, and full port, manufactured for commercial and industrial applications, as manufactured by **Watts Series B-6400, Apollo 7800 series or approved equal.**

Valve Tags: The Contractor shall furnish and install a 1½" diameter, brass tag with "S" hooks on each valve of the plumbing system in the entire building. Identifying consecutive black numbers, approximately ½" high, shall be stamped on each tag.

Valve Chart: The Contractor shall furnish and install a typed chart listing valves, location, and use. The chart shall be mounted in an approved frame with a clear plastic protective face. The valve chart shall be submitted to the DDC's design Department before it will be considered approved for hanging in the mechanical room, **NO EXCEPTIONS.**

SHOP DRAWINGS: The Contractor shall submit shop drawings when required, in accordance with the requirements of the General Conditions.

INSULATION: The Contractor shall furnish and install thermal insulation on all Domestic Hot Cold and Re-circulation Water pipe (new and existing pipe in work area) and any other Plumbing system apparatus specified herein, after all required testing has been performed, as hereinafter specified under "Testing". Piping may be insulated prior to testing, providing however, that all fittings are left bare, in order to permit detection of possible leaks. The types of insulation and the general method of application are as follows:

1. All domestic hot, cold and re-circulation water piping buried in masonry walls, in crawl spaces, subgrade conditions and within walls shall be insulated with preformed calcium silicate pipe insulation wrapped and sealed as supplies by manufacturer. The insulation material shall be **Thermo-12 Gold pipe insulation as manufactured by Schuller International Inc. or approved equal.** The insulation shall be composed of hydrous calcium silicate and be asbestos-free. It shall be supplied in half-sections and a minimum of 36" long. The material shall be rate for 1200°F, with a density of 15 lbs per cu. Ft.. Flexural strength of 60 psi and compressive strength of 200 psi, flame spread = 0 smoke developed = 0.
2. All calcium silicate insulation shall be protected with **Flex-Clad 400**, a flexible, self-adhering, weatherproof jacketing system. The material is made of a top layer of a stucco-embossed UV-resistant weatherproof aluminum surface. Under the aluminum is a double layer of high density polyethylene reinforcement and under the polyethylene is a uniform layer of rubberized asphalt adhesive that will stick directly to metal, insulation and any clean dry surface.
The jacket shall be applied in a cigarette wrap method with a 4" overlap length wise and a 6" overlap at the ends, a 6" strip shall be wrapped around 1 ½ times the insulation every

24" to provide a secure surface for adhesion for the Flex-Clad 400 jacketing. The material shall be installed in accordance to the manufacturers specification sheets. The jacketing shall be **Flex Clad 400 as manufactured by MFM Building Products Corp. or approved equal.**

3. Pipe insulation thickness shall be as follows:

<u>TYPE OF SERVICE</u>	<u>INSULATION THICKNESS</u>	<u>SERVICE SIZES</u>
Domestic H&C Water Piping	1"	2" & Less
Domestic H&C Water Piping	1½"	2½" & Larger
Exposed Sanitary & Waste	2"	2" & Larger

4. Fittings and valves shall be insulated with preformed calcium silicate insulation as manufactured by **Schuller International Inc. or approved equal.** The performed fitting and valve insulation shall be covered and protected with a 4" wide bands of Flex Clad 400 applied in spiral wrap method and one piece snap form pre-molded fitting and valve covers made of polyvinyl chloride (PVC) jacket covers. The jacketing shall be **Flex Clad 400 as manufactured by MFM Building Products Corp. or approved equal** and PVC covers shall be **Zeston 2000 PVC as manufactured by Schuller International Inc. or approved equal.**

The Flex Clad 400 wrap shall be applied firmly for good adhesion and all joints shall be sealed by applying concentrated pressure at the seams to assure a vapor and weatherproof barrier and ensure seal is continuous throughout.

5. All domestic hot, cold and water piping in heated spaces and piping subject to freezing shall be insulated with **Schuller "Micro-Lok", or Certainteed snap-on, or approved equal,** fiber-glass pipe insulation, with minimum flame/smoke rating of 25/50 respectively.

The insulation jacket shall be factory applied white kraft bonded to aluminum foil, reinforced with fiber glass yarn and have a pressure sensitive tape closure system bonded to the longitudinal lap. A butt strip with pressure sensitive tape shall be furnished with each section of insulation. The jacket shall be suitable for painting. The insulation shall have a minimum density of 4 to 4.5 lb/cubic feet and "K" value of .28 to .30. Ends of pipe insulation shall be sealed off with a vapor barrier coating at all fittings and valves.

6. Fittings and valves shall be insulated with **Schuller "Zeston 2000 PVC", or Certainteed snap form, or approved equal,** one piece pre-molded fitting & valve covers made of polyvinyl chloride (PVC). Covers shall overlap the adjoining pipe insulation jackets and shall be sealed at all edges with vapor barrier adhesive. Fitting covers shall be suitable for

painting. The ends of all covers shall be secured with pressure sensitive vinyl tape. The tape shall overlap the jacket and the cover at least one inch.

All Insulation shall be applied over clean dry surfaces.

Seal all vapor barrier and ensure seal is continuous throughout. All adhesives and cements used in the installation of insulation shall be mold, mildew and vermin proof and installed as per manufacturer's recommendations.

Contractor shall tag the pipe covering stating it is asbestos Free at every 10-foot interval.

All Insulation shall be applied over clean dry surfaces.

Any pipe, fitting or valve insulation in the boiler room that is in a damaged condition upon the completion of the work shall be replaced by this Contractor.

Identification: All piping, whether insulated or not, shall be identified by content, size of pipe and direction of flow indicated by means of painting stenciled legends and flow arrows, or by means of printed, self-sticking labels. Where finished painting is required, identification stencils and/or labels shall be applied after all finish painting is done. All labels shall be color coded as noted herein.

Piping identification stencils or labels shall be located so as to be readily visible from any reasonable point of observation. Where two or more pipes run in parallel, the printed legend and other markers shall be applied in same relative location. All identification at eye level shall be along centerline of pipe, above eye level on the lower quarter and below eye level on the upper quarter of pipes. Where view is unobstructed from two directions, two sets of stencils or labels shall be applied, visible from each direction. The legend, flow arrow, etc., shall be applied at all valve locations, at all points where piping enters and leaves a partition, wall, floor or ceiling and at intervals of 15 feet on straight runs.

Sizes of lettering shall be 1" high on piping or pipe and covering, up to and including 6" O.D., for piping. Directional arrows shall be 1" high by 4" long.

Piping shall be marked in accordance with the following schedule:

<u>Service</u>	<u>Abbreviation</u>	<u>Color of pipe</u>	<u>Color background on Identification Marker *</u>
Hot Water Piping	HOT WATER	Yellow	Yellow
Cold Water Piping	COLD WATER	Green	Green
Drain	DRAIN	Black	Green
Soil Piping	SOIL	Black	Green
Vent Piping	VENT	Black	Green
Gas piping	GAS	Black	Yellow
Waste Piping	WASTE	Black	Green
Storm Drain Piping	STORM	Black	Green

*** Identification Markers By:**

T & B/Westline

WSS Sub-Surface Tel-A-Pipe Markers

Series ES, FS, BS

All piping, including insulated piping, shall be color coded as directed above.

All stencils shall be black except where background is black in which case white or aluminum shall be used. Where labels are used, the label background color shall contrast with the color of the piping covering.

Vent Caps: The Contractor shall furnish and install vent caps. All vent stack shall terminate above the roof of the building with a **ZURN Z-193-G, Watts RD-680-VC-13 or approved equal**, inside caulk, vandal proof, galvanized cast iron vent cap securely fastened to the pipe.

Fresh Air Inlet Plate: The Contractor shall furnish & install fresh air inlet plates. Fresh air inlet shall terminate on the outside wall of building with a **Busch-Type #5750, or approved equal**, perforated, galvanized cast iron plate securely fastened to the pipe or wall. Paint with one (1) coat of Rust-Blok and two (2) coats of "**Ironclad / Impervex Quick Dry Industrial Enamel Paint**", as manufactured by **Benjamin Moore Paints or approved equal** exterior black enamel.

Vent Stack Sleeve: The Contractor shall furnish and install vent stack sleeves. The sleeves shall be caulked watertight with Dow Corning High Temperature Silicone or as approved by DDC Design Office. Flashing shall be done under this contract and as approved by DDC Architects Office.

Hangers & Supports:

1. **For Extra-Heavy cast iron soil pipe and black iron gas pipe:**
 - a) Riser Clamps shall be Grinnell Co. Figure #261, or approved equal.
 - b) Horizontal hangers shall be adjustable wrought steel clevis hanger, Grinnell Co. Fig.#260, wrought steel concrete insert Fig.#280, hex nuts and 1/2" dia. rod Fig. # 140, or approved equal.
2. **For Cold Water Header:** Horizontal hanger shall be adjustable wrought steel clevis hanger, Grinnell Co. Fig.#260, bracket Figure #223, toggle bolt Figure #209, coupling Figure #208, hex nuts and 1/2" diameter rod Figure #140, or approved equal.
3. **For Galvanized Steel Pipe:** Horizontal hanger shall be adjustable wrought steel clevis hangers, Grinnell Co. Fig.#406, bracket Figure #223, toggle bolt Figure #209, coupling Figure #208, hex nuts and 3/8" diameter rod Figure #140, or approved equal.
4. **For Copper Pipe:** Horizontal hanger shall be adjustable carbon steel w/ cooper finish clevis hanger, Grinnell Co. Fig.#4065. Split tubing clamps shall be malleable iron with copper finish Grinnell Co. 4225, and installed with 3/8" s/s hexes nuts and 3/8" diameter

rod or approved equal.

Dielectric Fittings/Unions: Dielectric fittings/ unions shall be Watts, or approved equal, and shall be inserted wherever piping of dissimilar metals are connected.

FLOOR DRAINS: The contractor shall furnish & install a minimum of floor drains at the locations as shown on the Contract Drawings. Floor drains shall be Zurn Z-526S Sani-Flor Receptor, for the bathrooms and public areas the floor drains shall be Zurn Z-415S-3NH-HP-11-25 or approved equal, shall have 12" x 12" x 6" deep cast iron body, square slotted medium duty vandal proof secured heel proof grate.

Floor drains to have approximately a 31 square inch open area and shall be furnished and installed complete with a 3" cast iron tailpiece and cast iron trap and all piping necessary for connection to the sanitary piping below the slab.

The contractor as part of the installation of the new floor drains do all necessary cutting, patching and restoration of the concrete slab floor to install the floor drains flush with the finish floor. He contractor shall provide all required piping including broken stone base underneath the floor drains and pipe.

TRENCH DRAINS: The contractor shall furnish & install Trench/Channel drains as shown in the plumbing and structural contract drawings. Each Channel shall be 5' long, 6" wide, and have a 4" wide throat. Modular channel sections shall be made of 16-gauge 304 stainless steel and shall be provided with a gasket for flanged connections. Channel shall be provided either flat (neutral) or with a 1.04% pre-slope. Channels shall be available with inverts 4.13". Grates shall be HPS- Heel-Proof Slotted with H-20 and/or FAA load ratings and/or ADA compliance with vandal proof mechanical lockdown devices. End caps and catch basins shall be available to complement the channels and grates. Bottom outlets shall be 4" diameters furnished with Dome drop- in bucket. Trench drain shall be Shallow model **Zurn Z-884 with HPS- Heel-Proof Grates or approved equal.**

ROOF/STORM DRAINS: The contractor shall furnish & install vertical downspouts for roof drains from the gutter outlets, underground run-outs and underground storm drainage piping and trap as shown on the Contract Drawings. Downspouts shall be provided with funnel and furnished with stainless steel mesh screen over funnel secured by vandal proof lock down device.

The contractor shall furnish and install all required sizes 6" and larger extra heavy duty cast iron piping, fittings, hangers, supports, for a complete operational leader and storm water system as shown in the contract plumbing drawings and architectural drawing and as directed by the engineer.

SANITARY HOUSE TRAP: Traps shall be full run pipe size with at least 6" water seal (House Trap), with full run pipe size clean outs with threaded covers.

HOUSE TRAP: The Contractor shall furnish and install the Manholes to accommodate House Trap as indicated on the plumbing plan. The Contractor shall furnish materials for, and do, all incidental work including foundation materials, steel bars, expansion joints material, formwork, cast iron frame, manhole cover and rungs, brick, concrete, plastering and other incidental work to complete the structures.

PLUMBING FIXTURES: Herein are outlined fixtures and equipment using manufacturer's catalogue numbers. However, this outline is given for style, type and quality and the Contractor may submit for approval, fixtures and equipment of other makes. The contractor shall furnish & install the plumbing fixtures including all required piping and accessories in the Restrooms and all other place as shown in the contract drawings and as specified herein.

The Contractor shall verify that the fixtures, carriers and catalogue numbers listed below are applicable for the facility and submit any changes for approval before ordering. He shall do all the necessary work required to install the units. The location and size of the masonry openings shall be determined by the Plumbing Contractor. The Contractor shall use templates furnished by the fixture manufacturer to locate the openings in the wall for the piping & bolts.

The openings for the piping shall be done by drilling and careful saw cutting. The contractor as part of this Item, shall relocate existing waste, drain and vent piping running through the work areas to permit the installation of the new fixtures and piping. All required cutting of floors to connect to the existing waste system shall be part of the contract work **AT NO ADDITIONAL COST TO THE CITY.**

1. **P-1 Water Closets/ Handicapped Water Closets:**

WC: Water closets shall be **American Standard Model # AFWALLFLOWISE High Efficiency 3351.511 or approved equal**, vitreous china, wall hung, Siphon Jet, 1.1 GPF, 1-1/2" top spud inlet with elongated bowl, hinged white seat, extra heavy duty open frontless cover, and back supply.

The contractor shall mount the new water closet at a new location as directed by the Engineer and shall install new roughing with a new carrier. The chair carrier shall be **Zurn 1203 or 1204 series or approved equal** of the proper configuration and accessories to suit each water closet piping arrangement and shall be furnished complete with vandal proof cap nuts. Waste shall be gasketed waste. The Contractor shall furnish and install any additional piping required. The mounting height of the handicapped water closet shall be 18".

The Contractor shall furnish and install flush valves with the specified water closets. Flushometer piston operated valves shall be **American Standard Model 6065.11.002, (WS1) 1.1 Gal. low Consumption Flush, (BB) battery backup, (OD) On-Demand Override Button, or approved equal.** The flush valve shall be concealed rough brass

valve, diaphragm operated AquaSense automatic sensor operated valve, vacuum breaker, adjustable tailpiece, 1" wheel handle back-check angle stop, 1-1/2" flush tube, elbow flush connection, fixture spud securing nut and vandal-proof escutcheon.

The Contractor shall verify that the fixtures, carriers and catalogue numbers listed are applicable for the facility and submit any changes for approval before ordering.

2. **P-2 Wall Mounted Lavatories/Handicapped Lavatories:**

LAV: Vitreous China Lavatories shall be **American Standard Wheel Chair Model #9140.047 or approved equal, vitreous china lavatory**, white, 27" x 20" with soap depression, center hole, grid strainer drain with 1 1/4" tail piece and concealed arm support.

The Contractor shall furnish and install cast brass sensor-operated faucet with the specified lavatory. The lavatory valves shall be **Electronic Selectronic Model #2506.155, 0.5 GPM flow pressure compensating, vandal-resistant-non-aerated spout, battery include #605XTMV1070. Thermostatic mixing valve mounted on wall under sink.**

3. **P-3 Pantry Sink – Counter Type:**

Sink American Standard Model #14SB.251900.073, or approved equal. 18 Gauge stainless steel kitchen sink, 24 3/4" x 18 3/4" x 9" deep. Single, 18-10 chrome nickel content. Installation hardware and waste are included. The sink shall be installed with all stainless steel hardware, 1 1/2" x 2" N.Y.C. approved "p" trap chrome plated, cup drains, kitchen faucet American Standard Model #7271.000. Two handle bottom-mount shall feature brass construction with brass coupling nuts, 1/4 turn washerless ceramic disc valve cartridges that are reversible for use with round or lever handles. Handles 7270.000.442 metal lever. Counter to be drilled for 8" center set.

4. **P-4 Service Sink**

Service sink American Standard "Akron" Model #7695.000 Enhanced Cast Iron, supplied with wall hanger and rim guard sink 24" x 20 1/2" x 10 1/2" deep. Trap Standard Model #7798.030 cast iron "p" trap standard to wall and sprinkler for 3" iron pipe. Faucet exposed yoke wall-mount utility faucet, top brace 6" cast brass with integral vacuum breaker, supply stops, ceramic disc valves, vandal resistant meter lever handles, bucket hook 3/4 threaded hose end 1/2" NPT female inlets

5. **P-5 Wash Room Hose Reel**

Wash room Hose Reel T & S Brass and Bronze Works, Inc. Wall mounted, open, stainless steel with heavy duty 35'-0" of blue hose Model #B-7132.01. Spray nozzle Model #EB-0107. 3/4" hose thread with blue rubber handle & hold down ring. Support vacuum breaker or wall Model #B-0969 3/4" inlet and outlet.

Lavatories shall be off-floor, centered back punched single hole for faucet, with an offset drain outlet with 1¼" grid strainer and 1¼" tailpiece. The faucet shall be installed with a chrome plated cast brass 1 ½" x 1 ¼ P-trap and chrome plated waste pipes. Lavatory shall be supported by a thick Dura-coated steel plate, which shall be installed on the pipe space side of the wall and with a **Zurn Z1253 or Z1254 or approved equal**, adjustable concealed arm support. All mounting hardware shall be stainless steel. Installations shall be made as per manufacturer's recommendations and details. There shall be an additional stop cock on the ½" supply lines.

Lavatory shall be mounted at 34" above finished floor for handicapped accessibility.

The **SQUARE INDIRECT WATER HEATER** shall be a Lochinvar Model #SIT050 with vertical construction having a capacity of 52 gallons, or approved equal.

The **SQUARE INDIRECT WATER HEATER** shall be constructed of 316L stainless steel with a 304L stainless steel coil. The coil and the interior of the tank shall be subjected to a passivation process designed to inhibit corrosion by cleaning the coil and tank surfaces and washing away iron that was exposed during the manufacturing process. The tank shall be furnished with two 1" NPT connections for boiler supply and return piping. Domestic water tapping shall be 1" NPT for 50 gallon model.

The **SQUARE INDIRECT WATER HEATER** shall have a working pressure of 150PSI and shall be equipped with a tapping in the tank for temperature and pressure relief valve installation and a bulbwell in the side of the tank for utilizing a controlling sensor or aqua-stat. The **SQUARE INDIRECT WATER HEATER** shall carry a limited lifetime warranty against tank failure resulting from defects in materials or workmanship (see warranty for details.)

The **SQUARE INDIRECT WATER HEATER** shall be constructed with a dent resistant poly-propylene jacket assembly, with a thickness of .055". The tank assembly shall be completely encased in a minimum of 2" thick, high density, CFC/HCFC free polyurethane from insulation to exceed the energy efficiency requirements of the latest edition of the ASHRAE 90.1 Standard.

7. **WALL HYDRANT:** Furnish and install Wall Hydrant as shown in the contract drawings. The hydrant shall be model Z1325-NW-VB as manufactured by **ZURN or approved equal**. Hydrant shall "Vari-Temp" combination hot and cold water, non-freeze, encased wall hydrant for flush installation. Complete with bronze casing, all bronze interior parts, non-turning operating rods with free-floating compression closure valves, replaceable bronze seat and seat washer, and combination ¾ female or 1 male straight IP inlet. Nickel bronze box and hinged cover with operating key lock and "WATER" cast on cover. All installation shall be in accordance with manufacturer standard and specification/drawings.

8. **WALL FAUCET:** Furnish and install Wall Hydrant as shown in the contract drawings. The Wall faucet shall be model Z1341-BFPLK as manufactured by **ZURN or approved equal**. Z1341-BFP Exposed, anti-siphon, wall faucet shall be complete with Z1399-BFP external backflow preventer, all bronze interior components, loose key stop, rough bronze exterior and 3/4" [19] male hose connection (Conform to SMEB1.20.7). Furnished with 3/4" [19] FPT inlet connection, and loose key.

HEAT TRACING FOR PLUMBING PIPING:

All above ground plumbing piping shall be provided with heat tracing for freeze prevention, with the Self-regulating parallel resistance electric heating cables. Self-regulating heating cable shall vary its power output relative to the temperature of the surface of the pipe or surrounding ambient temperature. The cable shall be designed such that it can be crossed over itself and cut to length in the field. The heating cable shall consist of two 16 AWG or larger nickel-plated copper bus wires, embedded in a self-regulating polymeric core that controls power output so that the cable can be used directly on plastic or metallic pipes. Cables shall have a temperature identification number (T-rating) of T6 (185°F or 85°C) without use of thermostats.

A ground-fault protection device set at 30 mA, with a nominal 100-ms response time, shall be used to protect each circuit.

The heating cable shall have a tinned copper braid with a resistance less than the heating cable bus wire resistance as determined in type test (ASTM, B193, Sec. 5). The braid shall be protected from chemical attack and mechanical abuse by a modified polyolefin or fluoropolymer outer jacket.

In order to provide rapid heat-up, to conserve energy, and to prevent overheating of fluids and plastic pipe, the heating cable shall have the following minimum self-regulating indices:

Minimum Self-Regulating Indices (XL Trace)

Heating cable	S.R. index (W/°F)	S.R. Index (W/°C)
5 W/ft	0.060	0.108
8 W/ft	0.074	0.133

SYSTEM DESIGN:

The system shall be designed to maintain the pipe fluid temperature at 50°F with minimum ambient temperature of 35°F. Equipment selection shall be based on 208V, single phase, 50HZ power supply. Heating cable selection shall be based on heat loss (w/ft) by applying single cable straight along the pipe for the specified insulation according to the Section "Piping Insulation". All adjustment for valves and pipe fittings shall be considered for system design. Contractor shall supply the system with all connection kits and accessories as recommended by the manufacturer and applicable standards.

SUBMITTALS

Product Data: Include rated capacities, operating characteristics, furnished specialties, and accessories for each type of product indicated.

Schedule heating capacity, length of cable, spacing, and electrical power requirement for each electric heating cable required.

Shop Drawings: For electric heating cable. Include plans, sections, details, and attachments to other work.

Wiring Diagrams: Power, signal, and control wiring.

Field quality-control test reports.

Operation and Maintenance Data: For electric heating cables to include in operation and maintenance manuals.

MANUFACTURER:

Subject to compliance with requirements, the products shall be manufactured by Raychem; a division of Tyco Thermal Controls or approved equal.

CONTROLS :

Provide ambient sensing thermostat which should energizes cables when ambient temperature falls below setting. Setting shall be adjustable from 15 to 100°F. Provide corrosion-resistant, waterproof control NEMA 4X enclosure for controls. Provide Minimum 30-A contactor to energize cable or close other contactors. Provide relay with contacts to indicate operational status, on or off.

ACCESSORIES:

Cable Installation Accessories: Fiberglass tape, heat-conductive putty, cable ties, silicone end seals and splice kits, and installation clips all furnished by manufacturer, or as recommended in writing by manufacturer.

Warning Labels: Refer to Section "Identification for Plumbing Piping and Equipment

Warning Tape: Continuously printed "Electrical Tracing"; vinyl, at least 3 mils (0.08 mm) thick, and with pressure-sensitive, permanent, waterproof, self-adhesive back.

Width for Markers on Pipes with OD, Including Insulation, Less Than 6 Inches (150 mm): 3/4 inch (19 mm) minimum.

Width for Markers on Pipes with OD, Including Insulation, 6 Inches (150 mm) or Larger: 1-1/2 inches (38 mm) minimum.

QUALITY ASSURANCE:

Electrical Components, 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.

EXAMINATION:

Examine surfaces and substrates to receive electric heating cables for compliance with requirements for installation tolerances and other conditions affecting performance.

Ensure surfaces and pipes in contact with electric heating cables are free of burrs and sharp protrusions.

Proceed with installation only after unsatisfactory conditions have been corrected.

INSTALLATION

Install electric heating cables after piping has been tested and before insulation is installed.

Install electric heating cables according to IEEE 515.1.

Install insulation over piping with electric cables according to the Section "Piping Insulation."

Install warning tape on piping insulation where piping is equipped with electric heating cables. Set field-adjustable switches and circuit-breaker trip ranges. Protect installed heating cables, including non-heating leads, from damage. Ground all equipment according to electrical section "Grounding and bonding".

FIELD QUALITY CONTROL

Testing: Perform tests after cable installation but before application of coverings such as insulation.

Test cables for electrical continuity and insulation integrity before energizing.

Test cables to verify rating and power input. Energize and measure voltage and current simultaneously.

Repeat tests for continuity, insulation resistance, and input power after applying thermal insulation on pipe-mounting cables.

Remove and replace malfunctioning units and retest as specified above.

WARRANTY:

Manufacturer's standard form in which manufacturer agrees to repair or replace electric heating cable that fails in materials or workmanship within specified warranty period.

Warranty Period Self-regulating heating cable shall be designed for a useful life of 20 years or more with "power on" continuously from date of Substantial Completion.

REDUCED PRESSURE ZONE DEVICE (R.P.Z.) & WATER METER

WORK: Under these Items the Contractor shall provide all labor, materials and equipment necessary or required to furnish and install a Reduced Pressure Zone Backflow Prevention Assembly including Cold Water Meter with Remote Reading System (ARB) where shown on Drawings in the Building, of the sizes indicated on the Contract Drawings. In addition to the RPZ/Water Meter with Remote Reading System, the Work shall include all pipes, fittings, valves, strainer, testing and other sundries necessary or required for a complete system. The Work extends from (and including) the main house shut-off valve, to (and including) the valves for water to exterior site-work (grounds) and connection to the new cold water fixture header. All Work shall be done in strict accordance with the Plans, Specifications and directions of the Engineer and shall comply with the rules, regulations and requirements of all Regulatory Agencies having jurisdiction. In addition, the Contractor shall furnish extra material D.D.C Maintenance and Operations Borough Shop as specified under the heading EXTRA MATERIALS.

PLANS: The RPZ/Water Meter installation plans have been submitted to the D.E.P. Bureau of Water Supply and Waste Water Collection - Cross Connection Control Unit for approval. No work shall be done in the Building prior to receiving the approval of the aforementioned plans. Upon receiving approval, the plans shall be provided to the Contractor as a Supplemental Drawing, on or about the O.T.W. date.

REDUCED PRESSURE ZONE BACKFLOW PREVENTION DEVICE: The Reduced Pressure Zone Backflow Prevention Device shall consist of two independently operating check valves and one hydraulically dependent differential relief valve. Check valve and relief valve components shall be constructed so they may be serviced without removing the valve body from the line. All RPZ's shall be furnished and installed complete with resilient seated shut off valves and test cocks. The assembly shall meet the requirements of ASSE Standard 1013 and AWWA Standard Code 506-78. The 2" RPZ Model #375 & Model #375ADA shall be manufactured by Wilkens, Conbraco, Febco or approved equal. The RPZ shall be installed as shown on the Approved Drawings only.

Note: If the Contractor installs equipment Other than that approved by the Cross Connection Control Unit of D.E.P., it will be the Contractors responsibility to re-file and obtain the required approvals at his/her own expense and at no additional cost to the City.

WATER METER with remote for 3" DIA.: Shall be Trident, Style 10, disc meter, 3" size with bronze casing and flanged ends, as manufactured by the Neptune Meter Company or approved equal. Stainless Steel Strainer Plate shall be by Neptune with Cast Bronze Body, or approved equal.

PLATE STRAINER: Shall be 3" Schlumberger-Neptune Plate Strainer. Stainless Steel strainer plate shall be Neptune with cast Bronze Body.

MATERIALS: All Materials furnished shall be new, free from defects of any character and of the best grade of their kind as hereinafter specified.

PIPE AND FITTINGS: Cold water piping from the house shut-off valve up to the meter, RPZ assemblies and continuing on to the outlet valves for water to grounds and to the point where it will be connected to the water feed for the building shall be standard weight, galvanized, Schedule 40 steel pipe. Fittings shall be galvanized, malleable iron, screwed. Note: Type K copper tubing shall be used for cold water service to exterior site-work (grounds). Two dissimilar metal piping connections shall be made using dielectric unions, fittings, or flanges.

REAMING: The ends of all screwed pipe and nipples shall be reamed to the full inside diameter of the pipe or nipple. All ends shall be squarely cut and all burrs removed.

VALVES: All valves of each type shall be from one (same) manufacturer.

Isolation/Gate valves: 2 1/2" in size and smaller, with the exception of the main shut off valve, shall be Stockham G-679, or approved equal, IBBM, rising stem, solid disc, U-bolt bonnet,

threaded. The main shut-off valve to the building shall be Stockham F-667, or approved equal, Class 250, rising stem, bolted bonnet, OS&Y, solid wedge disc, flanged. Gate valves 3" and larger in size shall be Stockham 623 IBBM, flanged with O.S. & Y. and rising stem.

METER OUTLET CONTROL VALVE: The MOCV shall be Stockham G-679, or approved equal, IBBM, rising stem, solid disc, U-bolt bonnet, threaded.

PLUGS: All fittings shall be Flagg Co., or approved equal solid brass, square extended head, screw plug.

UNIONS: All unions in new piping shall be Dart Fig. No. 0832 bronze to bronze seat unions or approved equal.

DIELECTRIC FITTINGS/UNIONS: Dielectric fittings/unions shall be Watts, or approved equal, and shall be inserted wherever piping of dissimilar metals are connected.

EXTRA MATERIALS: The Contractor shall furnish one RPZ Repair Kit (furnish only, not install) and deliver, to the respective D.D.C Maintenance and Operations Borough Shop.

1(one) RPZ Major Repair Kit for the size of RPZ installed, consisting of new materials obtained from the RPZ manufacturer. Repair kit shall include all consumable or replacement items including rv and check seat disc, bushings, washers , o-rings, bolts, etc. All furnished material shall be properly identified with the RPZ size and installation location.

SUBMITTALS: All Submittals shall be per Section C, Article 11.

CERTIFICATION: The Contractor shall be responsible for obtaining all Certification necessary to comply with the NYC Bureau of Water Supply Cross Connection Control Unit and the NYS Department of Health regulations for RPZ's (after installation) including:

- 1 - Certification by Backflow Prevention Device Tester:
2. - Certification of Master Plumber responsible for the RPZ & Water Meter installation,
3. - A Professional Engineer's or Registered Architect's Certification that the installation is in accordance with the Approved Plans.

The Contractor shall prepare and submit copies of NYS-DOH form Gen 215B to the NYS Department of Health and NYC Cross Connection Control Unit of the Bureau of Water Supply. The Department of Design and Construction shall receive copies in triplicate (3) of all such Submittals. The DDC Design Division Environmental Engineering Section shall be copied on all such Submittals. In summation, the Contractor shall be held completely responsible to ensure that all Work is in compliance with NYS D.O.H., Gen. 215B.

SHOP DRAWINGS: The Contractor shall submit for approval, six (6) copies of Shop Drawings, Catalog Cuts or brochures of the following equipment:

1. Backflow Prevention Device

2. Water Meter with remote and Strainer
3. Valves and Piping
4. Insulation and hangers
5. Dielectric Fittings and Unions

WET CONNECTION - 2" & 4" DIAMETER

WORK: Under this Item, the Contractor shall make **WET CONNECTION** of the size shown on the site utility plans, to the existing DEP water main in accordance with the plans, specifications, and directions of the Engineer. The Contractor shall abandon, disconnect, cap, or plug any existing water service from the existing water main in accordance with the Bureau of Water Supply, whether or not in the same location as the new water service and wet connection or water tap.

PERMITS: The Contractor shall obtain all necessary permits and shall cooperate with the City Department of Water Supply in every respect.

PROTECTION: The Contractor shall erect proper barricades and all other protective devices in strict compliance with City ordinances governing the protection of the public.

CEMENT LINED DUCTILE IRON WATER PIPE - 2" & 4 DIA.

WORK: Under this Item, the Contractor shall furnish and install **CEMENT LINED DUCTILE IRON WATER PIPE**, of the size shown plumbing plan and site utility plan, in accordance with the plans, specifications and the directions of the Engineer. This includes furnish and installation of underground Piping from DEP Wet Connection up to main house shut off valve inside the Mechanical room.

MATERIAL: Pipe shall be Ductile Iron Pipe Class 52 and better, meeting requirements of A.N.S.I. Specifications A-21.51 and A.W.W.A. Specifications C-151.

All pipe shall be cement-mortar lined in conformance with A.N.S.I. 21.4. The exterior surface of pipe shall receive a standard foundry coal tar dip coating. Cement Lined Ductile Iron Water Pipe shall consist of bell and spigot type Ductile Iron Pipe Tyton Joint sections with Field Lock Gasket Joints, similar or equal to that manufactured by the U.S. Pipe & Foundry Co., Birmingham, Al., and shall conform to the American National Standards Institute C151 and American Water Works Assoc. A21.51., Thickness Class 52 and better. Pipe shall be laid true to line and grade with bells upstream and shall have a full, firm and even bearing on a bed of broken stone, as shown in the details.

Dielectric fittings/flanges shall be used where there is connection between dissimilar metals. All elbows shall be rodded in accordance with the specifications of the Dept. of Environmental Protection, Bureau of Water Supply.

CONNECTIONS: The Contractor shall do all the work necessary to join the Ductile Iron Pipe from Main house shut off valve to the existing DEP water main as shown on the plans. The cost for PLUMBING WORK

doing this shall be included in the unit price bid for this item.

TESTS: The Contractor shall not backfill over any pipe until ordered by the Engineer. The pipe system shall be tight and show no leaks when filled with water, sealed and subjected to an internal hydrostatic pressure of one-hundred twenty-five (125) pounds per square inch. Temporary caps shall be placed where required to permit making the tests where valves are not available. The tests shall be made in the presence of the Engineer.

CAST IRON VALVE BOX, 5 1/4" DIA. AND UTILITY MARKER

WORK: Under this Item, the Contractor shall furnish and install **CAST IRON VALVE BOX, 5 1/4" DIAMETER** as shown in site utility plan in accordance with the plans, specifications, and directions of the Engineer. This item shall include Utility Markers for each bend of UG water service and the marker shall have the designation "WATER" cast thereon.

MATERIALS

Box: 5 1/4" diameter valve boxes shall be Bingham & Taylor Fig. No. 4908 with a Fig No. 4904-L locking cover, or approved equal. The cover shall have the designation "WATER" cast thereon. The boxes shall extend within the limits called for on the plans.

Setting: The valve boxes shall be set plumb, as shown on the plans, on a footing of brick laid in cement mortar, supported on a foundation of broken stone. The entire area surrounding the valve box shall be fully compacted after setting.

Brick: The brick shall be made from clay or shale, well burned, of a quality approved by the Engineer. The mortar shall be composed of one part Portland Cement and two parts sand.

Broken Stone: The broken stone shall be clean broken traprock, or other approved stone, all of which shall pass a one-inch square opening screen and retained on a 5/8 inch square opening screen.

SHOP DRAWINGS: The Contractor shall submit Shop Drawings when required, in accordance with the requirements of the General Conditions, Section C, Special Requirements, Article 11.

CURB & PROPERTY LINE VALVES- 2" & 4" DIAMETER

WORK: Under this Item, the Contractor shall furnish and install **CURB & PROPERTY LINE VALVES** set of the size shown on the site utility plans, in strict accordance with the plans, specifications, and directions of the Engineer. Each set shall consist of one curb valve and one property line valve.

INTENT: The Property Line Valve is intended for use as an on-site, shut-off valve to decrease use of the Curb Valve, and shall be located in an accessible area inside the DDC's property line.

CURB VALVES: "The curb valves and boxes shall be set in the service pipe in the sidewalk area at the curb or within 2 ft. of the curb. Curb valves shall be of the gate type non-rising stem valve, designed for a minimum of 150 psi wwp." [NYC Building Code: RS16, P107.2(a) 9 and NYC DEP Rules and Regs. Section 138]. Valves shall be Stockham No. B-130; Grinnell # 3030; Nibco T136; Milwaukee 1141, Powell 2712, or approved equal. Curb Gate Valves shall have bronze body, bronze bonnet, inside screw, non-rising stem, solid wedge disk, and threaded ends.

PROPERTY LINE VALVES: Property Line Valves two inches (2" & 4") and under shall be of the cylindrical Plug Type with a closed bottom and a top seal, fully enclosed one-quarter (1/4) turn check, straight through flow way which is resistant to turbulence of the flow stream, one piece cast bronze cylindrical plug and "T" head that aligns with the ports to provide a visual check of valve position, inside screw ends with I.P. threads, as is manufactured by Mueller Co. No. H-10283, or approved equal. Adaptors are required for connecting to copper tubing.

OPERATING KEY: An approved operating key of proper size for each valve shall be furnished by the Contractor. However, the Contractor need not furnish more than two (2) keys for each type of valve, regardless of the quantity of valves called for in the Contract. For valves 3" diameter, the operating key shall be Stockham No. 1V437 for Stockham Valves, or the appropriate key for an approved equal valve.

SUBMITTALS: All submittals shall be in accordance with the requirements of the General Conditions, Section C, Special Provisions, Article 11. The Contractor shall submit the following for the Landscape Architect's review and approval prior to manufacture

Shop Drawings: All submittals shall be in accordance with the requirements of the General Conditions, Section C, Special Provisions, Article 11. The Contractor shall submit catalog cuts of the curb and property line gate valve for approval.

NOTE: **Manufacturer's numbers may change form time to time. It is contractor's responsibility to furnish shop drawings with the latest up to date manufacturer's model numbers to the DDC Design Office for review and approval AT NO ADDITIONAL COST TO THE CITY. Any correction of the specified model numbers for any equipment, or any other accessory with the latest or current model numbers will not be considered changing in scope or issuing change orders.**

TESTS:

1. **General:** The Contractor shall make all necessary tests required by the authorities having jurisdiction and by the Department of Design and Construction. The Department of Design and Construction shall be notified when tests are to be made. No test shall be considered approved until the Building Department Inspector has issued his written approval that all defects, if any, have been corrected to his satisfaction.

2. **Soil, Waste & Vent Piping:** Soil, Waste and Vent piping shall be given a water test when the roughing is completed and a smoke or peppermint test when the entire system is complete.
3. **Water Piping:** Water piping shall be tested with water at a pressure of 100 pounds per square inch and held for one (1) hour.
4. **Equipment:** All equipment shall be tested for capacity, efficiency, operation, etc. All reports certified by N.Y.S. Professional Engineer for proper operation of all equipment of this contractor and approved by DDC Resident shall be submitted to the DDC Design Office.

INSTRUCTION CARDS: This contractor shall furnish for all equipment, two (2) sets of cards giving complete instruction for the care and operation of the systems and shall be permanently located in an easily visible and accessible location near the equipment and as approved by the DDC Design Division. Permit obtained from the DEP for operation shall be framed in a glass and as approved by the DDC Design Division.

CONTROL INSPECTION & TESTS: After the completion of the installation of the plumbing the entire system shall be adjusted to the satisfaction of and as directed by the DDC Engineer. The controlled inspection shall be done by a N.Y.S. Professional Engineer as per NYC Building Code, or any city agency having jurisdiction on this work at no additional cost to the City of New York.

Contractor shall operate the entire system, when directed by DDC Engineer, for a period of not less than one (1) consecutive hour and all necessary adjustments shall be made as required and to the satisfaction of the DDC Resident Engineer. All material and labor required for the above operation and adjustments shall be provided by this contractor.

The DDC Engineer shall be notified 24 hours in advance before any test is to be performed.

LAWS, ORDINANCES, PERMITS & CERTIFICATES: All necessary notices and permits required in connection with this work shall be obtained and paid for by the contractor. All work shall comply with all laws, ordinances, rules and all regulations of the State of New York, the City of New York, and all Agencies & Departments having jurisdiction. Contractor shall obtain all certificates required for the work.

SUBMITTAL OF SHOP DRAWINGS: The Contractor shall submit for approval, six (6) copies of shop drawings catalog cuts, or brochures of the following equipment:

1. Plumbing Fixtures (ADA water closet, lavatory, Wall Hydrant, Wall Faucet, Horse Waterer including all components specified).
2. Domestic Water, Vent, Sanitary, and Waste Piping.
3. Insulation.
4. Water to Water Storage Water Heater.

5. Valves & Fittings.
6. Hangers & Supports.
7. Floor Drains and Trench Drains.
8. Dielectric Fittings/ Unions.
9. Electrical Power & Control Wiring.
10. Shock Suppressors.
11. Paint (Color & Type)
12. Identification Labels.
13. Valve Chart.
14. Cleanouts, deck plates and wall plates.
15. Circulation Pump (Between boiler and storage tank)

MAINTENANCE INSTRUCTIONS: The Contractor shall supply (6) copies of manufacturer's literature for the new equipment. The literature shall include normal operation, normal preventive maintenance schedules, and parts breakdown and parts list for reordering. Each set shall be secured in a binder and given to, and verified by, the Engineer prior to final inspection. The Engineer shall distribute the copies as follows:

1. Map file
2. Borough Maintenance Shop Foreman
3. Site Foreman
4. Design and Engineering Division
5. Resident Engineer Job File
6. District Office

SPARE PARTS: The Contractor shall furnish and turn-over complete replacement units/ replacement parts / repair kits as outlined below as part of this item **AT NO ADDITIONAL COST TO THE CITY.**

All complete replacement units/ replacement parts / repair kits shall be from the original manufacturer of the new equipment specified. The complete replacement units/ replacement parts / repair kits shall be turned-over to the facility maintenance personnel. The equipment shall be turned-over with all instruction literature showing normal operation, maintenance and installation instructions, and parts breakdown and parts list for reordering.

The contractor shall supply the following spare parts:

1. One (1) complete flush-o-meter and sensor assembly for the water closet.
2. One (1) complete lavatory faucet.
3. One (1) complete replacement solenoid valve for the lavatory faucet.

GUARANTEE/WARRANTY LABELS: Each piece of equipment which is under guarantee/warranty shall have a "stick-on" label affixed to it which states the following:

1. Length of guarantee/warranty _____ years.

2. Final day covered by guarantee/warranty _____.
 3. Telephone number for service under guarantee/warranty _____.
- Lettering shall be a minimum of 1/8" in height.

MEASUREMENT & PAYMENT - ITEM #79: For furnishing and installing of a complete plumbing system together with all incidental work in accordance with the plans, specifications and directions of the Engineer, in connection with the reconstruction of the plumbing system at this site, the Contractor shall receive the **LUMP SUM** price bid for this item.

The price bid shall be a lump sum price for this item and shall include the cost of all labor, materials, equipment and incidental expenses necessary to complete the plumbing work in accordance with the plans and specifications to the satisfaction of the DDC Engineer.

END OF PAGE

ITEM # 80 **INSTALLATION OF HVAC SYSTEM**

SCOPE OF WORK: This item together with the provisions of General Conditions is intended to cover the fabrication and installation of a complete Heating, Ventilation and Air Conditioning System; including but not limited to all materials, labor, equipment and method of performing the Heating, Ventilation, and Air Conditioning Work for Horse Riding Arena, located west of Father Capodanno Boulevard and north of Seaview Avenue in Ocean Breeze, Borough of Staten Island, Known as Contract #R149-608MA

WORK INCLUDED: This Contractor shall furnish all labor, material and equipment required for the fabrication and installation of a complete heating, ventilation, and air conditioning system, as shown on the drawings, including, but not limited to, the following principal items:

1. Furnishing & Installation of:

- a. (3) Three Indoor ceiling mount evaporators units serving observation room and office room complete with supports , vibration isolators, power wiring, local disconnect, drain pan, condensate piping, refrigerant piping, controls, and all specified accessories.
- b. (1) One outdoor air-cooled condensing unit complete with power wiring, controls, local disconnect switch, refrigerant (R-410A), copper refrigerant tubing, and all specified accessories.
- c. (1) Concrete Equipment Pads for the outdoor Condenser Unit.
- d. (3) Three programmable thermostats.(Supplied by air conditioning manufacturer).
- e. (1) One programmable thermostat.(Supplied by air conditioning manufacturer).
- f. Galvanized 22 gauge Supply, Return, and Fresh Air Intake Ductwork as indicated on the drawing.
- g. Grilles/Registers/Security Louvers/Fire dampers/Access doors/ Volume Dampers/ Flexible Connections/Motorized Damper.
- h. (3) Hot water cast-iron radiator complete with valve accessories and controls.
- i. (3) Hot water cast-iron radiator complete with valve accessories and controls.
- j. (1) One Toilet Exhaust fan.
- k. (1) General exhaust fan.
- l. (6) General ventilation fan.
- m. (8) Eight Portable Fire extinguishers.
- n. Hangers, Anchors, and Supports for all new equipment, ductwork, and piping.
- o. Duct Insulation including acoustical insulation near the air handler units.
- p. Refrigeration circuit piping, fittings and pipe accessories.
- q. Hot water piping, pipe fitting and pipe accessories.
- r. Condensate drain piping and fittings.
- s. Pipe Insulation for refrigerant (suction and Discharge line), Hot water and condensate drain piping.
- t. Refrigerant piping encasement (Line Hide) on exterior of building.

- u. Paint all new piping, equipment, valves, & fittings and tag all piping, color coding.
- v. Cutting, patching and restoration.
- w. Core drilling and pipe sleeves.
- x. Controlled Inspection, testing, and Start-up.
- y. Air Balancing and adjusting of the HVAC system.
- z. Electrical power and control wiring and conduit for all new HVAC equipment including final connections, (see Item for Electrical Work, in this contract)

CONTRACT DRAWINGS: The drawings are diagrammatic, but the general scheme of the drawings shall be followed as closely as possible. Any changes from the HVAC layout shall be submitted to the Engineer for approval and work on these changes shall not be started until such approval is received in writing.

COORDINATION: This contractor shall coordinate his work with other trades who are working on this site and cooperate to expedite the job. This contractor shall inform the Resident Engineer prior the beginning of any work for discrepancies, which will cause interruption of his work and request written advisement to follow accordingly. Failure of the contractor to comply with this coordination shall be undertaken by the contractor at his own expense and at **NO ADDITIONAL COST TO THE CITY.**

APPROVED EQUIPMENT: The Contractor shall not order or install any equipment which is not approved by the New York City Regulatory Agencies such as; Bureau of Air Resources(BAR), the Department of Buildings, and Department of Environmental Protection (DEP), etc.

Under this contract, any equipment installed which is not approved by the Regulatory Agencies, even if approved by the Commissioner, shall be removed by this Contractor and Regulatory Agency approved equipment shall be installed by the Contractor, AT NO ADDITIONAL COST TO THE CITY.

DELIVERY OF MATERIALS & EQUIPMENT: Store materials and equipment where acceptable to Owner and Resident Engineer. Any damage caused by an overloading of the structure shall be repaired at no additional cost to the Owner. This includes the hoisting of all materials and equipment and the contractor assumes all responsibility for such hoisting equipment.

CLEANING: All piping, ductwork, equipment, etc. installed under this contract shall be thoroughly cleaned and protected during construction and put into first-class operating conditions before offered for acceptance.

SUBMISSION OF "AS EQUAL" MATERIALS: Under this entire contract if the Contractor wishes to submit any item of this contract "AS EQUAL", it shall be submitted to the Agency's Design Office for Approval prior to the purchase or delivery of the item. If the contractor installs any item that is not approved and fails to comply and submit any item "AS EQUAL", during

construction the item will not be acceptable and the contractor shall remove the item and install the correct and approved item AT NO ADDITIONAL COST TO THE CITY.

All items submitted for approval "AS EQUAL" must be submitted no later than 60 days from the contract award date. The items submitted for "AS EQUAL" will be reviewed and the said Contractor will be informed in writing of the Agency's decision.

LAWS, ORDINANCES, PERMITS & CERTIFICATES:

1. All necessary notices, permits and licenses required in connection with this work shall be obtained and paid for by the Contractor. All work shall comply with all laws, Ordinances, rules and all regulations of the State of New York, The City of New York, and all Departments having Jurisdiction.
 - a] Contractor shall obtain all required approvals/permits from the Department of Buildings.
 - b] Fill forms before and while performing tests on the HVAC System and obtain all permits.
2. This Contractor shall arrange for inspection and tests, including Controlled Inspections, of any or all parts of the work as required by authorities or Utility Companies having jurisdiction and pay all charges for same.
3. Pay all costs for, and furnish to the Owner all certificates necessary as evidence that the work installed conforms with all regulations where they apply to this work.

RELATIONS WITH OTHER TRADES:

1. Confer with others engaged in the construction of the building whose work might affect the installation, and arrange all parts of the work and equipment in proper relation to the work and equipment of others, with the building construction and with the architectural finish so that it will harmonize in service and appearance. Special care shall be taken in the installation of the equipment, piping, etc., where same is concealed, to assure that it does not project beyond the finished lines of floors, ceiling walls or cabinets.
2. Work specified to be furnished complete under this Section which is required to be furnished and erected by mechanics other than those directly employed under this Section, shall be sublet to others or engage such special mechanics to do it. Be responsible for the workmanship, equipment & performance of all such work sublet.
2. If it should be necessary to remove and relocate any material or equipment that has been installed without the proper investigations and coordination with the work of other Sections, such material or equipment shall be removed and relocated without any additional cost to the Owner.

PREPARATION OF WORK AREAS: The Contractor shall move benches, tables, equipment, etc., required or necessary for the rehabilitation work. After the rehabilitation work is done, the Contractor shall replace them to the original location to satisfaction of the Resident Engineer.

HOT WATER BOILER: The **BOILER** shall be a LOCHINVAR KNIGHT Model WHN 399 or approved equal (having a modulating input rating of 400,000 Btu/Hr, an output of 380,000Btu/Hr and shall be operated on (Natural Gas). The BOILER shall be capable of full modulation, firing down to 20% of rated input with a turndown ratio of 5:1.

The BOILER shall be of a fire tube design and shall be vertically down fired. The BOILER shall bear the ASME "H" stamp for 80 psi working pressure and shall be National Board listed. The heat exchanger assembly shall be fully welded through an automated process to ensure weld integrity. The 439 stainless steel combustion chamber and tubes shall be self-cleaning and designed to drain condensation to the bottom of the heat exchanger assembly. A built-in stainless steel flue collector shall allow condensation to drain from the heat exchanger assembly and into the external condensate trap. The complete heat exchanger assembly shall carry a twelve (12) year limited warranty.

The BOILER shall be certified and listed by C.S.A. International under the latest edition of the harmonized ANSI Z21.13 /CSA4.9 test standard for the U.S. and Canada. The BOILER shall comply with the energy efficiency requirements of the latest edition of the ASHRAE 90.1 Standard and the minimum efficiency requirements of the latest edition of the ASHRAE 103 Standard. The BOILER shall meet U.S. Environmental Protection Agency and Department of Energy guidelines for "Energy Star" efficiency (Models WH55 through WH285). The BOILER shall operate at a minimum of 95% Annual Fuel Utilization Efficiency (95% Thermal Efficiency for Model WHN399). The BOILER shall be certified for indoor installation. The BOILER's efficiency ratings shall be verified through third party testing by the Hydronics Institute Division of AHRI and listed in the AHRI Certification Directory.

The BOILER shall be constructed with a heavy gauge steel jacket assembly, primed and pre-painted on both sides. The combustion chamber shall be sealed and completely enclosed, independent of the outer jacket assembly, so that integrity of the outer jacket does not affect a proper seal. A burner/flame observation port shall be provided. The burner shall be a premix design and constructed of high temperature stainless steel with a woven metal fiber outer covering to provide modulating firing rates. The BOILER shall be supplied with a gas valve designed with negative pressure regulation and be equipped with a variable speed blower system, to precisely control the fuel/air mixture to provide modulating boiler firing rates for maximum efficiency. The BOILER shall operate in a safe condition at a de-rated output with gas supply pressures as low as 4 inches of water column.

The BOILER shall utilize a 24 VAC control circuit and components. The control system shall have an electronic display for boiler set-up, boiler status, and boiler diagnostics. All components shall be easily accessed and serviceable from the front and top of the jacket. The BOILER shall

be equipped with; a temperature/pressure gauge, high limit temperature control certified to UL353, ASME certified pressure relief valve, outlet water temperature sensor, return water temperature sensor, a UL 353 certified flue temperature sensor, outdoor air sensor, low water flow protection and built-in adjustable freeze protection.

The BOILER shall feature the "Smart System" control with a Multi-Colored Graphic LCD display with Navigation Dial and Soft Keys for, password security, three loop temperature set-points with individual outdoor air reset curves, pump delay with adjustable freeze protection, pump exercise, domestic hot water prioritization with DHW modulation limiting and USB PC port connection. The BOILER shall be capable of controlling a variable speed boiler pump to keep a constant Delta T at all modulation rates. The BOILER shall have the capability to accept a 0-10 VDC input connection for BMS control of modulation or set-point, enable/disable of the boiler, variable system pump signal and a 0-10VDC output of boiler modulation rate. The Boiler shall have a built-in "Cascade" with sequencing options for "lead lag" or "efficiency optimized" modulation logic, with both capable of rotation while maintaining modulation of up to eight boilers without utilization of an external controller. The Boiler shall be capable of communicating with Copper-Fin II, Crest and Knight Boilers of different inputs in a hybrid system to maximize efficiency and turndown without the need for a third party control. Supply voltage shall be 120 volt / 60 hertz / single phase.

The BOILER shall be equipped with two terminal strips for electrical connection. A low voltage connection board with 42 data points for safety and operating controls, i.e., Auxiliary Relay, Auxiliary Proving Switch, Alarm Contacts, Runtime Contacts, Manual Reset Low Water Cutoff, Flow Switch, High and Low Gas Pressure Switches, Tank Thermostat, Three Wall Thermostat/Zone Controls, System Supply Sensor, Outdoor Sensor, Building Management System Signal, Modbus

Control Contacts and Cascade Control Circuit. A high voltage terminal strip shall be provided for supply voltage. The high voltage terminal strip plus integral relays are provided for independent pump control of the System pump, the Boiler pump and the Domestic Hot Water pump.

The BOILER shall be installed and vented with: Direct Vent Vertical - system with a vertical roof top termination of both the vent and combustion air. The flue shall be PVC, CPVC or Stainless Steel sealed vent material terminating at the roof top with the manufacturer's specified vent termination. A separate pipe shall supply combustion air directly to the BOILER from the outside. The air inlet pipe may be PVC, CPVC, ABS, Galvanized, Dryer Vent, or Stainless Steel sealed pipe. The air inlet must terminate on the roof top with the manufacturer's specified air inlet cap. The BOILER's total combined air intake length shall not exceed 100 equivalent feet. The BOILER's total combined exhaust venting length shall not exceed 100 equivalent feet. *Foam Core pipe is not an approved material for exhaust piping.*

The BOILER shall have an independent laboratory rating for Oxides of Nitrogen (NO_x) of 20 ppm or less corrected to 3% O₂. The manufacturer shall verify proper operation of the burner, all controls and the heat exchanger by connection to water and venting for a factory fire test prior to shipping.

The BOILER shall operate at altitudes up to 4,500 feet above sea level without additional parts or adjustments.

The BOILER shall be suitable for use with polypropylene glycol, up to 50% concentration without contingencies. The Firing Control System shall be Direct Spark Ignition with Electronic Supervision

SPLIT AIR COOLED AIR CONDITIONING UNITS: VARIABLE REFRIGERANT VOLUME (VRVIII-S) AIR CONDITIONING SPECIFICATION – Heat Pump

A. SYSTEM DESCRIPTION

The variable capacity, heat pump air conditioning system shall be a Daikin Variable Refrigerant Volume Series (heat/cool model) split system or approved equal. The system shall consist of multiple evaporators using PID control, and Daikin VRVIII-S model RXYMQ36PVJU and RXYMQ48PVJU outdoor units. The RXYMQ outdoor units shall be a nominal 3 or 4 ton, direct expansion (DX), air-cooled heat pump air-conditioning system, inverter driven variable speed compressor, multi-zone split system, using R-410A refrigerant. The outdoor unit may connect an indoor evaporator capacity up to 130% to that of the outdoor condensing unit capacity. All indoor units are each capable of operating separately with individual temperature control.

The Daikin outdoor unit shall be interconnected to indoor unit models FXFQ, FXHQ, FXSQ, FXMQ, FXLQ, FXNQ, FXTQ, FXDQ, FXZQ, FXAQ and FXMQ_MF and shall range in capacity from 7,500 Btu/h to 48,000 Btu/h in accordance with Daikin's engineering data book detailing each available indoor unit. The indoor units shall be connected to the condensing unit utilizing specified piping joints and headers to ensure correct refrigerant flow and balancing. T style joints are not acceptable.

Operation of the system shall permit either cooling or heating of all of the indoor units. Each indoor unit or group of indoor units shall be able to provide set temperature independently via a local remote controller, an Intelligent Touch Controller, an Intelligent Manager or a BMS interface.

The RXYMQ outdoor unit model numbers and the associated number of connectable indoor units per RXYMQ outdoor unit is indicated in the following table. Each indoor unit or group of indoor units shall be independently controlled.

Model Number	Nominal Capacity (Tons)	Number of Connectable Indoor Units
RXYMQ48PVJU	4	3

B. QUALITY ASSURANCE:

1. The units shall be tested by a Nationally Recognized Testing Laboratory (NRTL), in accordance with ANSI/UL 1995 – Heating and Cooling Equipment and bear the Listed Mark.
2. All wiring shall be in accordance with the National Electric Code (NEC).
3. Each combination shall be rated in accordance with Air Conditioning, Heating and Refrigeration Institute’s (AHRI) Standard 210/240 and bear the AHRI label.
4. The system will be produced in an ISO 9001 and ISO 14001 facility, which are standards set by the International Standard Organization (ISO). The system shall be factory tested for safety and function.
5. Mechanical equipment for wind-born debris regions shall be designed in accordance with ASCE 7-2005 and installed to resist the wind pressures on the equipment and the supports.
6. The outdoor unit will be factory charged with R-410A.

C. DELIVERY, STORAGE AND HANDLING

Unit shall be stored and handled according to the manufacturer’s recommendations.

D. WARRANTY

1. See Addendum to the General Conditions.

E. PERFORMANCE

1. The VRVIII-S RXYMQ system performance shall be in accordance with AHRI 210/240 test conditions as shown in the performance table below.
2. Performance Conditions
Cooling: Indoor temp. of 80°F DB, 67°F WB and outdoor temp. of 95°F DB.
Heating: Indoor temp. of 70°F DB and outdoor temp. of 47°F DB, 43°F WB.
Equivalent piping length: 25ftP.

F. REFRIGERANT PIPING

The system shall be capable of refrigerant piping up to 492 actual feet or 575 equivalent feet from the outdoor unit to the furthest indoor unit, a total combined liquid line length of 1,000 feet of piping between the condensing and indoor unit units with 164 feet maximum vertical difference, without any oil traps. REFNET™ piping joints and headers shall be used to ensure proper refrigerant balance and flow for optimum system capacity and performance. T style joints shall not be acceptable as this will negatively impact proper refrigerant balance and flow for optimum system capacity and performance

G. PRODUCTS

OUTDOOR UNIT

- A. General: The outdoor unit is designed specifically for use with VRV series components.

1. The outdoor unit shall be factory assembled and pre-wired with all necessary electronic and refrigerant controls. The refrigeration circuit of the condensing unit shall consist of a Daikin scroll compressor, motors, fans, condenser coil, electronic expansion valves, solenoid valves, 4-way valve, distribution headers, capillaries, filters, shut off valves, oil separator, service ports and suction line accumulator.
Liquid and suction lines must be individually insulated between the outdoor and indoor units.
 2. The outdoor unit can be wired and piped with outdoor unit access from the left, right, rear or bottom.
 3. The connection ratio of indoor units to outdoor unit shall be permitted up to 130%.
 4. The outdoor system shall be able to support the connection of up to 8 indoor unit's dependent on the model of the outdoor unit.
 5. The sound pressure level standard shall be that value as listed in the Daikin engineering manual for the specified models at 3 feet from the front of the unit. The outdoor unit shall be capable of operating automatically at further reduced noise during night time.
 6. The system will automatically restart operation after a power failure and will not cause any settings to be lost, thus eliminating the need for reprogramming.
 7. The outdoor unit shall be modular in design and should allow for side-by-side installation with minimum spacing.
 8. The following safety devices shall be included on the condensing unit; high pressure switch, low pressure sensor, control circuit fuses, crankcase heaters, fusible plug, overload relay, inverter overload protector, thermal protectors for compressor and fan motors, over current protection for the inverter and anti-recycling timers.
 9. To ensure the liquid refrigerant does not flash when supplying to the various indoor unit units, the circuit shall be provided with a sub-cooling feature.
 10. Oil recovery cycle shall be automatic occurring 2 hours after start of operation and then every 8 hours of operation.
 11. The outdoor unit shall be capable of heating operation at 0°F dry bulb ambient temperature without additional low ambient controls.
- B. Unit Cabinet:
1. The outdoor unit shall be completely weatherproof and corrosion resistant. The unit shall be constructed from rust-proofed mild steel panels coated with a baked enamel finish.
- C. Fan:
1. The condensing unit shall consist of two propeller type, direct-drive 70 W fan motors that have multiple speed operation via a DC (digitally commutating) inverter.
 2. The fan shall be a horizontal discharge configuration with a nominal airflow maximum range of 3,740 CFM.
 3. Nominal sound pressure levels shall be 58 DB.

4. The fan motor shall have inherent protection and permanently lubricated bearings and be mounted.
5. The fan motor shall be provided with a fan guard to prevent contact with moving parts.
6. The outdoor unit shall be capable of operating at further reduced sound levels during night time.

D. Condenser Coil:

1. The condenser coil shall be manufactured from copper tubes expanded into aluminum fins to form a mechanical bond.
2. The heat exchanger coil shall be of a waffle louver fin and rifled bore tube design to ensure high efficiency performance.
3. The heat exchanger on the condensing units shall be manufactured from Hi-X seamless copper tube with N-shape internal grooves mechanically bonded on to aluminum fins to an e-Pass Design.
4. The fins are to be covered with an anti-corrosion acrylic resin and hydrophilic film type E1.
5. The pipe plates shall be treated with powdered polyester resin for corrosion prevention. The thickness of the coating must be between 2.0 to 3.0 microns.

E. Compressor:

1. The inverter scroll compressor shall be variable speed (PAM inverter) controlled which is capable of changing the speed to follow the variations in total cooling and heating load as determined by the suction gas pressure as measured in the condensing unit. In addition, samplings of evaporator and condenser temperatures shall be made so that the high/low pressures detected are read every 20 seconds and calculated. With each reading, the compressor capacity shall be controlled to eliminate deviation from target value.
2. The inverter driven compressor in each condensing unit shall be of highly efficient reluctance DC (digitally commutating), hermetically sealed scroll "G-type" with a maximum speed of 6,480 rpm.
3. Neodymium magnets shall be adopted in the rotor construction to yield a higher torque and efficiency in the compressor instead of the normal ferrite magnet type. At complete stop of the compressor, the neodymium magnets will position the rotor into the optimum position for a low torque start.
4. The capacity control range shall be 24% to 100%.
5. The compressor shall be equipped with a crankcase heater, high pressure safety switch, and internal thermal overload protector.
6. Oil separators shall be standard with the equipment together with an intelligent oil management system.
7. The compressor shall be spring mounted to avoid the transmission of vibration.

F. Electrical:

1. The power supply to the outdoor unit shall be 208/230 volts, 1 phase, 60 hertz +/- 10%.

2. The control voltage between the indoor and outdoor unit shall be 18VDC non-shielded, stranded 2 conductor cable.

Model Number	Cooling (Indoor 80°F DB / 67°F WB, Outdoor 95°F DB, 25 ft pipe length)	Heating (Indoor 47°F DB / 43°F WB, Outdoor 70°F DB, 25 ft pipe length)
FXFQ12PVJU	12,000	13,500
FXFQ18PVJU	18,000	20,000

3. The control wiring shall be a two-wire multiplex transmission system, making it possible to connect multiple indoor units to one outdoor unit with one 2-cable wire, thus simplifying the wiring operation.
4. The control wiring lengths as per manufacturer's recommendation.

H. INDOOR UNITS:

FXFQ – ROUND FLOW CEILING CASSETTE UNIT (3'x3')

- A. General: Indoor unit model FXFQ shall be a round flow ceiling cassette fan coil unit, operable with R-410A refrigerant, equipped with an electronic expansion valve, for installation into the ceiling cavity equipped with an air panel grill. It shall be available in capacities from 9,500 Btu/h to 48,000 Btu/h. Model numbers are FXFQ12PVJU and FXFQ18PVJU to be connected to outdoor unit model RXYM heat pump. It shall be a round flow air distribution type, fresh white, impact resistant with a washable decoration panel. The supply air is distributed via motorized louvers which can be horizontally and vertically adjusted from 0° to 90°. Computerized PID control shall be used to control superheat to deliver a comfortable room temperature condition. The unit shall be equipped with a programmed drying mechanism that dehumidifies while limiting changes in room temperature when used with remote control BRC1E71 and BRC2A71. The indoor units sound pressure shall range from 27 dB(A) to 34 dB(A) at low speed measured at 5 feet below the unit.
- B. Performance: Each unit's performance is based on nominal operating conditions:
- C. Indoor Unit:
 1. The indoor unit FXFQ shall be completely factory assembled and tested. Included in the unit is factory wiring, piping, electronic proportional expansion valve, control circuit board, fan motor thermal protector, flare connections, condensate drain pan, condensate drain pump, condensate safety shutoff and alarm, self-diagnostics, auto-restart function, 3-minute fused time delay, and test run switch.
 2. Indoor unit and refrigerant pipes will be charged with dehydrated air prior to shipment from the factory.
 3. Both refrigerant lines shall be insulated from the outdoor unit.

4. The round flow supply air flow can be field modified to 23 different airflow patterns to accommodate various installation configurations including corner installations.
5. Return air shall be through the concentric panel, which includes a resin net, mold resistant, antibacterial filter.
6. The indoor units shall be equipped with a condensate pan with antibacterial treatment and condensate pump. The condensate pump provides up to 33-1/2" of lift and has a built in safety shutoff and alarm.
7. The indoor units shall be equipped with a return air thermistor.
8. The indoor unit will be separately powered with 208~230V/1-phase/60Hz.
9. The voltage range will be 253 volts maximum and 187 volts minimum.

D. Unit Cabinet:

1. The cabinet shall be space saving and shall be located into the ceiling.
2. Three auto-swing positions shall be available to choose, which include standard, draft prevention and ceiling stain prevention.
3. The airflow of the unit shall have the ability to shut down outlets with multiple patterns allowing for simpler installation in irregular spaces.
4. Fresh air intake shall be possible by way of optional fresh air intake kit.
5. A branch duct knockout shall exist for branch ducting of supply air.
6. The cabinet shall be constructed with sound absorbing foamed polystyrene and polyethylene insulation.
7. Optional high efficiency MERV 13 air filters are available for each model unit.

E. Fan:

1. The fan shall be direct-drive turbo fan type with statically and dynamically balanced impeller with three fan speeds available.
2. The fan motor shall operate on 208/230 volts, 1 phase, 60 hertz with a motor output range from 0.08 to 0.16 HP.
3. The airflow rate shall be available in three settings.
4. The fan motor shall be equipped as standard with adjustable external static pressure (ESP) settings to allow operation with the MERV 13 filter options.
5. The fan motor shall be thermally protected.

F. Filter:

1. The return air shall be filtered by means of a washable long-life filter with mildew proof resin and antibacterial treatment.
2. Optional high efficiency disposable MERV 13 filters shall be available.

G. Coil:

1. Coils shall be of the direct expansion type constructed from copper tubes expanded into aluminum fins to form a mechanical bond.
2. The coil shall be of a waffle louver fin and high heat exchange, rifled bore tube design to ensure highly efficient performance.
3. The coil shall be a 2-row cross fin copper evaporator coil with 17 FPI design completely factory tested.
4. The refrigerant connections shall be flare connections and the condensate will be 1 -1/4 inch outside diameter PVC.

5. A condensate pan with antibacterial treatment shall be located under the coil.
 6. A condensate pump with a 33-1/2 inch lift shall be located below the coil in the condensate pan with a built in safety alarm.
 7. A thermistor will be located on the liquid and gas line.
- H. Electrical:
1. A separate power supply will be required of 208/230 volts, 1 phase, 60 hertz. The acceptable voltage range shall be 187 to 253 volts.
 2. Transmission (control) wiring between the indoor and outdoor unit shall be a maximum of 3,280 feet (total 6,560 feet).
 3. Transmission (control) wiring between the indoor unit and remote controller shall be a maximum distance of 1,640 feet.
- I. Control:
1. The unit shall have controls to perform input functions necessary to operate the system.
 2. The unit shall be compatible with interfacing with a BMS system via optional LonWorks or BACnet gateways.
 3. The unit shall be compatible with an intelligent touch advanced multi-zone controller or an intelligent Manager III customizable BMS. Consult with manufacturer prior to applying controls.
- J. Optional Accessories Available:
1. A high efficiency disposable MERV 13 air filter kit.
 2. Fresh air intake kit (KDDP55B160(K)).
 3. Supply air branch duct connections.
 4. Remote "in-room" sensor kit (KRCS01-4B).
 - i. The wall mounted, hard wired remote sensor kit is recommended for ceiling-embedded type fan coils, which often result in a difference between set temperature and actual temperature. The sensor for detecting the temperature can be placed away from the indoor unit (branch wiring is included in the kit).

AIR HANDLING UNIT:

PACKAGED UNIT:

Factory-assembled, prewired, self-contained unit consisting of casing, supply fan, duct furnaces, controls, filters, and accessories.

General Construction: Indoor unit.

CASING AND COMPONENTS:

- A. Casing: Minimum 0.052-inch- (1.3-mm-) thick, galvanized-steel panels, formed to ensure rigidity and fastened with sheet metal screws or pop rivets; supported by galvanized-steel channels or structural channel supports; with access panels for burner and fan motor assemblies from both sides of unit; and with lifting lugs.
- B. Access Panels: Lift-out with cam-lock fasteners.
- C. Insulation: Factory-applied, neoprene-faced, glass-fiber insulation, 1 inch (25 mm) thick, applied on inlet components to heat exchanger.
- D. Finish: Heat-resistant, baked enamel.

- E. Weatherproofing: Factory applied to casing.
- F. Filters: Removable 1-inch- (25-mm-) thick, glass-fiber, disposable filters in metal frames.

GAS-FIRED DUCT FURNACES:

- A. Cabinet: Galvanized steel with baked-enamel finish, access doors, glass-fiber insulation, and reflective liner.
- B. Fuel: Natural gas.
- C. Heat Exchanger: Welded stainless steel.
- D. Gas Burner: Atmospheric type with adjustable, combustion-air supply.
 - 1. Gas Valve: Modulating, 100 percent, safety gas shutoff; 24-V, combining-pressure regulation; safety pilot; manual set (on-off); pilot filtration; and automatic electric valve.
 - 2. Electronic pilot ignition with electric-spark or hot-surface igniter.
 - 3. Thermocouple Sensor: Prevents opening of gas valve until pilot flame is proven, and stops gas flow on ignition failure.
 - 4. Flame-Rollout Switch: Installed on burner box, and prevents operation.
 - 5. Vent Safety Shutoff Sensor: Temperature sensor installed on draft hood prevents operation; with manual reset.
 - 6. High-Limit Control: Fixed stop at maximum permissible temperature setting to de-energize burner on excessive bonnet temperature; with automatic reset.
 - 7. Vent Blower: Noncorrosive fan and scroll with permanently lubricated motor and airflow-proving switch.

FAN:

Description: Rated according to AMCA 210; statically and dynamically balanced, galvanized-steel, centrifugal fan mounted on solid-steel shaft with heavy-duty, self-aligning, pre-lubricated ball bearings and V-belt drive with matching motor sheaves and belts. Fan Type: Backward inclined.

MIXING DAMPER PACKAGE

- A. Dampers: Outside- and return-air dampers with damper operator and control package to automatically vary outside-air quantity. Arrange outside-air damper to fail in the closed position.
- B. Gaskets: Fit dampers with edge gaskets to achieve a maximum leakage of 5 percent at 2-inch wg (500-Pa) pressure differential.
- C. Damper Operator: Direct coupled, 24 V, with spring return.

- D. Mixed-Air Control Sequence: Sequence outside-air dampers open and return-air dampers closed to maintain selected mixed-air temperature. Return outside-air dampers to minimum position during heating operation.

CONTROLS:

- A. Factory-wire connection for power supply and field-wire unit to remote control panel.
- B. Space Thermostat: Adjustable, low voltage, to control burner and supply fan to maintain temperature setting.
 - 1. System Selector Switch: Heat & off.
 - 2. Fan Control Switch: Auto-on.
 - 3. Thermostat display as follows:
 - a. Time of day.
 - b. Actual room temperature.
 - c. Programmed temperature.
 - d. Programmed time.
 - e. Duration of timed override.
 - f. Day of week.
 - g. System mode indication including heating, off, and fan auto-on.

INSTALLATION:

- A. Install units according to manufacturer's written instructions.
- B. Install gas-fired units according to AGA Z223.1.
- C. Install floor mounted units on spring isolators with minimum 1-inch (25-mm) static deflection.

CONNECTIONS

- A. Piping installation requirements are specified in other Division 15 Sections. Drawings indicate general arrangement of piping, fittings, and specialties. The following are specific connection requirements:
 - 1. Install piping adjacent to machine to allow service and maintenance.
 - 2. Gas Piping: Comply with applicable requirements in Division 15 Section "Natural Gas Piping." Connect gas piping with shutoff valve and union and with sufficient clearance for burner removal and service. Provide AGA-approved flexible connectors.
- B. Breeching: Comply with applicable requirements in Division 15 Section "Breechings, Chimneys, and Stacks." Connect breeching to full size of flue outlet.
- C. Ground equipment.
 - 1. 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.

COMMISSIONING:

- A. Engage a factory-authorized service representative to perform startup service. Verify that equipment is installed and connected according to manufacturer's written instructions.
- B. Complete installation and startup checks according to manufacturer's written instructions.
- C. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation. Remove malfunctioning units, replace with new units, and retest.
- D. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

DEMONSTRATION:

Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain indirect-fired, packaged H&V units.

1. Train Owner's maintenance personnel on procedures and schedules for starting and stopping, troubleshooting, servicing, and maintaining equipment and schedules.
2. Review data in maintenance manuals. Refer to Division 1 Section "Contract Closeout."
3. Review data in maintenance manuals. Refer to Division 1 Section "Operation and Maintenance Data."
4. Schedule training with Owner, through Architect, with at least seven days' advance notice.

HOT WATER INLINE PUMPS – PERMANENTLY LUBRICATED:

- A. Manufacturer:
 1. Contractor shall furnish and install new 3-piece inline permanently lubricated pumps for chilled water and hot water heating systems as indicated on the drawings. Pumps shall be model NRF-9L as manufactured by Bell & Gossett under base bid. Equivalent units as manufactured by others may be submitted as deduct alternates. Pumps shall meet types, sizes, capacities, and characteristics as scheduled on the Equipment Schedule drawings.
- B. Inline Pumps – Permanently Lubricated:
 1. The pumps shall be of a horizontal, permanently lubricated type, specifically designed for quiet operation. Suitable for 225°F operation at 175 PSIG working pressure. The pump shall be single stage, vertical split case design, in cast iron

- bronze fitted (or all bronze) construction. The pump internals shall be capable of being serviced without disturbing piping connections.
2. The pumps shall be composed of three separable components a motor, bearing assembly, and pump end (wet end). The motor shaft shall be connected to the pump shaft via a replaceable flexible coupler.
 3. The pumps shall have a solid SAE1144 steel shaft supported by two sealed ball bearings. A non-ferrous shaft sleeve shall be employed to completely cover the wetted area under the seal.
 4. Pump shall be equipped with an internally flushed mechanical seal assembly. Seal assembly shall have a brass housing, Buna bellows and seat gasket, stainless steel spring, and be of a carbon ceramic design with the carbon face rotating against a stationary ceramic face.
 5. Bearing assembly shaft shall connect to either a cast bronze impeller. Impeller shall be hydraulically and dynamically balanced, keyed to the shaft and secured by a locking cap screw or nut.
 6. A flexible type coupling shall be employed between the pump and motor.
 7. Pump should be designed to allow for true back pull-out access to the pump's working components for ease of maintenance.
 8. Pump volute shall be of cast iron design for heating systems or cast bronze for domestic water systems. The connection style on cast iron and bronze pumps shall be flanged. Volute shall include gauge ports at nozzles, and vent and drain ports.
 9. To ensure alignment the motor shall be mounted to the bearing assembly via a bolted motor bracket assembly, and a rubber motor mount shall be used to assist in aligning the motor shaft with the pump shaft.
 10. Motors shall meet scheduled horsepower, speed, voltage, and enclosure design. Motors through 1 HP shall be resilient mounted, motors over 1.5 HP shall be rigid mounted. Motors shall have permanently lubricated ball bearings and must be completely maintenance free. Motors shall be non-overloading at any point on the pump curve and shall meet NEMA specifications.
 11. Pump shall be of a maintainable design and for ease of maintenance should use machine fit parts and not press fit components.
 12. Pump manufacturer shall be ISO-9001 certified and be of U.S. manufacturer.
 13. Each pump shall be factory tested and name-plated before shipment and shall be provided with a (3) year warranty from date of installation.

Cabinet Inline Fans: DIRECT DRIVE DELUXE INLINE CABINET CENTRIFUGAL EXHAUST FANS - GREENHECK MODEL CSP-B or approved equal.

A. General Description:

1. Base fan performance at standard conditions (density 0.075 Lb/ft³)
2. Ceiling mounted applications
3. Performance capabilities , see Fan Schedule
4. Sound levels as low as 2.0 AMCA sones
5. Fans are UL/cUL listed 507 - Electric Fans

B. Wheel:

1. Forward curved centrifugal wheel
2. Statically and dynamically balanced in accordance to AMCA Standard 204-05

- C. Motors:
 - 1. Motor enclosures shall be open drip-proof (ODP), opening in the frame body and or end brackets
 - 2. Motors are permanently lubricated sleeve bearing type to match with the fan load and furnished at the specific voltage and phase
 - 3. Motor shall be mounted on vibration isolators and be accessible for maintenance
 - 4. Compatible for use with speed controls
 - 5. Thermal overload protection
- D. Housing:
 - 1. Constructed of heavy gauge galvanized steel
 - 2. Interior shall be lined with 0.5 inches of acoustical insulation
 - 3. Profile as low as 6 15/16 inches
 - 4. Includes pre-punched mounting brackets
- E. Motorized Damper:
 - 1. Prevents air from entering back into the building when fan is off
 - 2. Damper blade with neoprene gasket edges
- F. Outlet:
 - 1. Outlet shall be square type
 - 2. Duct collar shall include an aluminum backdraft damper
- G. Mounting Brackets:
 - 1. Fully adjustable for multiple installation conditions
- H. Access Panel:
 - 1. Once installed shall have easy access to internal components
- I. Options/Accessories:
 - 1. Disconnect Switches:
 - a. NEMA rated - 4x
 - b. Positive electrical shut-off
 - c. Wired from fan motor to junction box installed within motor compartment
 - d. Access for wiring shall be external
 - 2. Speed Control:
 - a. Controls the fan's output
 - 3. Time Delay Switch:
 - a. Save energy by automatically turning off the fan
 - 4. Transformers:
 - a. Available for applications requiring voltage reduction
 - b. All transformers are shipped loose
 - 5. Vibration Kit:
 - a. Available for suspended installations
 - b. Includes pre-punched hole for ease of installation and shall have all hardware to mount one unit.

Sidewall mounted Propeller Fans: BELT DRIVE SIDEWALL MOUNTED PROPELLER FANS - GREENHECK MODEL SB-1, or approved equal.

- A. General Description:
 - 1. Fan arrangement shall be supply, see Fan Schedule
- INSTALLATION OF HVAC SYSTEM

2. Sidewall mounted applications
 3. Performance capabilities , see Fan Schedule
- B. Wheel:
1. Material type: aluminum blades and hubs
 2. Securely attached to fan shaft with standard square key and set screw or tapered bushing
 3. Statically and dynamically balanced in accordance with AMCA Standard 204-05
 4. The propeller and fan inlet will be matched and shall have precise running tolerances for maximum performance and operating efficiency
- C. Motors:
1. Motors are permanently lubricated, heavy duty ball bearing type to match with the fan load and furnished at the specific voltage and phase
 2. Accessible for maintenance
- D. Shafts and Bearings:
1. Fan Shaft shall be ground and polished solid steel with an anti- corrosive coating
 2. Bearing shall be stamped steel or cast pillow block
 3. Bearings shall be selected for a minimum L10 life in excess of 100,00 hours (equivalent to L50 average life of 500,000 hours), at maximum cataloged operating speed
 4. Bearing shall be air handling quality and 100% factory tested by bearing manufacturer
 5. Fan Shaft first critical speed is at least 25 percent over maximum operating speed
- E. Drive Frame:
1. Drive frame assemblies shall be galvanized steel, and bolted construction
 2. Drive frame shall have formed channels and fan panels shall have pre-punched mounting holes, formed flanges and a deep formed one piece inlet venturi
- F. Disconnect Switches:
1. NEMA rated: 4X
- G. Drive Assembly:
1. Belts, pulleys, and keys oversized for a minimum of 150 percent of driven horsepower
 2. Belt: Static free and oil resistant
 3. Fully machined cast iron pulleys, keyed and securely attached to the wheel and motor shafts
 4. The motor pulley shall be adjustable for final system balancing
 5. Readily accessible for maintenance
- H. Options/Accessories:
1. Dampers:
 - a. Type: Motorized
 - b. Prevents outside air from entering back into the building when fan is off
 - c. Damper blade with neoprene gasket edges
 - d. Galvanized frames with pre-punched mounting holes
 2. Dampers Guards:
 - a. Guard material: Galvanized

- b. Shall completely enclose the damper or wall opening on the discharge side of the fan
3. Diffusers:
 - a. Constructed of heavy gauge galvanized steel frame and blades
 - b. Shall have pre-punched mounting flanges
4. Finishes:
 - a. Types: Epoxy
5. Wall Housing:
 - a. Mounting arrangement: Flush Interior and Flush Exterior
 - b. Constructed of galvanized steel with heavy gauge mounting flanges and pre-punched mounting holes
 - c. Housing shall include OSHA approved motor guard
6. Wall Collar:
 - a. Constructed of galvanized steel with heavy gauge mounting flanges and pre-punched mounting holes
7. Motor Side Guard:
 - a. Guard type: OSHA Guard
 - b. Protective guard completely enclose the motor and drive side of the fan
8. Weather hood:
 - a. Shall shield wall opening and dampers from rain and snow
 - b. Material type: [Galvanized] [Aluminum]
 - c. Turndown Angle: 45 degrees
 - d. Screen: Insect screen
 - e. Finishes: Hi-Pro Polyester

CAST IRON RADIATOR: The contractor shall furnish and install hot water Baseboard Heaters on locations as noted on the design contract drawing. Baseboard heaters shall be model type "RC" as manufactured by Weil-Mclain under base bid. Equivalent units as manufactured by others may be submitted as deduct alternates. Baseboard radiator shall meet types, sizes, capacities, and characteristics as scheduled on the Equipment Schedule drawings. Radiator shall be equipped with a metal extension, Valve cover and end cover.

AUXILLIARY CONDENSATE DRAIN PAN WITH OVERFLOW ALARM: The contractor shall furnish and install a secondary auxiliary stainless steel condensate drain pan underneath the air handling unit with a minimum depth of 2½ inches. The stainless steel drain pans shall also have installed on it a condensate overflow alarm system as specified below.

The drain pans shall sit below the AHU unit in case of condensation overflow occurs in order to prevent damage to the building and ceilings. The contractor shall furnish all piping, fittings, supports, and hangers necessary to install the secondary condensate drain pans.

The alarm system shall consist of a low voltage A/C condensate overflow alarm unit, model # SG1 as manufactured by SMD Research, Inc. or approved equal and a low voltage A/C condensate overflow shut-off switch, model # SS3 as manufactured by SMD Research, Inc. or approved equal. Both the alarm unit and switch shall be 24 volts.

The shut-off switch contains a float that will be mounted in the auxilliary drain pan. If condensate is detected, the switch will signal the overflow alarm unit shutting down the HVAC system and activating a flashing LED light and buzzer alarm.

Both the overflow alarm unit and overflow switch shall be UL listed.

EQUIPMENT PADS: (Refer to structural specification and drawings)

GALVANIZED DUCTWORK: The contractor shall furnish and install all ductwork, including from the ceiling hung air handling units in the attic to all branch supply ducts and return ducts throughout the attic space and ductwork for fresh air intake system, as indicated on drawings. All required duct transitions shall be furnished and installed in order to complete the installation of the air handler units and all associated duct work. **The ductwork shall be made of #22 gauge hot-dipped, galvanized sheet metal.** The ductwork connection to the inlet and outlet of the air handler units shall be made with an eight (8) ounce flexible canvas collars. **Lengths of duct shall be connected with Ductmate joints with gaskets (No Substitution Will Be Accepted).** Galvanized sheet metal shall comply with A.S.T.M. specification A-93, Class C as manufactured by Republic Steel Company or approved equal. Ducts shall be supported a maximum of 4'-0" on centers. Ducts shall be rigid, quiet, and free of vibration when systems are operating. Supports shall be band iron anchored to ceiling or as approved by the Engineer.

SHEET METAL WORK:

1. **Ductwork:**

- a] Furnish and install all required ductwork, for the HVAC systems as shown on the drawings and as per ASHRAE standards. Ducts shall have a rectangular cross section unless otherwise indicated in the drawings.
- b] Where necessary, the Contractor shall make changes in elevation, location, size, and run to clear all interference without effecting air quantities, distribution, quietness and satisfactory clearance. Such changes shall be approved by the Department of Parks and Recreation Engineer before the work is started.
- c] Duct elbows shall have a center line radius of one and one half times the dimension of the duct in the plane of the bend. Square centerline radius is less than minimum specified above. Turning vanes shall be "Ducturn" as manufactured by Carnes or approved equal.
- d] No piping, conduit and/or hangers shall pass through ducts unless it is impossible to avoid doing so and not unless approval of the Engineer is received. Where conditions permit, pipe, conduit or hanger passing through a duct shall be submitted to the Engineer for approval. Should pipe, conduit, or hanger be required to pass through any

duct, and approval is given the Engineer for same, This Contractor shall furnish any and all deflectors required.

- e] All ducts shall be straight and smooth on the inside with neatly finished joints. Slip joints shall be use in the direction of the airflow. Ducts shall be so constructed and installed as to be free from vibration under all conditions.
- f] Horizontal ducts shall be hung rigidly with the distance between supports not exceeding 4'-0". Vertical ducts shall be supported at each floor. All ducts over 35" in the larger dimension shall be supported or braced in addition to such supports and bracing hereinafter specified in order to completely eliminate any sagging whatsoever. Such method of support and bracing shall be in an approved manner. All ducts from 24" up to and including 60" in the larger dimension shall be cross-broken.
- g] All ductwork shall be constructed in strict accordance with the recommendations of the latest edition of the ASHRAE Guide, except that where noted on drawings the noted construction shall be required.
- h] All ductwork located outdoors shall be aluminum.
- i] All connections between ducts, or ducts and equipment, of dissimilar metals shall be furnished with a non-conductive gasket to prevent contact between dissimilar metals.
- j] All ductwork shall be furnished and installed with volume and splitter dampers as shown on the contract drawings.

2. **Hangers, Supports & Anchors:** Furnish and install hangers, supports and anchors as hereinafter specified and as required.

- a] Low pressure ducts up to 24" on a side or up to 20" diameter, shall be suspended with 16 gauge, stainless steel, strap hangers, 1" wide.
- b] Low pressure ducts 25" to 40" on a side or 21" to 40" diameter shall be suspended with stainless steel strap hangers 1" wide by 1/8" thick.
- c]. Strap hangers shall be bent 90 degrees, extended down sides of ducts and turned under bottom of ducts a minimum of 2". Strap hangers shall be fastened at ceiling with nuts, bolts and lock washers and to sides and bottom of ducts with sheet metal screws.
- d]. Rod type hangers shall be 3/8" diameter stainless steel rods threaded at both ends and bottom bracing angles on ducts with nuts and lock washers.
- e] Angle type hangers shall be extension of side bracing angles on ducts, bent 90 degrees at ceiling and fastened with stainless steel nuts, bolts and lock washers.
- f] Hangers for vertical ducts shall be as per SMACNA Duct Manual.

3. **Dimension:** the Contractor shall verify All duct dimension shown on Plans in the field for construction and installation purposes.

4. **Fire Dampers:** Fusible link fire dampers shall be furnished by this contractor where any duct pierces floors, fire rated partitions, vertical shafts, and wherever else local authorities require the installation of fire dampers. Fire dampers shall have unobstructed openings full size and area of duct. Fire dampers shall be manufactured by Ruskin, Arlan, Arrow or approved equal and must be U.L. Listed, and NFPA and B.S.& A. approved.

5. **Volume Dampers:** Furnish and install volume dampers at each branch connection from or to main ducts and in locations as indicated on the contract drawings to balance the system properly. Volume dampers shall be operated by indicating quadrants and set screws for adjusting the system. Damper blades shall be riveted to spindles and all spindles shall be made with square sections where blades are attached to insure against turning of the blades on the spindles. Dampers shall be close fitting and be designed to offer as little resistance to air as possible when open. All dampers located in acoustically lined ducts shall be provided with a continuous channel frame. Individual damper shall not exceed 10" in width; dampers exceeding this dimension shall be multi-blade. Volume dampers shall be manufactured by Greenheck Company, Ruskin, Arlan or approved equal.

6. **Louver & Motorized Damper:** Furnish and install security louver and Motorized damper for fresh air intake as shown in the drawing. The louver shall be provided with 18 gauge galvanized steel frame, 20 gauge drainable blade with 1/2"X0.050" expanded flattened aluminium screen in removable frame, mounted on inside/rear side of the louver. The louver shall be provided with security bar and bug screen.. The Motorized Damper shall be 16 ga aluminum frame and blade, heavy duty vinyl seal, maximum velocity 2500FPM, maximum differential pressure 1" WG, motor operator 120V, 1.8 RPM, panel size 12"X12". Louver and Damper shall be manufactured by Ruskin, Arlan, Carnes Company, or approved equal.

7. **Flexible Connections:**
 - a] All fan connections to ductwork, both at inlet and discharge, shall be made with material as hereinafter specified, so as to prohibit the transfer of vibration from fans to ductwork connecting thereto.
 - b] Flexible connections shall be a minimum of 6" long including bands using extra wide fabric as specified and held in place with heavy metal bands, securely attached to prevent any leakage at the connection points.
 - c] Flexible connections shall be fabricated from the following material unless otherwise required by local authorities:
Low Pressure Systems - Neoprene coated glass fabric - 30 oz/sq.yd..
 - d] Flexible connections shall be furnished with Underwriter's Laboratory Label and must be NFPA approved.
 - e] Flexible connections shall not be painted.

8. **ACCESS DOORS:** Furnish and install tight fitting, gasketed, access doors in ductwork for access to all fire dampers, volume dampers, fan bearing, and controls. Access doors shall be of the pan type of not less than 20-gage sheet metal minimum and shall be of the same material as the ducts. The gaskets shall be cemented in place with "Permacel" adhesive EE-4719 or approved equal. Access doors shall be insulated. Access doors shall be of type of construction approved by Department of Parks & Recreation Engineer.
Access doors shall be of the following sizes unless otherwise specified:

Duct Width

12" & Under
13" to 17"
18" & over

Access Door Size

18" long x duct width minus 2" wide
18" x 12"
20" long x 16" wide

8. **SUPPLY DIFFUSERS/REGISTERS:** Furnish and install the air outlets, supply air ceiling diffuser as manufactured by Anemostat or approved equal. Registers shall distribute the air uniformly throughout the space without drafts. Registers shall be of sizes and capacities noted on the drawings. All registers shall have adjustable steel opposed blade volume dampers, and adapters to make any necessary transition to duct.

All registers shall be furnished with a rubber gasket extending around the entire periphery of the frame to assure an airtight connection. One (1) damper operator key shall be furnished for each air register installed.

Finishes of diffusers/registers shall be selected by the Department of Parks and Recreation Architect, and must be coordinated for approvals before they are used.

9. **RETURN GRILLES/REGISTERS:** The contractor shall furnish and install return grilles/registers as shown on the drawings and as herein specified. The grilles shall be medium security grille, as manufactured by Anemostat, or approved equal. The grilles shall have $\frac{1}{8}$ " x $\frac{1}{2}$ " cold rolled steel face bars on $\frac{3}{8}$ " centers. Additional blade support shall be provided by $\frac{1}{4}$ " square support bars welded to the blade on maximum 6" centers. A 10 gauge #2 mesh screen shall be securely welded at the rear of the facebars. All grilles shall have adjustable opposed blade dampers to control volume, and adaptors to make any necessary transition to duct. Grille shall be of sizes and capacities as indicated on the drawings with all necessary blanking for proper air delivery. Finishes of grilles/registers shall be selected by the DDC Architect, and must be coordinated for approvals .

PIPING:

- A. Provide piping which is schematically indicated and sized on drawings. Piping to be installed to meet specified headroom or field conditions and shall conform to latest asme codes for pressure piping. Pipe materials and fitting materials shall be as per the pipe and fitting schedules shown on drawings.
- B. Piping, fittings, and all pipe appurtenances shall be suitable for the pressure and temperature of service.
- C. Provide dielectric fittings to connect different piping materials.
- D. Provide air vents at each high point and drain valves with hose bib at each low point.
- E. Piping shall be installed with proper anchors and expansion/contraction devices such as loops or approved expansion joints to prevent undue strains on piping or apparatus connected to the piping, as required.

- F. Support piping with hangers equipped with insulation saddles from approved concrete inserts, expansion shields, beam clamps, and/or supplementary steel angles, plates, and channels. Contractor shall submit method of piping support signed and sealed by a licensed professional engineer for review.
- G. Unions with removable sections of piping shall be installed at all equipment to permit ease of disconnection for equipment service/removals without dismantling of major portions of connected piping.
- H. Provide tees in piping system for testing and balancing, and installations of flow or float switches, gauged, thermometers and other balancing and control devices, coordinate with the control contractor and balancer.
- I. Provide automatic pressure relief valves and vacuum breakers to prevent against pipe rupture or syphoning actions. Extend drains from relief valves to spill over floor drains.
- J. All pipe sleeves shall be schedule 40 galvanized steel. Annulus between pipe or pipe insulation and sleeve shall be caulked with a non-combustible material to within 1/4" of wall faces and filled with caulking compound for interior sleeves. Exterior sleeves or waterproof sleeves shall utilize link seal (ls) type to fill the annulus. Provide escutcheons on all exposed piping through walls or floors held in place with screws.
- K. Provide securely fastened labeling of all piping (both exposed and concealed) in accordance with ansi standards and color coded as per building management standards. Labeling should be provided 20 feet on centers and/or at least once in each enclosed space or room where the walls extend above the ceiling.
- L. Provide valve tags and charts:
 - 1. Each valve shall have a 2 inch diameter brass tag with 1 inch high numeral stamped thereon, secured to the valve by means of brass s hook or brass chain. Each system to have a letter designation indicating service.
 - 2. The contractor shall furnish an approved neatly drawn valve chart, properly framed, showing the use and location of each valve that is tagged.
- M. Valves and strainers:
 - 1. Valves, strainers, etc., shall not contain asbestos and have the name of the manufacturer and guaranteed working pressure cast or stamped on bodies. Valves of similar type shall be by a single manufacturer.
 - 2. Valves used for throttling or controlling flow shall be ball (1" or smaller) or plug type valves (all sizes). Valves for isolation shall be ball for liquid systems unless otherwise specified. Refer to automatic temperature control section for control valves.
 - 3. Valves shall have working pressure and temperature ratings same as pipe fittings specified for the service. Regardless of service, valves shall not be designed for less than 125 psi steam working pressure.
 - 4. Lubricated, tapered plug valves with locking flow plate shall be provided in the discharge piping from water circulating pumps, in the leaving water piping branches from all coils, heat exchanger types of equipment, and all return water risers of sub-mains that connect to hydronic mains for both balancing and isolation purposes.
 - 5. Check valves sized 2" and smaller shall be bronze body, screwed ends, swing pattern. Provide spring loaded, silent action, non-slam type check

valve with removable cap, re-grinding disc and seat ring in all vertical installations and discharge piping from pumps as manufactured by smolenksy, meuller, williams-hager or miller.

6. Ball valves shall be provided with stainless steel ball, stem and seat ring, tfe bushing and seat ring gasket. Ball valves installed in copper systems shall have bronze bodies. Ball valves shall be rated for a minimum of 275 psi @ 100 degree f. Ball valves used for throttling (1" and smaller) shall be provided with a locking balancing stop.
7. Strainers of sarco or meuller manufacturer shall be provided in the inlet piping to each make up connection, pump, and automatic control valve of hydronic system. Strainer shall be y-pattern unless otherwise specified on drawings. Strainers shall be of design to allow blow-down of accumulated debris and to facilitate removal and replacement of the strainer screen without disconnection from the main piping. Strainers installed in copper systems shall have bronze bodies. Strainer basket shall be nickel, copper, brass or stainless steel of ample strength to prevent collapsing under shock loading. Strainers 2" and smaller shall have 6" long blow-off nipple with capped end.

N. Thermometers and pressure gauges:

1. Provide pipe thermometers with separable sockets in the entering and leaving water piping connections to heating system. Thermometers shall be weiss, weksler, therice or other approved manufacturer and shall be minimum of 4-1/2" dial type, aluminum flangeless case furnished with micrometer adjustable pointer. Thermometer shall have a 1% accuracy and midpoint as system operating temperature.
2. Provide liquid filled pressure gauges on inlet and outlet water piping connections to all pumps. Each pressure gauge installation shall include a 1/4" ball valve for its connection to piping. Pressure gauges shall be weiss, weksler, therice or other approved manufacturer and shall be minimum of 4-1/2" dial type, cast aluminum case, steel movement, micrometer adjustable pointer, 1% accuracy and midpoint at system operating pressure.

O. Pipe testing:

1. No testing shall be conducted until pipe cleaning and pretreatment has been completed and recorded.
2. All testing shall be coordinated by the contractor and shall be witnessed by a building agency representative. All systems which fail the pressure tests shall be fixed and retested at no expense to the owner.
3. Isolate all equipment which is to be excluded from the pressure test and provide all temporary piping connections, fittings, valves, equipment, labor, etc., to pressure test all systems.
4. Hot water systems will be hydrostatically tested with water at 1-1/2 times the working pressure, for a minimum period of two hours, with no leaks.
5. Refrigerant piping shall be tested in accordance with ashrae 15-1994 using minimum test pressures of 300 psi on the gas side and 150 psi on the liquid side. An electronic refrigerant detector shall be utilized for leak detection.
6. All refrigeration and oil lost during guarantee period shall be replaced by the contractor at no expense to the owner.

- P. Refrigerant systems:
1. Provide all refrigerant piping required for a complete refrigeration system, with all valves, fittings and specialties necessary for satisfactory operation in accordance with ashrae standard 15-1994 or latest edition and all authorities having jurisdiction. Refrigeration system shall include all required items for charging, draining and purging the system.
 2. Joints in refrigeration piping shall be brazed. Refrigerant piping shall be of the size recommended by the manufacturer and as approved by the engineer.
 3. Horizontal piping of the compressor suction and discharge lines and the condenser discharge lines shall be pitched a minimum of 1/2" in 10', in the direction of refrigerant flow. Each suction gas vertical riser shall be trapped at its evaporator with a trap as recommended by the compressor manufacturer.
 4. Install refrigerant piping to prevent excessive oil from being trapped in the system. Any additional risers or equalizer lines required by the manufacturer of equipment for the proper system operation shall be installed as part of this contract. Provide a fully piped oil separator for each refrigerant system as per manufacturers recommendations.
 5. Valves shall be designed for refrigerant service. Shutoff valves shall be brass packless type. Unions, flanged valves or fittings shall be provided for disconnecting equipment, controls, etc., for making repairs. Piping shall be run in a single layer, with each line isolated from another to prevent rubbing. Provision shall be made for expansion and contraction of piping. All piping passing through walls, partitions, etc. Shall be furnished with sleeves as required.
 6. Refrigerant piping passing through rated floors or demising walls shall be enclosed in a rigid and gas-tight continuous fire-resisting pipe duct or shaft vented to the outside, in accordance with ashrae standard 15-1994 or latest edition. Pipe conduit shall be schedule 40 black steel file stopped at both ends.
 7. Refrigerant piping testing:
 - A) The refrigerant piping for tightness and leaks under pressure or vacuum. The duration of each test shall be twenty-four (24) hours.
 - B) Test joints in accordance with ashrae 15-1994. There shall be no observable leaks or changes in pressure. If either is observed, seal leaks, and repeat test procedures.
- Q. All piping insulation to be installed with longitudinal lap and vapor barrier joint seal strips with adhesive or self-sealing laps. Fittings, flanges, and valves shall be insulated with pre-molded and pre-cut fittings with metered segments
- R. Hangers & Support:
All piping shall be adequately supported by means of hangers or supports of proper structural design as follows:
 - a) All new pipes shall be supported at all changes of direction and on straight runs at the following intervals:

Up to 1" diameter	6'-0" O.C.
1¼" to 2" diameter	8'-0" O.C.
2½" and Larger	10'-0" O.C.

- b) All new pipes shall be supported at all changes of direction and on straight runs at the following intervals:
- | | |
|--------------------|-------------|
| Up to 1" diameter | 6'-0" O.C. |
| 1¼" to 2" diameter | 8'-0" O.C. |
| 2½" and Larger | 10'-0" O.C. |
- c) Adjustable Swivel Ring hangers shall be of malleable iron with a Dura-Copper finish (DCU) and shall consist of a solid ring with an adjustable threaded throat extension. Hanger shall be Cooper B-Line #B3170CT, or approved equal.
- d) Pipe and conduit clamp hangers shall be of malleable iron with a Dura-Copper finish (DCU). Pipe clamp hangers shall be Cooper B-Line# B2000 Series or approved equal. For vertical run of tubing shall be Cooper B-Line #B3373CT riser clamp.
- e) All piping applications which require the use of insulation shall be protected with pipe covering protection shields, Cooper B-Line #B3153 or approved equal, at all points where insulation contacts any adjustable swivel ring hangers.
- f) All piping applications requiring insulation and being supported using pipe clamp hangers shall be protected and hung using the B-Line Armafix clamp and Armaflex insulation, or approved equal, at all of the points where insulated pipe and pipe hangers make contact.
- g) The Contractor shall make all necessary provisions for the vibration, expansion and contraction of piping to prevent damage to the system and shall replace all work damage through his failure to do so. The contractor shall furnish and install Vibra-Cushion, Model #B1999 as manufactured by Cooper B-Line or approved equal and Vibra-Clamp, Model #BVT as manufactured by Cooper B-Line or approved equal as necessary to eliminate vibrations and allow for expansion and contraction of the mounting system.
- h) Adjustable Swivel Ring hangers for all condensate piping shall be of malleable iron Cooper B-Line #B3170NF, or approved equal. Riser Clamp shall be Cooper B-Line #B3373, or approved equal.
- i) Piping in the building spaces shall be hung as close to the ceiling as practical.

Piping and Ductwork Insulation:

- A. Insulation shall be applied to piping and ductwork of materials as specified herein and for applicable systems of this project. Insulation shall have a flame spread

- rating not exceeding 25 and a smoke developed index of 50 or less and shall meet the requirements of ASTM, NFPA.
- B. Insulation shall be continuous through wall and slab sleeve openings except for rated walls or slabs where an approved firestop is required as per NFPA.
 - C. Insulation of cold surfaces where vapor barrier jackets are specified shall be applied with an unbroken vapor seal. Hangers and supports that are secured to cold surfaces shall be adequately insulated to prevent condensation.
 - D. Where insulation is specified for piping, insulate similarly all connections, vents, drains, flanges, fittings, valves, tanks, pump casings and other parts of the system subject to heat gain or loss and to prevent condensation.
 - E. All equipment, fittings, devices, etc requiring servicing or inspection shall have removable insulation which can be replaced without damage.
 - F. All leak and pressure tests shall be completed prior to the installation of any insulation.
 - G. Ductwork insulation:
 - 1. All new and existing sheet metal ductwork shall be insulated with flexible duct insulation, of required thickness and density to achieve a minimum installed R-5 insulative value at 75 degrees f mean temperature. Insulation to be provided with reinforced foil faced, flame resistant, aluminum foil vapor barrier. All insulation shall be secured with duct adhesive and seams sealed by two-inch sealing lip with adhesive and fastened with 16 gauge rust resistant wire or fiberglass cord on 12" centers. On ducts over 24" wide, welded pins and clips shall be used on the underside for fastening insulation.
 - 2. Condenser unit air intake, condenser air discharge, fresh air intake, mixed air ductwork and louver blank-off panels shall be insulated with rigid duct insulation of required thickness and density to achieve minimum installed r-5 insulative value at 75 degrees mean temperature. Insulation to be provided with white vinyl foil barrier facing. Insulation shall be impaled over welded pins with clips firmly embedded into insulation. All joints and clips shall be sealed with matching strips of vinyl coated vapor barrier laminate similar to owens corning 24 asj for ducts.
 - H. Piping insulation:
 - 1. Condensate drain and domestic water make-up piping shall be insulated with 1" thick molded glass fiber with a maximum k factor of 0.27 at 75 degree f mean temperature and factory applied vapor barrier jacket.
 - 2. Refrigerant liquid and suction piping shall be insulated with 1-1/2" thick molded glass fiber for pipe sizes up to 1-1/2" inches in diameter and 1-1/2" thick for pipe sizes larger than 1-1/2" inches in diameter. Insulation shall have a maximum k factor of 0.27 at 75 degree f mean temperature and factory applied vapor barrier jacket.
 - 3. Hot water piping up to 220 degrees f shall be insulated with 1-1/2" thick molded glass fiber for pipe sizes up to 1-1/2" inches in diameter and 2" thick for pipe sizes larger than 1-1/2" inches in diameter. Insulation shall have a maximum k factor of 0.27 at 75 degree f mean temperature and factory applied vapor barrier jacket.

4. Indoor piping exposed in kitchens: provide jackets over indoor pipe made of 0.016" aluminum held with a friction type, z-lock and aluminum bands. Provide a moisture barrier lining.
5. All piping insulation to be installed with longitudinal lap and vapor barrier joint seal strips with adhesive or self-sealing laps. Fittings, flanges, and valves shall be insulated with pre-molded and pre-cut fittings with metered segments.

PIPE PENETRATION THRU WALLS: The Contractor shall furnish and install link seal sleeve on all through the exterior wall penetrations or galvanized steel sleeve with fireproof caulk on all interior walls.

PAINTING: (Refer to Architectural specification)

EQUIPMENT SUPPORTS: The air handler unit shall be installed by the contractor on a concrete pad in the mezzanine floor as shown on the contract drawings or as directed by the resident engineer. The contractor shall provide vibration isolators and any additional dunnage, supports and hardware required to properly support the equipment **AT NO ADDITIONAL COST TO THE CITY.**

VIBRATION ISOLATORS:

A. Type of isolator, base, and minimum static deflection shall be as required for the equipment application as recommended by isolator or equipment manufacturer but subject to minimum requirements indicated herein and in the drawing.

B. Elastometric Isolators shall comply with ASTM D2240 and be oil resistant neoprene with a maximum stiffness of 60 durometer and have a straight-line deflection curve.

Spring Isolators (Type S): Shall be free-standing, laterally stable and include acoustical friction pads and leveling bolts. Isolators shall have a minimum ratio of spring diameter-to-operating spring height of 1.0 and an additional travel to solid equal to 50 percent of rated deflection.

Pads (Type D): Pads shall be felt, cork, neoprene waffle, neoprene and cork sandwich, neoprene and fiberglass, neoprene and steel waffle, or reinforced duck and neoprene. Size pads for a maximum load of 50 pounds per square inch.

THERMOSTAT: The contractor shall furnish and install two (2) thermostats; one (1) for the Air Handling Unit and other for Radiant Ceiling Panels. The thermostats shall be Honeywell Model PRO TH2110D1009 thermostats, or approved equal. Unit shall have set point range of 40°F to 90°F. Unit shall be hardwired with battery backup. The thermostat shall have off/auto/on

fan control switch to operate the fan continuously during cooling/heating season and manually when no cooling/heating is required.

Thermostat shall have programmable capability per Energy Conservation Construction Code of New York State. The contractor is to provide all necessary and required components to interface the air handler/fan, thermostat, duct stat, motorized damper and all required 3/4" galv. rigid conduit and wire (min. 10 A.W.G) to provide a fully operational system. Unit comes complete with locking cover.

The contractor shall also furnish a Honeywell RA89A relay, or approved equal, which supplies low voltage to the thermostat. In addition to the locking cover, the contractor shall furnish and install Honeywell Model #TG503A or approved equal metal thermostat guard. The contractor shall install the thermostats as shown on the contract drawings or as designated by the Resident Engineer.

FIRE EXTINGUISHER: The Contractor shall furnish and install eight (8) fire extinguishers in the riding arena, as manufactured by General Fire Extinguisher Co. #TGP-20G, or approved equal, 20 lb. capacity dry chemical extinguisher, as approved by the DPR Engineer.

CUTTING, PATCHING & RESTORATION: The contractor shall do all necessary cutting of floors, walls, ceilings, cabinets, etc., to install all necessary equipment, duct, registers, grilles, conduit, fittings, controls, etc., necessary or required for the installation of the specified system. After the installation and testing the disturbed areas shall be neatly patched and restored to match the existing surrounding area to the complete satisfaction of the Resident Engineer.

1. Provide and place required sleeves, forms, and inserts where required.
2. No cutting or altering the work of other Sections will be permitted without the approval of the Resident Engineer.
3. All cutting of building walls, ceilings and floors shall be done by core drilling and/or saw cutting, at the direction of the Resident Engineer.

CORE DRILLING

Work: The work to be performed under this contract consists of drilling holes in masonry and rock for the passage of piping or ductwork through footings, foundation walls and other structures as required or as directed by the resident Engineer.

Methods: Holes shall be drilled in masonry and rock by approved core drilling methods and equipment. The holes shall be of the sizes and depths necessary to pass the required piping and steel sleeve as required by local conditions or as directed by the Engineer. Care shall be taken while drilling in masonry that no damage will be done. Any damage to masonry resulting from drilling operations shall be repaired by the Contractor at his own cost and expense.

NOTE: The Contractor shall furnish and install link seal sleeve on all through the exterior wall penetrations or galvanized steel sleeve with fireproof caulk on all interior walls.

Penetrations/Opening for FAI, Grilles, Registers, & Ducts: All interior/exterior penetrations/openings for the F.A.I., registers, grilles and Ducts shall be provided by this Contractor. The penetration will be through the wall of the building or floor slab. The new penetration to the exterior shall be sealed and made waterproof with new flashing and the area shall be restored to match the existing surrounding area. This Contractor shall submit the exact locations of F.A.I. and all supply and return register and grille openings and method of installation and bracing to the engineer for approval.

ELECTRICAL WORK: The contractor shall furnish and install all material and labor for the electrical work (**Item #81** of this contract) to provide complete and operation equipment. The electrical work shall include the following:

1. Control, power wiring and conduit work for the air handler unit, outdoor condensing unit, hot water pumps, exhaust fan, propeller fan and thermostat.
2. Final power connections from the disconnect switches or junction boxes (provide by electrical contractor) to the air handler, outdoor condenser, radiant ceiling panels, exhaust fan and all control wire and conduit from the units to the thermostat, ductstats, AHU fan blower, heater unit, motorized damper, etc.
 - All electrical work under this contract shall be done in compliance with NYC Electrical Code.
 - The electrical work shall be performed only by New York City Licensed Electrician. All work shall be done in accordance with the N.Y.C. Electrical Code & Dept. of Parks & Recreation specifications.
3. The system and components must be grounded and bonded in compliance with NYC Electrical Code. Provide grounding to all motors and bond all enclosures/boxes, etc. to system grounding as per NYC Electrical Code. From new power source to all new equipment.

CONTROL & POWER WIRING DIAGRAMS: Prior to construction, this Contractor shall furnish to the DPR Engineer for approval a completely detailed control and power wiring diagram of the HVAC systems. The diagram is to be drawn on one sheet and shall show each piece of equipment and all interlocks clearly labeled. Letters and/or numbers shall be used to identify all terminal connections.

Prior to construction, the successful Contractor shall complete an electrical drawing showing all electrical components necessary to accommodate the boiler/burner, controls, and all auxiliary systems. Show locations, sizes, type and class of all disconnects, panels, circuits, junction boxes, conduits, fixtures, outlets and cross reference all applicable control wiring diagrams. Submit completed electrical drawing showing proposed electrical work for DPR Engineering approval prior to the start of installation.

VERIFICATION OF VOLTAGES: Before ordering any electrical equipment (motors, controls, etc.) **this Contractor shall verify** that the voltage herein specified is compatible to the voltage available at the point of application. If the voltage differs, the Contractor shall notify the Engineer so as to ascertain what course of action should be taken to correct the problem.

SERVICE AGREEMENT/PERIODIC MAINTENANCE & WARRANTY:

1. The service agreement shall commence at the time of turn-over and acceptance and shall continue for a period total of two (2) cooling seasons thereafter, **which shall include all labor and material to keep the system operational.** This service agreement shall include new equipment and any component/components necessary to keep the entire HVAC system operational **AT NO ADDITIONAL COST TO THE CITY.**
2. The service work shall be performed by person directly employed & supervised by the manufacturer and/or installer of the equipment who are experienced and skilled in maintaining equipment similar to those to be maintained under this agreement.
This service shall be performed solely by the manufacturer and/or installer of the equipment and shall not be assigned or transferred to any agent of subcontractor.
3. This contractor shall respond to the emergency call with in four hours maximum. If the contractor fails to respond to the call, the City reserves the right to call any manufacturer's representative or repair person to get the HVAC system operational and the service call will be back charge to this contractor.
4. This contractor shall maintain any and all parts needed to make the system operational.
5. The normal maintenance shall cover replacement of the unit filters and air handler belts before every heating and cooling season.
6. The contractor shall not be required to make renewals or repairs necessitated by reason of negligence or misuse of the equipment by persons other than the contractor, his representatives and employees, or by reason of any other cause beyond the control of the contractor, except ordinary wear and tear.
7. A written service warranty must be submitted to the DPR for review and approval at the time final payment is submitted for review and approval. Failure to submit the written warranty, the final payment will not be processed.

NOTE: The Contractor must submit the warranty to the Dept. of Parks & Recreation after the acceptance of this contract and before he submits his final payment. Final payment will not be approved unless the warranty is submitted to and accepted by the DPR. In addition the warranties specified in this specification, provide written warranty, signed by manufacturer, agreeing to replace or repair within warranty period for defective material and workmanship, included

leakage, breakage, improper assembly or failure to perform as required. The warranty period shall begin from the date of acceptance of the work in a satisfactory manner.

TESTING, ADJUSTING & BALANCING: The Contractor shall make all necessary tests required by the authorities having jurisdiction and by the Department of Parks. The Department of Parks shall be notified when tests are to be made. No test shall be considered approved until the Resident Engineer has issued his written approval that all defects, if any, have been corrected to his satisfaction.

After the entire installation has been completed, Contractor shall determine the operation of the complete installation during the cooling season making all required adjustments to equipment, controls, etc., to obtain the manufacturer's performance requirements as noted on the drawings and/or as specified, and as directed by the Engineer.

The Contractor shall hire and provide the services of an independent air balance contractor to put the system in complete operational condition as noted on the drawings and/or as specifications.

The air balance contractor shall submit a written report certifying the system is operating as designed. The balancing report must be submitted for approval prior to final inspection.

All material and labor required for the above operation and adjustments shall be provided by this Contractor at NO ADDITIONAL COST TO THE CITY.

The DPR Engineer shall be notified sufficiently in advance of all tests so that he may be represented at such tests.

1. **Equipment:** All equipment shall be tested for capacity, efficiency, operation, etc. All reports certified by N.Y.S. Professional Engineer for proper operation of all equipment of this contractor and approved by DPR Resident shall be submitted to the DPR Design Office.
2. **Air Systems:** Test and balance air quantities at all fans and air outlets by anemometer, anemotherm, velenometer, or pilot tube and draft gauge within 5% of those specified.

CONTROL INSPECTION & TESTS: After the completion of the installation of the heating, A/C, and ventilation system, the entire system shall be adjusted to the satisfaction of and as directed by the DPR Engineer. The controlled inspection shall be done by a N.Y.S. Professional Engineer as per N.Y.C. Building Code, or any city agency having jurisdiction on this work at no additional cost to the City of New York.

The contractor shall operate the entire system, when directed by the DPR Engineer, for a period of not less than six (6) consecutive hours and all necessary adjustments shall be made as required and to the satisfaction of the DPR Resident Engineer. All material and labor required for the above operation and adjustments shall be provided by this contractor. The DPR Engineer shall be notified 24 hours in advance before any test is to be performed.

PERMITS & TESTS: The contractor shall file all papers and obtain all permits and certificates of approval and pay all fees required by the authorities having jurisdiction over the work at no additional cost to the City of New York. He shall also make all tests required by these authorities. The tests shall be made by the contractor under the supervision of the Resident Engineer and the Bureau of Gas and Electricity Engineer.

This Contractor, **AT NO ADDITIONAL COST TO THE DPR**, shall obtain the services of a Licensed Professional Engineer and prepare all required drawings and documents, do all necessary filing with all civic authorities having jurisdiction, and obtain all required permits and approvals required for work installed under this section of specifications and contract drawings for this work in accordance with the applicable sections of the New York City Building Code and Building Department regulations concerning use permits and controlled inspections.

INSTRUCTION CARDS: This contractor shall furnish for all equipment, two (2) sets of cards giving complete instruction for the care and operation of the systems and shall be permanently located in an easily visible and accessible location near the equipment and as approved by the DPR Design Division.

Permit obtained from the DEP for operation shall be framed in a glass picture frame and as approved by the DPR Design Division.

SUBMITTAL OF SHOP DRAWINGS: The Contractor shall submit for approval, six (6) copies of shop drawings, catalog cuts or brochures of the following equipment:

1. Two (2) Air Handling units, horizontal type
2. Two (2) Outdoor Condenser units with internal coils
3. Ductwork- supply and return (18 gauge)
4. Duct Layout
5. Supply and Return Grilles/Registers with Opposed Blade Dampers
6. Fusible Link Fire Dampers with access doors
7. Volume damper, Back Draft damper, Splitter and Motorized Dampers
8. Ductwork Insulation & Acoustic Ductwork Liner
9. Hangers and Supports for all piping, ductwork, and equipment
10. Thermostat, duct stats and Controls
11. Cutting, patching, restoration, and core drilling materials and locations
12. All refrigerant and condensate water drain piping and fittings
13. Valves, piping & fittings including traps
14. Thermal Piping Insulation
15. Paint (Color and Type)
16. Electrical & Control wiring (schematics)
17. Manufacturer's Wiring diagrams for power with all the automatic controls, including sequence of operation.

NOTE: Manufacturer's numbers may change from time to time. It is contractor's responsibility to furnish shop drawings of all equipment with the latest, up to date, manufacturer's model numbers to the DDC Design Office for review and approval AT NO ADDITIONAL COST TO THE CITY.

Any correction of the specified model numbers for any equipment, or any other accessory with the latest or current model numbers will not be considered changing in scope or issuing change orders.

MAINTENANCE INSTRUCTIONS: The Contractor shall supply (6) copies of verified wiring diagrams and manufacturer's literature for the new equipment. The literature shall include normal operation, normal preventive maintenance schedules, parts breakdown and parts list for reordering. Each set shall be secured in a binder and given to and verified by the Engineer prior to final inspection. The Engineer shall distribute the copies as follows:

1. Map file
2. Borough Maintenance Shop Foreman
3. Site Foreman
4. Design and Engineering Division
5. Resident Engineer Job File
6. District Office

GUARANTEE/WARRANTY LABELS: Each piece of equipment which is under guarantee/warranty shall have a "stick-on" label affixed to it which states the following:

1. Length of guarantee/warranty _____ years
2. Final day covered by guarantee/warranty _____
3. Telephone number for service under guarantee/warranty _____, _____.

Lettering shall be a minimum of 1" in height.

MEASUREMENT & PAYMENT: For the furnishing and installing of the new HVAC system, including but not limited to the air handlers, condensers, auxilliary drain pans, equipment pads, controls, thermostats, accessories, ductwork, grilles/registers, dampers, all refrigerant piping and fittings, condensate piping and fittings, valving, insulation, equipment and machinery, hangers, anchors, and supports, cutting, patching, restoration, core drilling, pipe sleeves, testing, balancing, and all other balance material, labor and services, etc., together with all incidental work in accordance with plans, specifications and directions of the Engineer, **the contractor shall receive the lump sum price bid for this item.**

The price bid shall be a lump sum price for this item and shall include the cost of all labor, materials, equipment, and incidental expenses as necessary to complete the work in accordance with the plans and specifications to the satisfaction of the Engineer.

END OF PAGE

ITEM NO. 81

ELECTRICAL WORK

1. **GENERAL:**

- a] The work under this Contract is referred to as the "Construction Contract", "General Conditions" and the "Contract Drawings", all of which are hereby made part of this specification.
- b] The term "Engineer" or "Owner" used in this specification shall be construed to mean the Owner and Engineer, or their chosen representative.
- c] The work shall conform to in order of procedure, the National Electrical Code and performed by a New York City Licensed Electrician.
- e] All materials shall be new unless otherwise noted.

2. **SCOPE:** The work shall consist of furnishing all labor, materials and equipment necessary to complete all general construction and electrical work as indicated on the drawings and the specifications.

3. **NOTICE TO BIDDERS:**

- a] The specifications and drawings are intended to serve jointly as a basis upon which the Contractor shall submit a contract price for the material and labor provisions.
- b] When conflicts occur in the specifications or on the drawings, or between either, the items of greater quantity or higher costs shall be provided.
- c] The Contractor shall provide all items of labor or materials not specifically indicated, but required to complete the intended installations.
- d] The Contractor shall coordinate his work or adjust same in order that conflicts in space locations do not occur.
- e] This Contractor shall be responsible for work under this contract, with its completion and final acceptance and shall replace any of same which may be damaged, lost or stolen, without additional costs to the owner.
- f] The Contractor shall before his acceptance of the contract, agrees to provide without additional charge, any work deemed necessary by the utility. He shall include in his bid the price and expense of all work performed by the utility and chargeable to the owner.
- g] Contractor shall arrange and maintain electrical power during the entire construction period.

4. **CODES, PERMITS, APPROVALS & INSPECTIONS:**

- a] All materials and work shall comply with the applicable requirements of the National Electrical Code, the regulations of the N.Y.C. Department of Building, Bureau of Electrical Control and all other local laws, ordinances, rules and regulations having jurisdiction. Wherever required by code, the Electrical Contractor shall obtain the approval of Advisory Board.
- b] All required permits, approvals and inspection certificates shall be obtained, paid for and made available by the Contractor at the completion of the work.
- c] Upon completion of the work, the Contractor shall furnish Certificates of Approval covering the electrical work installed under this contract. All expenses arising out of the procurements of the above-mentioned certificates shall be paid by the Contractor and included in the contract price.

5. **GENERAL REQUIREMENT FOR ELECTRICAL WORK:**

- a] All wires shall be run in hot dipped galvanized rigid steel conduit, unless otherwise noted on drawings or specified hereinafter. Exposed conduit or underground conduit shall be PVC covered type. Each length of conduit shall bear the marker's trademark or stamp. The plans indicated the general location of outlet boxes and circuiting. The conduit runs from these circuits may be modified at the time of installation to adapt same to building construction, but in no case shall a circuit be doubled up or modified. Except for switch legs, no smaller than $\frac{3}{4}$ inch conduit shall be installed for lighting or power wiring. For all sizes of conduit larger than 1 inch, use standard elbow where accessible; in smaller sizes, field bends will be permitted instead of using manufactured elbows but care must be taken not to damage the conduit. The radius of the inner curve of any bend shall be as specified and shall not be less than that permitted by the Code. Conduit bends shall be made without kinking conduit or appreciably reducing the internal diameter. All bends in conduit of 2 inch size or larger shall be made with hydraulic or power pipe bender.
- b] All conduits which are installed in trenches underground shall be not less than eighteen (18") inches below final grade, unless otherwise indicated on contract drawings. Conduits installed in cinder fill shall be protected against corrosion by a covering of rich cement mortar at least three (3) inches thick.
- c] Wire and cable shall be copper and have current carrying capacity not less than indicated and shall conform to the standards of the Underwriter's Laboratories, Inc. Conductor sizes shall be as indicated on the drawings and shall not be less than #12 AWG. All #6 AWG wire and larger shall be stranded. Type THW or RHW 75 C insulation shall be used for all size of wire, unless otherwise noted on plans and in accordance with the requirements of the City of New York, Department of Buildings, Bureau of Electrical Control. Voltage rating of conductors which operate at 600 Volts or below shall be 600 Volt rated.

Wiring: The conduit, hardware, fittings, and boxes shall be included for completion of wiring. The conduit and fittings shall be rigid hot-dipped galvanized steel. The junction and pull boxes shall be furnished in compliance of the Code.

- d] Warning tape shall be furnished and installed by the Contractor as follows:
- 1] Warning Tape designated "Terra Tape Extra Stretch", as manufactured by Reef Industries or approved equal.
 - 2] Tape shall be installed for the total length of the duct run. Width of tape shall be 6".
 - 3] Underground warning tape shall consist of 6 layers of copolymer film bonded together without the use of adhesives. Tape shall be a minimum tensile strength of 160 lbs. per 6" wide strip. Elongation shall exceed 600%. Tape shall be imprinted with a continuous message repeated every 16" to 36".

6. **EQUIPMENT, MATERIALS & MANUFACTURERS -GENERAL:**

- a] All equipment and materials for permanent and temporary installation shall be new, unless otherwise indicated on the drawings.
- b] New equipment and materials shall be:
- 1] Without blemish or defect.
 - 2] Not to be used for temporary light and power purposes without building owner's authorization.
 - 3] In accordance with the latest applicable NEMA standards.
 - 4] Products which will meet with the acceptance of all authorities having jurisdiction over the work.
 - 5] Where such acceptance is contingent upon having the products listed or labeled by Underwriters' Laboratories, Inc., or other testing laboratory, the products shall be so listed or labeled.
- c] The following list of materials and manufacturers shall constitute an acceptable list of materials not specified on the plans or in the specifications.

No substitutes will be permitted unless accepted by the Engineer, or approved equal.

Switchboards, Distribution Panels, & Panels

Empire Switchboard, or approved equal.	Lincoln, or approved equal.
Gallagher, or approved equal.	Metropolitan Switchboard, or approved equal.
General Electric, or approved equal.	Siemens, or approved equal.
Square D, or approved equal.	
Cutler Hammer, or approved equal.	

Bolted Pressure Switches

Pringle, or approved equal.	Bolt Switch, Inc. , or approved equal.
Square D, or approved equal.	

Conduit (Steel)

Wheatland, or approved equal.
Triangle, or approved equal.
LTV Steel, or approved equal.

Flexible Liquid Tight Metal Conduit

Southwire, or approved equal.
Cooper Industries, or approved equal.

Outlet Boxes

Appleton Electric, or approved equal. Steel City, or approved equal.
General Electric, or approved equal.
Thomas & Betts, or approved equal.

Cable Supports

O.Z. Gedney Electric Manufacturing Co., or approved equal.

Insulating Bushings

O.Z. Gedney Electric Manufacturing Co., or approved equal.

Conduit Bodies & Fittings

Appleton Electric, or approved equal. O.Z. Gedney Elec. Mfg. Co. , or approved equal.
Crouse-Hinds, or approved equal.

Wire & Cable

American steel & Wire, or approved equal. Belden, or approved equal.
General Cable, or approved equal.
Kerite Company, or approved equal.
Pirelli, or approved equal.
Okonite, or approved equal. Cable, or approved equal.

Solderless Connectors & Lugs

Burndy, or approved equal. Dossert, or approved equal.
Thourds & Betts, or approved equal. OZ Electric, or approved equal.

Wiring Devices

Arrow-Hart & Hegman, or approved equal. Hubbell, or approved equal.
Bryant, or approved equal. Pass & Seymour, or approved equal.
General Electric, or approved equal. Russell & Stoll, or approved equal.

Circuit Breakers

General Electric, or approved equal.
Square D, or approved equal.

Siemens, or approved equal.

Fuses

Bussmann, or approved equal.

Gould-Shawmut, or approved equal.

Safety Switches

General Electrical, or approved equal.
Siemens, or approved equal.

Square D, or approved equal.

Lighting Fixtures

Hubbell, or approved equal.
Widelite, or approved equal.

G.E. , or approved equal.
Lithonia, or approved equal.

Transformers

Square D, or approved equal.
Westinghouse, or approved equal.

General Electric, or approved equal.
Siemens, or approved equal.

Concrete Ducts & Boxes

Berri-Rochi, or approved equal.
Roman Stone, or approved equal.
Boccard & Sons, or approved equal.
Concrete Electric Products, Inc. , or approved equal.
Corrano & Coccaro, or approved equal.

Light Poles

Millerbernd, or approved equal.
Powco, or approved equal.

Jem, or approved equal.

Metal Boxes

O.Z. Gedney Electric Manufacturing Co.
Spring City, or approved equal.

Hoffman, or approved equal.
Crouse Hinds, or approved equal.

Meter Pans

Anchor Electric, or approved equal.
Delta Metal, or approved equal.
Square D, or approved equal.

Cooper Electric, or approved equal.
General Switch Co. or approved equal.
General Electric, or approved equal.

7. **EQUIPMENT GROUNDING & BONDING:** Furnish and install all grounding in strict accordance with the New York/ National Electrical Code, NFPA #70, Article 250, the requirements of Utility Company and the following:
- a] Furnish and install a complete system of grounding and bonding of all equipment and non-current carrying metallic material installed including metal frames, covers, racks, enclosures, cabinets and all exposed cable shields.
 - b] Wherever the system grounding attached to streetside water shut-off is not available as per National Electrical Code, install the ground grid. The ground grid shall consist of a bare #2 minimum stranded cable as indicated, bonded to at least two (2) 1" x 10' copper clad ground rods or more as required to provide a resistance value of 25 ohm or less.
 - c] All steel conduits shall be provided with a bronze grounding type bushing with tin copper lugs and be bonded to the ground grid, OZ/Gedney #RBLG or equal.
 - d] Unless otherwise noted all splices and bonding connections throughout the ground system shall be exothermic welded.
 - e] Grounding of service shall be electrically and mechanically secured to street side of water main. Provide approved clamps and fittings.
 - f] Grounding grid to be connected to a ground strap on the building's cold water service main ahead of the meter.
 - g] Provide ground electrode and bond with conduit bank and primary cable shields as described in Utility specifications.
8. **UNDERGROUND CONCRETE PULLBOXES WITH FRAME & COVER:** The concrete boxes shall be made of precast reinforced concrete.

The contractor shall refer to Parks Standard Details, Utility Company Standard Details, Dept. of Transportation, Division of Street Lighting Details for construction details. All work shall be done in compliance with the standard details and specifications given on the above drawing.

The item title dimensions shown are clear inner dimensions of the concrete box. Overall dimension shall be larger for walls and bottom thickness of the box. All non-current carrying metal components within the box shall be bonded to the ground as shown on the drawings in compliance with National Electrical Code. All ground bonding connections shall be included under this item.

The concrete boxes shall be furnished with required knockouts for conduit entrances. All unused knockouts shall be sealed with waterproofing concrete mixture.

Construction

Interior Dimensions: Underground Pullbox:

- a] **Construction:** Precast concrete similar to property line box except as detailed on the drawings. Floors to be free of pockets to slope $\frac{1}{4}$ " per foot to drain points. Refer to Parks Standard details Sheet #65 for additional details.

- b] **Drains:** Cast iron, slotted or perforated, hinged cover, 9" dia., 4" outlet, with a short length of outlet pipe terminating in a drywell below the floor.

- c] **Frame & Cover:** Cast iron, with sizes indicated on drawings, medium duty where installed in landscaped areas and driveways. Cast iron of uniform quality free from blowholes, hard spots, shrinkage distortion or other defects. Cast iron shall be well cleaned by shot blasting and coated with asphalt paint resulting in a smooth, tough and tenacious coating; conform to ASTM spec. for gray iron.

Manufacture castings true to pattern, of non-rocking design or shall have bearing surfaces machined to prevent rocking and rattling.

- d] **Covers:** Indented solid top design, with two-drop handles; cast integral letters at least 2" high reading "New York City Parks Electrical" on upper side.

- e] **Accessories:** Provide embedded inserts in pullbox walls for cable racks. Provide pulling in irons in walls opposite each duct bank entrance and in floor opposite pullbox opening. Pulling in irons shall be securely fastened to reinforcing bars. Provide racks at 3' centers on pullbox perimeter, to be clear or present and future conduit entries. Provide racks ad a set of porcelain insulators for per set of cables for each entering conduit.

- f] **Grounding:** Wherever continuous ground wire from system grounding is not available for bonding, provide a $\frac{3}{4}$ " driven ground rod, at least 10' long or as required to reach ground water. Extend top 6" above pullbox floor. Connect all non-current carrying metal parts in the pullbox to the ground rod with a #6 AWG bare copper conductor.

- g] **Installation:** Set pullbox to approximate grade using a minimum of a 24" deep brick throat. Add or remove bricks as required to achieve final cover elevation.

- h] **Cable Racks:** Provide fiberglass cable racks in all manhole and pullboxes larger than 18" width or 36" length (interior) for supporting cables.

9. **HOT DIPPED GALVANIZED RIGID STEEL CONDUIT:** Furnish and install hot-dipped galvanized rigid, steel conduit for exterior underground Electrical Service and feeders in compliance with NYC Electrical Code as per DDC Resident Engineer's directive.
- The item shall include the labor material and equipment for installation of conduit with all required accessories such as couplings, bends, elbows, nipples, unions, reducers, strap screws, bolts, nuts, anchors, etc. All the work shall be done in compliance with code requirement. The in-line steel junction boxes and pull boxes as required by the code shall be installed and the cost shall be included under this item. All associated material for complete installation of conduit shall be included under each item.

The exterior excavation for trenching and concrete manholes shall be included under the Item "**Unclassified Excavation**" and underground concrete included under respective items.

- a] Conduits installed shall be heavy wall rigid exterior underground and inside the building galvanized steel.
- b] All fittings for galvanized metal conduits shall be of an approved type and shall be malleable iron castings, hot dipped galvanized. Conduit fittings shall be provided with gasket and metal covers and shall be equal to Crouse-Hinds Form 8.
- c] Conduits shall be free from blisters, cracks or injurious defects and shall be reamed at each end. All bends shall be of a long sweep free from kinks and of such easy curvature as to permit the drawings in of cable without injury.
- d] Conduit ends, except for threaded cast boxes, shall extend into pull or junction boxes, one and one-half inch (1½") and be equipped with approved bushings. Locknuts and bushings shall be provided where conduits terminate in metallic boxes.
- e] Conduits shall be of the sizes noted on Contract Drawings which are indicated as the nominal inside diameter and shall be of standard weight and equal in quality as called for in the Standard Specifications of the American Society for Testing Materials. Minimum size conduit shall be ¾". Each length of conduit shall bear the manufacturer's Trademark or Stamp.
- f] Conduits shall have standard conduit threads, clean cut, straight and true. The threads shall be protected during transit and installation, and shall be of sufficient length to permit the proper coupling connections as noted heretofore.
- g] Long running threads will not be permitted on any part of the work.
- h] All capped conduits shall be provided with a galvanized cast iron cap securely screwed into a clean cut factory threaded end of conduit.
- i] When necessary to connect conduits in other than the regular manner, Contractor shall use "Erickson" or similar couplings.
- j] All conduits which are installed underground shall be not less than eighteen inches (18") below final grade, unless otherwise indicated on the Contract Drawings.

- k] Conduit bends shall be made without kinking conduit or appreciably reducing the internal diameter. All bends in conduit of 2 inch size or larger shall be made with a hydraulic or power pipe bender. The radius of the inner edge of any field bend shall be not less than six (6) times the normal diameter of the conduit. Where changes of directions are necessary, long gradual sweeps shall be installed rather than short bends. Pull boxes shall be installed as required to provide a maximum of two (2) right angle bends between pulling points.
- l] The Contractor shall bend conduit as required to avoid interferences and provide proper clearance.
- m] Where conduits pass through foundation walls, concrete or floors, O.Z. Type "FSK" fitting or approved equal, of proper diameter, shall be installed.
- n] Conduits and fittings shall be manufactured by Allied, Triangle, Crouse-Hinds Company, or approved equal.
- o] The Contractor shall test and clean all conduits installed under this Contract and all existing conduits to be re-used by pulling a test ball and brush of approved size through each conduit. If any obstructions remain so that the cleaning devices cannot be rodded or pulled through clearly, the conduit shall be replaced.
After testing and cleaning, each spare conduit shall be left with a ½" nylon pull line in the conduit. Each spare conduit shall be sealed by the use of "Duxseal" or approved equal, at the manholes.
- p] To seal cables inside conduits entering and leaving manholes, apply untarred, unoiled jute packing around outside of and in the crotch between the cables in such a manner as to completely fill the duct. Use short pieces of the jute (2" to 6") and pack them tightly.

Insert approved duct sealing material, taking care to secure a perfect bond around edge of conduit and cables. Cables shall be kept apart from edge of conduit by sealing material.
- q] **Warning Tape:** Contractor shall furnish and install PVC 6" wide warning tape 6" above the conduit installation while back-filling the trench.

10. **CABLES & WIRES:** The contractor shall furnish and install new wire and cable as specified on drawings or as directed by Resident and Design Engineer during construction for exterior underground service and feeders.

The work shall include but not limited to furnishing and installation of cable in conduit and boxes including cleaning of the conduits, splices, terminations and final connection on line and load sides of Electrical existing installations and newly supplied under this contract and supplied by others. The cable size not included in above but directed by the Resident Engineer shall be paid with the next higher size specified under this item.

All work shall be done in compliance with NYC Electrical Code.

The work shall include disconnection of existing cables and reconnection to new or existing line or load sides as specified in the contract.

- a) All wiring shall be in conduit or protected from mechanical injury by metal coverings. All electrical parts shall be approved by the National Board of Fire Underwriters and the Bureau of Electrical Control and shall comply with the Electric Code of the City of New York. The cable shall be U.L. Listed for application in the building Type THHN/THWN, VW-1.
- b) Wire & cable up to 600v shall be copper and have current carrying capacity not less than indicated and shall conform to the standards of the Underwriter's Laboratories, Inc. Conductor sizes shall be as indicated on the drawings. 75C insulation shall be used for all size of wire, unless otherwise noted on plans and in accordance with the requirements of N.Y.C. Dept. of Buildings, Bureau of Electrical Control.
- c) Factory color coding for cable shall be as follows: 120/208 volts black, red, blue, and white; white conductors shall serve as neutral conductors.
- d) Unless otherwise particularly approved, no wires shall be pulled in until the conduit system is completed. No grease or oil shall be used to facilitate the pulling of the wires; only approved pulling compound shall be used. All wire shall be continuous between outlets, or from panelboard to the first outlet.
- e) Joints that become necessary in circuit work at the outlets shall be made with approved pressure connectors. All joints shall be covered with an insulation equal to that on the conductors. Approved pressure connectors, Ideal Wingnuts, Scotch-lock, Buchanan, Thomas and Betts or as accepted, shall be used in lieu of solder and tape. The cost of splices shall be a part of this item.

11. **SPLICING:**

- a) Splices in the run are not permitted.
- b) Splicing shall conform to the NYC Electrical Code in accordance with the requirements of the Department of Buildings, Bureau of Electrical Control, "Specification for Single Conductor Wire and Cable".
- c) Maintain splices and joints in accessible enclosures, where easy inspection is available.
- d) Join, tap and terminate stranded 120/208 volt conductors #6 AWG and larger by means of long barrel copper butt splice crimp sleeves with oil stops, approved taps and two hole compression lugs. Exclude connectors and lugs of the types which apply set screws directly to conductors. Apply pressure indent type connectors, taps and lugs utilizing tools manufactured specifically for the purpose and having features preventing their release until the final pressure has been exerted on the lug or connector. Heat shrink sleeve over entire splice. 3M or equal scotch coat over entire shrink sleeve. Wrap one half lapped layer of electrical tape over entire splice. Burndy, T & B, MAC products or approved equal.

Except where wire nuts are used, build up insulation over conductor joints to a value, equal both in thickness and dielectric strength, to that of the factory applied conductor insulation. Insulation of conductor taps and joints shall be by means of half-lapped layers of rubber tape, with an outer layer of friction tape, by means of half-lapped layers of approved plastic electric insulating tape, or (in the case of bolted type connector joints) by means of split insulating casings molded specifically to insulate the particular connector & conductor, and fastened with stainless steel or non-metallic snaps or clips.

Protection: The Contractor shall protect and be responsible for his materials, tools, work and equipment until completion thereof and until the acceptance of same by the Engineer.

Cable Samples:

- 1] The Engineer shall take samples of each size of cable not less than ten feet in length for tests. These samples will be taken by the Engineer in the field and he may select same from any reel at random.
- 2] The Engineer may order any reel delivered to our laboratory for test. Transportation of such reel to and from the laboratory shall be at the expense of the Contractor.

Cable Tags: Furnish and install approved tags with the wire identification permanently marked thereon so that all wires may be traced from box to box, where splices occur, install a tag on the wire on all sides of every splice. Tag shall equal to Panduit PLM marker ties.

Testing After Installation: The cable shall be tested after installation but before final connections for the continuity and insulating. The insulation resistance must comply with the requirement.

12. **SUBMITTAL OF SHOP DRAWINGS:** The Contractor shall submit for approval, six (6) copies of shop drawings, catalog cuts or brochures of the following equipment, but not limited to the following:
 - a] Wire & cables.
 - b] Conduit & fittings: H.D. Galvanized Rigid Steel
 - c] Grounding details.
 - d] Concrete pull boxes
 - e] Service equipments

NOTE: Submission requirements are contained in the text of the General Conditions.

MEASUREMENT & PAYMENT: For furnishing & installing electrical work in accordance with the specifications, contract drawings, and directions of the Engineer, the Contractor shall receive the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM** price for this item and shall include the cost of all labor, materials, equipment and incidental expenses necessary to complete the work, including saw cutting, excavation and backfill of unclassified soil and restoration of pavement as required.

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ITEM NO. 82 ALLOWANCE FOR UTILITY COMPANY FEES

GENERAL: Under this item the Contractor shall pay Utility Company fees not included in other specification items and/or not indicated on contract plans but deemed necessary to complete the work.

The Contractor shall submit to the Engineer legible, stamped paid receipts from the utility company(s) with the name of the Contractor and the name of the Parks Department facility clearly displayed.

MEASUREMENT & PAYMENT: For authorized work performed under this Contract, payment will be based upon submission of legible paid receipts.

For payment, the Contractor shall receive:

- a) Reimbursement of the actual Utility fee costs,
- b) Plus a 5% General Contractor's fee.

The allowance for this item shall be \$ 8,000.00 for the life of the Contract.

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<u>ITEM NO. 87</u>	<u>DRY PIPE SPRINKLER SYSTEM</u>

PART 1 - GENERAL

1.01 SUMMARY

- A.Scope: Provide a complete dry-pipe sprinkler system, and associated equipment, ready for operation.
- B.The work includes designing and installing an automatic dry-pipe fire extinguishing sprinkler system for Ordinary Hazard - Group I and uniform distribution of water by hydraulic design to afford complete fire protection coverage throughout the contract area.
- C.Authority Having Jurisdiction: Any reference in the specifications or applicable codes to the "authority having jurisdiction" shall be interpreted to mean the DDC Engineer or FDNY or NYCDOB.

1.02 ALLOWANCES: Not used

1.03 UNIT PRICES: Not used

1.04 DEFINITIONS

- A.DDC: Department of Design and Construction
- B.FM: FM Global (Factory Mutual)
- C.FPE: Fire Protection Engineer
- D.Furnish: To supply the stated equipment or materials
- E.Install: To set in position and connect or adjust for use
- F.NFPA: National Fire Protection Association
- G.NICET: National Institute for Certification in Engineering Technologies
- H.FDNY & DOB: NYC Fire Department and NYC Department of Buildings
- I.Provide: To furnish and install the stated equipment or materials
- J.UL: Underwriters Laboratories

1.05 SYSTEM DESCRIPTION:

- A.The design shall conform to NFPA 13 as modified in NYC Building Code section BC 903 and BC Q102 and the requirements specified herein. Design of the automatic dry-pipe sprinkler system shall be for Ordinary Hazard Group I occupancy by hydraulic calculation. The design, equipment, materials, installation, workmanship, examination, inspection and testing shall be in strict accordance with NFPA 13, except as modified in NYC Building Code section BC 903 and BC Q 102 and modified herein.
- B.The system shall include all materials, accessories, and equipment inside and outside the building to provide a system complete and ready for use.
- C.Design and provide the system giving full consideration to blind spaces, piping, electrical equipment, duct work and other construction and equipment in accordance with detailed drawings to be submitted for approval.
- D.Equipment for fire protection service shall be UL listed or FM approved for use in dry pipe sprinkler systems.
- E.In the NFPA publications referred to herein, the advisory provisions shall be considered mandatory, as though the word "shall" had been substituted for "should," wherever it appears.

1.06 PERFORMANCE REQUIREMENTS

- A. Water Distribution: Distribution shall be uniform throughout the area which it is assumed the sprinkler heads will open. Variation in discharge from individual heads in the hydraulically most remote area shall be between 100 and 120 percent of the specified density.
- B. Clearance From Electrical Equipment: Piping and automatic sprinklers are prohibited directly over:
1. Switchboards.
 2. Motor control centers.
 3. Electrical panels.
- C. If installing pipe over electrical equipment is unavoidable, provide drip pans under piping to protect electrical equipment.
- D. In seismic design categories D, E, & F sprinkler systems shall be designed for earthquake protection in accordance with the requirements and recommendations of NFPA 13.
- E. Location of Sprinkler Heads: Heads in relation to the ceiling and the spacing of sprinkler heads shall not exceed their listed area of coverage (not exceeding 130 square feet) for Ordinary Hazard Group I of NFPA 13.
- F. Uniformly space sprinklers on the branch piping. Locate sprinkler heads in a consistent pattern with ceiling grid, lights, and supply air diffusers.
- G. Sprinkler Discharge Area: The sprinkler discharge area shall be the hydraulically most remote areas as defined in NFPA 13. Remote area reductions permitted per NFPA 13 shall not apply. Calculations shall substantiate that the design area used in the calculations is the most demanding hydraulically.
- H. Hose Allowances: System design shall include an allowance 500 gpm for total combined inside and outside hose streams.
- I. Hydraulic Calculations: Hydraulic calculations shall be in conformance with NFP A 13 and the following requirements:
1. Water Supply: Base hydraulic calculations on a static pressure of **112 psi** with **500 gpm** available' at a residual pressure of **111 psi**. The flow was conducted from the west side of father Capodanno Boulevard 5th hydrant north of Seaview Avenue. The Contractor shall determine the characteristics of the water supply and if necessary, conduct appropriate flow tests at their expense. Provide a copy of the most recent water flow test with the hydraulic calculations.
 2. Margin of Safety: The sprinkler system shall be hydraulically designed so that the total water flow and pressure demand is at least 10% less than the available water flow and pressure at the site.
 3. Friction Losses: Calculate losses in piping in accordance with the Hazen-Williams formula with "C" value of 100 for unlined ductile iron piping, 120 for steel piping, 140 for cement-lined ductile-iron piping, 150 for copper tubing and plastic piping.
 4. Flow Velocity: Piping shall be sized so that the water flow velocity does not exceed 20 ft/sec at any point in the system during maximum water flow (including inside hose demand). Flow velocity in each pipe segment is to be provided in the calculations.
 5. Test Point: Calculations shall be brought back to the flow test point.
 6. Area of Coverage and Density: The area of coverage and density for each sprinkler shall be provided in the calculations.
 7. Equivalent Lengths: The equivalent lengths for all types of fitting and valve used shall be provided.

8. Supply and Demand Graph(s): A graph comparing the water supply and the sprinkler and hose stream demand for each remote area shall be provided. Pressure and flow values for the supply and demand curves are to be provided on semi-logarithmic graph paper (Nus graph paper). Provide a summary sheet listing sprinklers in the design area and their respective hydraulic reference points (nodes), elevations, actual discharge pressures and actual flows. Indicate elevations of hydraulic reference points (nodes). Documentation shall identify each pipe individually and the nodes connected thereto. Indicate for each pipe the diameter, length, flow, velocity, friction loss, number and type fittings, total friction loss in the pipe, equivalent pipe length and Hazen-Williams coefficient.

1.07 SUBMITTALS

- A. Partial submittals will not be acceptable. Any installation work performed prior to the approval of the submittal shall be at the Contractor's own risk.
- B. Before any work is commenced, submit manufacturer's data (with listing or approval), system calculations, and complete sets of working drawings.
- C. The DDC Engineer shall review and approve submittals. However, the submittals requiring approval of other authorities having jurisdiction (i.e. FDNY, NYCDOB) shall be obtained by the contractor at the contractor's own cost.
- D. Manufacturers' Data: Annotate descriptive data to show the specific model, type and size, options etc., of each item the Contractor proposes to furnish. Include data for proper installation of each system including:
 - 1. Pipe and fittings
 - 2. Dry pipe valves
 - 3. Gate and check valves
 - 4. Globe valves
 - 5. Backflow preventers
 - 6. Water motor alarms
 - 7. Sprinkler heads
 - 8. Pipe hangers and supports
 - 9. Pressure and water flow switches
 - 10. Tamper switches
 - 11. Inspector's test station
 - 12. Retard chamber
 - 13. Ball drip
 - 14. Fire department connections
 - 15. Lubricating compound/PTFE tape.
 - 16. Signs
 - 17. Caps, chains, Drip pans
 - 18. NFPA -13 Standards
 - 19. Cabinets
 - 20. Hose valves
 - 21. Air Compressor.
- E. Shop Drawings: Prepare working drawings on sheets not smaller than 24 inch by 36 inch, in accordance with the requirements for "Working Plans" as specified in NFPA 13. A scaled site plan, with the location and elevation of the water flow test, shall be provided on the drawings. Drawings are to include isometric diagram or plan and elevation views of

sprinkler risers and feed mains, including dry valve to demonstrating that the equipment will fit the allotted spaces with clearance for installation and maintenance.

- F. As-Built (Record) Working Drawings: On a weekly basis, the Contractor Superintendent, in conjunction with the DDC Project Resident, shall review and record as-built conditions on a set of drawings maintained at the job site. After completion of final test, but before final acceptance of the work, furnish a complete set of as-built drawings for review and approval by The DDC Engineer and or by other authorities having jurisdiction (i.e. FDNY, NYCDOB). Make all necessary corrections to the drawings and furnish four sets of as-built drawings for record purposes. All deviations from the approved shop drawings shall be highlighted on the as-built drawings; if required by DDC Engineer the Contractor shall also provide hydraulic calculations justifying deviations. The drawings shall not be smaller than 24 inch by 36 inch on reproducible sepia with title block similar to full size contract documents. Provide 1 compact disc containing CAD based drawings in DXF and PDF based format of all as-built drawings and schematics.
- G. Operation and Maintenance Manuals: Furnish four (4) instruction manuals containing complete operation and maintenance instructions for the specific make and model of all check valves, detector check valves, alarm valves and dry-pipe valve assemblies, water flow and tamper switches, backflow preventers, and other trim furnished. Serial numbers and ordering information shall be provided. Place one copy of each instruction manual in a flexible, oil-resistant protective binder and mount in an accessible location in the vicinity of dry-pipe control valve. Furnish three additional copies of each instruction manual.

1.08 QUALITY ASSURANCE

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. All publications listed below refer to the most current edition.
- B. Manufacturers Qualifications
1. American Society for Testing and Materials (ASTM) Publications:
 - a. A53 Pipe, Steel, Black and. Hot Dipped, Zinc-Coated, Welded and Seamless
 - b. A135 Welded and Seamless Steel Pipe
 2. Factory Mutual System (FM) Publications
 - a. Approval Guide
 3. National Fire Protection Association (NFPA) Publications
 - a. 13 Installation of Sprinkler Systems
 - b. 14 Installation of Standpipe and Hose Systems
 - c. 70 National Electrical Code
 - d. 72 National Fire Alarm Code
 - e. 101 Life Safety Code
 - f. 291 Fire Flow Testing and Marking of Hydrants
 - g. 1963 Fire Hose Connections
 4. International Code Council (ICC)
 - a. International Building Code
 5. Underwriters Laboratories, Inc. (UL) Publications:
 - a. Fire Protection Equipment Directory
 - b. 262 Gate Valves for Fire Protection Service
 - c. 789 Indicator Posts for Fire Protection Services
 6. American Society of Mechanical Engineers (ASME)
 - a. A17 .1 Safety Code for Elevators and Escalators

C. Qualifications Of Installer:

1. Prior to installation, submit data for approval by DDC Engineer, showing that the Contractor has successfully installed automatic, dry pipe, fire extinguishing sprinkler systems of at least 100 sprinkler heads each, or there is a firm contractual agreement with a subcontractor having such required experience. The data shall include the names and locations of at least two installations where the Contractor or the subcontractor referred to above, has installed such systems. The Contractor shall indicate the type and design of each system and certify that each system has performed satisfactorily in the manner intended for a period of not less than 18 months.

2. Design (including hydraulic calculations) shall be by a NICET Level III or IV Technician (in automatic sprinkler system design) or a Professional Engineer (P.E.), licensed in Fire Protection Engineering. Qualifications of the designer must be submitted to DDC Engineer for approval,

D. Service Organization: The Contractor shall furnish, to the DDC Engineer, evidence that there is an experienced and effective service organization which carries a stock of repair parts for the system in order to readily effect repairs throughout the warranty period. – Should the Contractor fail to comply with the service requirements of this section, the Government will then have the option to make the necessary repairs and back charge the Contractor without any loss of warranty or guarantee as provided by the contract documents.

1.09 DELIVERY STORAGE AND HANDLING

A. Deliver products to project site in original, unopened packages with intact and legible manufacturers' labels identifying product and manufacturer, date of manufacture, and shelf life if applicable.

B. Store materials inside, Under cover, above ground, and kept dry and protected from physical damage until ready for use. Remove from site and discard wet or damaged materials.

C. Automatic sprinklers must be kept in original packaging until they are installed. Loose carrying or -storage is not permitted. Loose sprinklers shall be discarded immediately and replaced at Contractor's expense.

1.10 PROJECT CONDITIONS

A. The horse stable area is an open ventilated area, where interior conditions and/or environmental conditions such as temperature, humidity, ventilation, etc. are not controlled.

1.11 COORDINATION

A. Coordinate sprinkler head layout with ceiling plan and all ceiling mounted equipment, including diffusers, lights, exit signs, and other devices.

B. Coordinate major equipments and piping layouts with other trades to avoid obstructions and excessive changes in direction for piping.

1.12 WARRANTY

A. The Contractor shall guarantee labor, materials, and equipment provided under this contract against defects for a period of one year after the date of final acceptance of this work by the agency.

B.Final acceptance includes, but is not limited to, the receipt and approval of, as-built drawings and operation and maintenance manuals the DDC Engineer and or by other authorities having jurisdiction (i.e. FDNY, NYCDOB).

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A.All products are subject to the following listed acceptable manufacturers, or approved others.

B.All products shall be FM approved/ UL listed.

C.Fire Department Connections

- 1.Allenco
- 2.Elkhart Brass
- 3.Potter-Roemer Inc.
- 4.Reliable Automatic Sprinkler Co.
- 5.Approved Equal.

D.Fire Protection Valves and Drain Assemblies

- 1.Tyco Fire & Building Products
- 2.Victaulic
- 3.Stockham
- 4.Kennedy
- 5.Jenkins
- 6.Reliable Automatic Sprinkler Co.
- 7.Viking Corporation
- 8.Approved Equal.

E.Sprinklers

- 1.Tyco Fire & Building Products
- 2.Reliable Automatic Sprinkler Co.
- 3.Viking Corporation
- 4.Victaulic Corporation
- 5.Approved Equal.

F.Valve Supervisory Switches

- 1.Potter Electric Signal
- 2.System Sensor
- 3.McWane, In. Kennedy Valve Div.
- 4.Approved Equal.

2.02 ABOVEGROUND PIPING SYSTEMS

A.Provide fittings for changes in direction of piping and for all connections. Arrange piping so that it can be drained at the main riser. Make changes in piping sizes through standard tapered, reducing pipe fittings; the use of bushings will not be permitted. Perform welding in the shop; field welding will not be permitted.

B.Jointing compound for pipe threads shall be polytetrafluoroethylene (PTFE) pipe thread tape only; apply on male threads. Pipe dope may not be used.

C. Lubricant used on gaskets for mechanical fittings must be non-petroleum based and approved by DDC.

D.Sprinkler Pipe and Fittings: Provide in accordance with NFPA 13, except as modified herein. Steel piping shall be Schedule 40 per ASTM A53 for sizes 4 inches and under and Schedule 10 or 40 per ASTM A53 for sizes above 4 inches.

1. Standard Installation:
 - a. Nominal pipe sizes 4-inches or larger: Schedule 10 or 40 Pipe meeting ASTM A-53, A-135 or A-795, hot-dip galvanized and with factory- or field-formed, roll-grooved for Schedule 10 or 40 ends, or cut-grooved for Schedule 40 ends.
 - b. For connections between 4 inch and larger pipes the requirements are as follows.
 - 1) Galvanized grooved pipe couplings and fittings for grooved pipe.
 - 2) Galvanized outlet coupling with screwed connection for grooved pipe.
 - c. For connection between 4 inch or larger pipes to pipes smaller than 4 inches (100 mm) the requirement is as follows.
 - 1) Galvanized welded outlet with screwed connection or threaded coupling or fittings.
 - d. Nominal pipe sizes smaller than 4-inches: Schedule 40 Pipe meeting ASTM A 53, A-135, and A-795 hot-dip galvanized and with factory- or field-formed threaded ends:
 - e. For connections to and between pipes less than 4 inches the requirement is as follows.
 - 1) Galvanized threaded pipe couplings and fittings only.
2. Underground piping: All underground pipes shall be centrifugally cast ductile iron.
3. Pressure ratings: Pressure ratings of all fittings and gaskets shall meet or exceed maximum working pressures available within the system.
4. Corrosion protection: All piping and hangers where exposed to the weather or installed in a corrosive atmosphere shall be protected against corrosion.
5. Pipe and Hanger Supports: Provide pipe supports, hangers, and clamps conforming to NFPA 13 and listed by UL or approved by FM. Provide galvanized supports, hangers, and clamps for all galvanized piping.
6. Joint Construction
 - a. Branch outlet mechanical fittings and clamp type fittings are not permitted.
 - b. Procedures for welding outlets shall be in strict conformance with the welding requirements of NFPA 13, including submission of welding certifications. Welding shall not be performed on site.
 - c. Threaded Joints: Comply with NFPA 13 for pipe thickness and threads. Do not thread pipe with wall thickness less than Schedule 40.
 - d. Grooved Joints and Fittings: Assemble joints and fittings with listed coupling and gasket, lubricant, and bolts from same manufacturer. Fittings and attached couplings shall be from the same manufacturer.
 - e. Steel Pipe: Square-cut or roll-groove piping as indicated. Use grooved-end fittings and rigid, grooved-end-pipe couplings, unless otherwise indicated.
 - f. If the galvanized coating on piping is found to be chipped or cracked upon grooving of joint, two coats of liquid galvanizing material shall be applied to groove. The first coat shall be thoroughly dry prior to applying the second coat.
- E. Rubber-gasketed, grooved-end pipe and fittings with mechanical couplings shall only be permitted in pipe sizes 4 inches and larger.
- F. Use of restriction orifices, reducing flanges, unions, and plain-end fittings will not be permitted.
- G. The corrosion resistance ratio of pipe and fitting method shall not be less than 0.95.
- H. Pipe Hangers and Supports: Provide in accordance with NFPA 13.

- I. Identification Signs: Attach properly lettered approved metal or polycarbonate signs conforming to NFPA 13 to each valve and alarm device. Polycarbonate signs shall be red with engraved white letters. Signs at valves shall describe the sprinkler zone it controls and state that the valve is to remain open. Permanently affix design data nameplate to the riser of each system.
- J. Inspector's Test Connection: Provide test connections no higher than 6ft above the floor for each sprinkler system or portion of each sprinkler system equipped with an alarm device; locate at the control valve/drain assembly [or hydraulically most remote part of the system]. Provide combination drain valve and test connection. Discharge shall be readily visible from the inspector's test connection, either by direct observation of the discharge or through a sight glass. Discharge shall be piped to either an open building drain/floor drain or to the outside. Drainage and test valves shall be bronze globe, angle, or gate valves.
- K. Drains: Provide drain piping to discharge at safe points outside the building or to sight cones attached to drains of adequate size to readily receive the full flow from each drain under maximum pressure. All drain piping is to be galvanized. Provide auxiliary drains as required by NFPA 13. Splash guards are to be provided where necessary at discharge outlets.
- L. Pipe Sleeves and Seals. Provide where conduit or piping passes through walls, floors, roofs and partitions. Provide clearance between exterior of piping and interior of sleeve in accordance with NFPA 13. Penetration Firestopping, for sleeves and seals through fire-rated assemblies. Secure sleeves in proper position and location during construction. Provide sleeves of sufficient length to pass through the entire thickness of walls, floors, roofs, and partitions.
1. Sleeves in Masonry and Concrete Walls, Floors, and Roofs: Provide ASTM A53, Schedule 40, zinc-coated steel pipe sleeves. Sleeves in floors shall project 4 inches (101.6 mm) above finished floors to prevent seepage.
 2. Sleeves in Partitions and Other than Masonry and Concrete Walls, Floors and Roofs: Sleeves shall be constructed from either zinc-coated schedule 40 steel pipe or zinc-coated 26 gauge steel sheet.
- M. Escutcheon Plates: Provide one piece or split-hinge-type metal plates for piping passing through floor, walls, and ceilings in exposed and concealed areas. Provide chromium-plated or color-coordinated metal plates where pipe passes through finished ceilings. Securely anchor plates in proper position. Provide sprinkler escutcheon plates to match sprinkler head finish.

2.03 DRYPIPEVALVE

- A. Dry pipe valves shall include all trimming as required for a standard unit, that are UL listed or FM approved. Provision shall be made to prevent excessive water accumulation. The dry pipe valve shall be fitted with an alarm bypass test connection so the water flow device may be tested without opening the dry pipe valve.
- B. Each dry pipe valve shall be equipped with an automatic air maintenance device, in addition to all other required components.
- C. Provide an approved quick-opening device for dry pipe valves controlling systems if system volume/capacity is more than 500 gallons.

2.04 AUTOMATIC AIR COMPRESSOR

- A. The automatic air compressor shall have a tank capable of maintaining the required operating pressure on the dry system and capable of full recovery within 30 minutes. Compressor shall be single stage oil-free type, air-cooled, electric motor driven. Provide

check valve, shutoff valve, all pressure switches, flow switches, supervisory switches and low/high air pressure switches, safety relief valve in accordance with NFP A and the manufacturer's recommendations.

B. The compressor shall operate on 208 volt, 3 phase power and shall have a horsepower rating of 1 ½ or less. The starter shall be provided by the Fire Protection Contractor.

2.05 AIR PRESSURE MAINTENANCE DEVICE

A. The device shall be a pressure regulator that automatically reduces supply air to provide the pressure required to be maintained in the piping system. The device shall have a cast bronze body and valve housing complete with diaphragm assembly, spring, filter, ball check to prevent backflow, 1 1/16 inch restriction to prevent rapid pressurization of the system and adjustment screw. The device shall be capable of reducing an inlet pressure of up to 100 psig to a fixed outlet pressure adjustable to 10.psig.

2.06 AIR SUPPLY PIPING SYSTEM

A. The piping shall be galvanized steel in accordance with ASTM A 795/ A 795m or ASTM A53/A53M.

2.07 MANUAL RELEASE STATION

A. Stations shall be surface mounted and shall not be subject to operation by jarring or vibration. Break-glass-front stations will not be permitted; however a pull-lever, break-glass-rod type is acceptable. Display operating instructions on face of station in engrave or raised letters of a contrasting color. Provide permanent metal or engraved plastic signs mounted above or beside each station, indicating which system that the station controls. Lettering shall be a minimum of 1.5 inches high.

2.08 SPRINKLER HEADS

A. Provide quick response dry pendent type sprinklers, unless otherwise indicated or approved. Sprinkler shall be of the fusible strut or glass type, stainless steel finish. Dry pendent sprinklers shall be of the required length to permit the sprinkler to be threaded directly into a branch line tee. Hangers shall be provided to arm-overs to drop nipples supplying pendent sprinklers when the arm-overs exceed 12 inches for steel pipe or 6 inches to copper tubing.

B. Heads shall have a nominal ½ inch orifice. Corrosion-resistant sprinkler heads shall be installed where they are exposed to the weather, moisture or corrosive vapors. Heads installed where they might receive mechanical injury or are less than 7 feet above the floor level, shall be protected with approved guards in accordance with NFPA 13. Provide finish as indicated.

2.09 VALVES:

A. Provide valves as required by NFPA 13 and types UL listed or FM approved for fire protection service.

B. Gate Valves: Gate valves shall be the outside stem & yoke (OS&Y) type, and open by counterclockwise rotation. Gate valves installed higher than 7 feet above the floor shall be provided with a chain drive or permanently mounted ladder. Provide a gate valve beneath each alarm valve in each riser when more than one alarm valve is supplied from the same water supply pipe.

C. Check Valves: Check valves shall be clear-opening, swing-check type, with a bronze or stainless steel seat ring and an EPDM rubber clapper facing. Flanged check valves of sizes 4 inches and larger shall have flanged inspection and access cover plates.

D. Butterfly valves: Butterfly valves are permitted only for pipe sizes of 4 inches and smaller.

2.10 FIRE DEPARTMENT CONNECTION

- A. Fire department connection shall be in accordance with NFPA 13, with self-closing clapper valve in each inlet. The Siamese connection shall be polished brass or bronze, with polished chromium finish.
- B. Connection shall include check valve, automatic drip (to drain to outside or building drain), caps and chains, 2 ½ inch female fire hose thread connections with National Standard / Fire Department threads, and nameplate.
- C. Nameplate shall be positioned so it is clearly visible and shall state the type of connection and the system it serves.

2.11 ALARMS

- A. Pressure (Water flow) Switch: Pressure switch shall include a metal housing with a neoprene diaphragm, SPDT snap action switch and ½ inch NPT pipe thread. The switch shall have a maximum service pressure rating of 175 psi. There shall be two SPDT (Form C) contacts factory adjusted to operate to 4 to 8 psi. The switch shall be capable of being mounted in any position in the alarm line trim piping of the dry valve.
- B. Low/High Air Pressure Alarm: Provide alarm for each sprinkler system. Alarm shall give a visual and audible alarm when air pressure in the system drops halfway from the normal pressure to the tripping point and when air pressure in the system rises 10 psi above the normal pressure. Mount an alarm bell, light signal and cut-off switch for silencing the bell on the low air pressure alarm panel. Provide electrical power supply connections at the supply side of the building service panel with a separate fused safety-type switch for each connection with locked lever.
- C. Water Motor Alarm: Provide a weatherproof and guarded 10 inch water motor alarm, to sound on the flow of water in corresponding sprinkler system in accordance with NFPA 13. Mount alarm on the outside of the wall of the building. Location shall be shown on the shop drawings. Provide a splash block beneath the drain for the water motor alarm. Drain piping shall be minimum 1 inch galvanized steel and shall be arranged to drain to the outside of the building. Install a permanent sign next to the water motor alarm stating the nature of the alarm and instructions for responding.
- D. Valve Supervisory Switch: Valve supervisory switches shall be installed on all sprinkler control valves. The switches shall be mounted so as not to interfere with the normal operation of the valve and shall be adjusted to operate within two revolutions of the valve control or when the stem has moved no more than 1/5 of the distance from its normal open position. The mechanism shall be contained in a weather-proof, die-cast, aluminum housing that shall be provided with a ½ inch tapped conduit entrance and incorporates the necessary facilities for attachment to the valve. Switch housing shall be finished in red baked enamel. The entire installed assembly shall be tamper-proof and arranged to cause a switch operation if the housing cover is removed or if the unit is removed from its mounting.

2.12 CABINET

- A. Furnish and install a metal cabinet containing a stock of spare sprinkler heads of all types and ratings installed. The cabinet shall be located near the alarm/control valve and where the temperature will not exceed 100° F. The number of spare sprinkler heads shall be as required by NFPA 13. At least one wrench of each type required shall be provided.

2.13 PIPE ESCUTCHEON

- A. Escutcheon shall chromium-plated copper alloy. Escutcheons shall be either one-piece or split-pattern, held in place by internal spring tension or set screw.

2.14 PIPE PENETRATIONS

A. Cutting structural members for passage of pipes or for pipe hanger fastening will not be permitted. Pipe that must penetrate concrete or masonry walls or concrete floors shall be core drilled and provide with pipe sleeves. Each sleeve shall be schedule 40 galvanized steel or, ductile iron pipe and shall extend through its respective wall or floor and shall be cut flush with each wall surface. Sleeves shall provide required clearance between pipe and sleeve in accordance with NFPA 13. The space between pipe and sleeve shall be filled with mineral wool insulation and waterproof cement. If the pipe penetrates fire rated wall, partition, floor, space between the pipe and sleeve shall be filled with approved fire stopping.

2.15 IDENTIFICATION SIGN

A. Valve identification sign shall be minimum 6 inch wide by 2 inch high with enamel baked finish on 18 gauge steel or .024 inch aluminum with red letters on white background or white letters on red background. Wording of sign shall include but not limited to "main drain" "auxiliary drain", "inspector test", "alarm test", "alarm line" and similar wording as required identifying operational components.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Equipment, materials, installation, workmanship, examination, inspection and testing shall be in accordance with NFPA 13, except as modified in NYC Building Code section BC 903 and BC Q102 and as modified herein. Install piping straight and true to bear evenly on hangers and supports. Install piping so as not diminish exit access widths, corridors or equipment access. Horizontal piping including drain piping shall be installed to provide maximum headroom as possible, without interfering with other equipment and construction. Nipples shall be perpendicular to ceilings.

B. Accurately align sprinkler heads in symmetrically with diffusers, lights.

C. Seismically protect the system piping against damage from earthquakes. This requirement is not subject to determination under NFP A 13. Install the seismic protection of the system piping, including sway bracing as required, in accordance with NFP A 13.

D. Keep the interior and ends of all piping affected by Contractor's operations thoroughly clean of water and foreign matter by means of plugs or other approved methods. Inspect piping before placing into position. All pipe, fittings, and gaskets are to be cleaned of oil prior to installation.

3.02 FIELD CHANGES

A. Do not make field changes in the piping layout, pipe sizes, or type of equipment, without the prior approval of the DDC engineer.

3.03 FIELDPAINTING

A. Painting shall be included in this Item. The above-ground steel piping systems including valves, piping, pipe sleeves, conduit, hangers, miscellaneous metal work and accessories shall be cleaned, pre-treated, primed and painted. Coatings shall be applied only to clean, dry surfaces using clean brushes. Surfaces shall be cleaned to remove all dust, dirt, rust and loose mill scale.

B. Immediately after cleaning, provide the metal surfaces with one coat of primer, applied to a minimum dry film thickness of 1.0 - 1.5 mil. Due care shall be exercised to avoid the painting of sprinkler heads or protective devices or allowing paint to drip or splatter on any equipment, artifacts, building structures, and floors. Materials which are used to protect sprinkler heads while painting is in progress shall be removed upon completion of painting.

- C. The Contractor shall remove all sprinkler heads which are painted and provide new, clean sprinkler heads of the proper type at his own expense. In addition to the primer, surfaces shall receive the following:
- D. Above-Ground Piping Systems in Unfinished Areas: Unfinished areas are defined as attic spaces, mechanical equipment spaces, spaces above suspended ceilings, crawl spaces, pipe chases, and spaces where walls or ceilings are not painted or not constructed of a prefinished material. Provide primed surfaces with one coat of red enamel. Provide 2 inch wide red enamel or self-adhering plastic bands on sprinkler piping, spaced at a maximum of 10 ft. intervals.
- E. Above-Ground Piping Systems in Other Areas: Provide primed surfaces with two coats of paint to match adjacent surfaces, except valves and operating accessories shall receive one coat of red enamel. Provide piping with 2 inch wide red enamel bands or self-adhering red plastic bands spaced at a maximum of 10 ft. intervals. In finished areas such as offices, the red bands may be omitted.
- F. All other coatings (e.g., zinc for galvanized pipe) shall be in compliance with NFPA 13.

3.04

FIELD TESTING AND FLUSHING

- A. All testing shall be scheduled with the DDC Project Resident.
- B. At the discretion of the DDC Engineer or any other authorities under jurisdiction, an air pressure test may be required in addition to the Hydrostatic tests. The test shall be conducted by raising the air pressure in the system to 40 psi and allowing it to stand for 24 hours. There shall be no loss of air pressure greater than 1.5 psi over the 24 hour period.
- C. Hydrostatic tests shall be conducted in accordance with NFPA 13 at the greater of 200 psi or the normal system pressure plus 50 psi for a 2 hour period with no leakage or reduction in gage pressure. Hydrostatic test pressures shall not be maintained on the system overnight. Flush piping with potable water in accordance with NFPA 13.
- D. Preliminary Tests and Procedures: Test the alarms and other devices. Test the water flow alarms by flowing water through the inspector's test connection. Prior to the hydrostatic test, perform an air test on the system. In areas where piping will be concealed by ceilings, walls, or other construction before the system is complete and ready for final testing, the preliminary hydrostatic test shall be conducted prior to piping being concealed. This test shall be witnessed by the DDC Project Resident and any other authorities under jurisdiction. When all tests and procedures are completed and corrections made, submit a signed and dated certificate, similar to that specified in NFPA 13, with a request for formal inspection and tests.
- E. Formal Inspection and Tests: At this time, all piping sprinklers, and other system components shall be in-place and all adjustments to the system completed. Special inspector from the local authorities having jurisdiction, DDC Project Resident and any other authorities under jurisdiction shall witness all tests and approve all systems before they are accepted. Submit a request for a formal inspection at least ten working days prior to the date the inspection is to take place. A competent representative of the sprinkler installer shall be present during testing and inspection. As-built drawings shall be on-site for the inspection. At this inspection, the system shall be hydrostatically tested. Any or all of the required tests shall be conducted by the Contractor at his own expense and additional tests made until it has been demonstrated that the systems comply with all contract requirements. The Contractor shall furnish all appliances, equipment, instruments, connecting devices and personnel for the tests. Any costs incurred by the Sprinkler

Installer for repeat tests, due to the failure of the Contractor to adequately demonstrate that the system complies with the contract requirements, shall be borne by the Contractor.

PART 4 – MEASUREMENTS AND PAYMENT

For furnishing and installing the **DRY PIPE SPRINKLER SYSTEM**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **LUMP SUM** price bid.

"The price bid shall be a **LUMP SUM**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

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ITEM NO. 88 ITEM DELETED
ITEM NO. 89 HORSE STALLS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Horse Stalls.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Basis-of-Design Product: Subject to compliance with requirements, provide product or comparable product by one of the following:
 - 1. RAMM Horse Fencing & Stalls; Portable – Panel Horse Stalls.
 - 2. Neubauer Manufacturing
 - 3. Approved Equal.

2.2 MATERIALS

- A. Steel: 14 Gauge.
- B. Square Steel Tubing.
- C. Round Steel Tubing Bars.
- D. Panel Stall Connectors: Manufacturer's standard connectors used to hold posts and panels together.

- E. Postinstalled Expansion Anchors: With capability to sustain, without failure, load imposed within factors of safety indicated, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.
 - 1. For Postinstalled Anchors in Concrete: Capability to sustain, without failure, a load equal to four times the loads imposed.
- F. 2 by 6-inch #1 Grade Southern Yellow Pine Tongue & Groove Boards in panels of horse stalls.

2.3 HORSE STALLS

- A. Includes:
 - 1. Horse Stall Fronts.
 - 2. Horse Stall Grilled Partitions.
 - 3. Horse Stall Solid Partitions.
- B. Horizontal and Vertical Panel Framing: 2 by 2-inch square tube steel frame.
- C. Vertical Bar Grilles: 7/8-inch round tubing steel bars; 3-1/4-inch center to center bar spacing and 2-3/8-in clear between bars.
- D. Lengthened 2 by 2-inch Square Tube Steel Framing: Provide flush panels by accounting for slope of concrete topping.
- E. Easy Roll Sliding Doors: Fabricated from same material as partitions, with framing fabricated from 2 by 2-inch square tube steel frame.
 - 1. Hardware: Door lock track bracket, standard track bracket, square trolley track, two trolley assemblies, and door stay for each door.
- F. Swing-out Feed Door Service Windows: Fabricated from same material as partitions and included in every stall front.
- G. Stall Wall Panels: Wood tongue and groove boards.
- H. Finish for Uncoated Ferrous Steel: Hot-dip galvanized unless otherwise indicated.
 - 1. Color: Manufacturer's standard.

2.4 HORSE STALL FRONTS

- A. Sliding door and track system with spring loaded bar latch, one-piece grill section and frame, one-piece partition frame, stay roller, small feed door and screws. Include wood boards.

2.5 HORSE STALL GRILLED PARTITIONS

- A. One-piece grille section and frame, one-piece partition frame and screws. Include wood boards.

2.6 HORSE STALL SOLID PARTITIONS

- A. Solid partition frame and screw. Include wood boards.

2.7 FABRICATION

- A. General: Fabricate horse stall items from components of sizes not less than those indicated. Use components as recommended by horse stall manufacturer. As required for complete installation, provide bolts, hardware, and accessories with manufacturer's standard finishes.

1. Welding: Manufacturer to weld framing components.

- B. Horse Stall Partitions: Finish edges of any cutouts to provide a neat, protective edge.

1. Framing:

- a. Provide horizontal stiffeners as indicated or, if not indicated, as required by panel height and as recommended by horse stall manufacturer. Weld horizontal stiffeners to vertical framing.
- b. Fabricate one-, two-, three- and four-way intersections using manufacturer's standard connectors and fasteners.

2. Fabricate horse stalls with no more than 3 inches (76 mm) of clear space between finished floor and bottom horizontal framing.

3. Hardware Preparation: Mortise, reinforce, drill, and tap doors and framing as required to install hardware.

2.8 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with applicable standard listed below:

1. ASTM A 123/A 123M, for galvanizing steel and iron components.
2. ASTM A 153/A 153M, for galvanizing steel and iron hardware.
3. After galvanizing, thoroughly clean wire mesh components of grease, dirt, oil, flux, and other foreign matter.

PART 3 - EXECUTION

3.1 HORSE STALL ERECTION

- A. Basic Panel Assembly: Secure manufacturer's connectors to the floor with concrete anchors. Follow manufacturer's installation requirements for basic panel assembly. Insert all lower floor side connectors before placing any panel into its final mounting position.
- B. Basic Door and Panel Wood Assembly:
 - 1. Cut boards to length and slide into place until there is only room for less than one board.
 - 2. Last board must be ripped to size (removing tongue if using tongue and groove lumber).
 - 3. Remove one board from the door, this will be the wedge board.
 - 4. Insert the ripped board and slide it away from the installed lumber so it rests against the door side frame.
 - 5. Place the wedge board back into the door and secure it with two 4-inch wood screws at a 45 degree angle driving the screw through the wedge board and the next board, one screw each direction.
- C. Basic Panel Wood Assembly:
 - 1. Cut boards to length and slide into place until there is only room for less than one board.
 - 2. Last board must be ripped to size on all door and panel sections (removing tongue if using tongue and groove lumber).
 - 3. Secure last board and cutout plate with 5 pan head screws.
- D. Basic Panel Door/Track Assembly:
 - 1. Mount door lock track bracket 7-1/4-inch from panel outside edge using two self tapping hex bolts.
 - 2. Mount standard track bracket 7-foot 6-inch from panel outside edge using two self tapping hex bolts.
 - 3. Assemble trolley bolts into trollies and screw one nut onto the bolt until it sits about 3-inches up on threads then place one washer below it on bolt threads.
 - 4. Insert trolley bolt assembly into door top until bolt threads are exposed between door bars.
 - 5. Place second washer and nut onto each exposed bolt for 3 – 4 full turns.
 - 6. Slide 8-foot square track onto trollies.
 - 7. Set entire assembly centered onto brackets with door bottom placed inside door stay connector and bolt track in place using four self tapping hex bolts.
 - 8. Tighten lower trolley bolt nuts until door can freely slide then tighten down upper nuts until snug and tighten lower bolts until door is held firmly.
- E. Install sliding doors complete with door hardware.
- F. Install swing-out feed doors complete with window hardware.

- G. Secure accessories to horse stalls as recommended by manufacturer.

3.2 ADJUSTING AND CLEANING

- A. Adjust roll sliding doors and swing-out feed doors to operate smoothly and easily, without binding or warping. Adjust hardware to function smoothly. Confirm that latches and locks engage accurately and securely without forcing or binding.
- B. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
- C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

PART 4 - MEASUREMENT AND PAYMENT

For furnishing and installing **HORSE STALLS**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

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- ITEM NO. 90 CORNER HAY RACKS
- ITEM NO. 91 WALL FEED PANS
- ITEM NO. 92 FEED STORAGE BINS
- ITEM NO. 93 BRIDLE RACKS
- ITEM NO. 94 WALL MOUNTED SADDLE RACKS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Horse stall accessories.
 - 2. Feed room accessories.
 - 3. Tack room accessories.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.
 - 1. Identify locations using room designations indicated.
 - 2. Identify products using designations indicated.

PART 2 - PRODUCTS

2.1 HORSE STALL ACCESSORIES

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - 1. RAMM Horse Fencing & Stalls.
 - 2. Architect Approved Equal.
- C. Corner Hay Rack:
 - 1. Basis-of-Design Product: RAMM Horse Fencing & Stalls, Corner Hay Rack or Architect Approved Equal.

2. Description: Corner feeder that allows dust to fall.
3. Mounting: Surface mounted to corner of stall partitions.
4. Capacity: Designed for 2 or 3 flakes of hay.
5. Measures: 32-inch wide, 28-inch high, and 7-inch deep.
6. Material and Finish: Steel.

D. Wall Feed Pan:

1. Basis-of-Design Product: RAMM Horse Fencing & Stalls, Galvanized Wall Mount Feeder or Architect Approved Equal.
2. Description: Safety edges on all metal components.
3. Mounting: Surface mounted.
4. Measures: 20-inch wide, 6-inch high, and 13-inch deep.
5. Material and Finish: Galvanized steel.

2.2 FEED ROOM ACCESSORIES

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

1. Dan's Saddlery Premium Stable Equipment.
2. Jumps West.
3. Architect Approved Equal.

C. Feed Storage Bin:

1. Basis-of-Design Product: Dan's Saddlery Premium Stable Equipment, Storage Bin; Jumps West, Storage Bin or Architect Approved Equal.
2. Description: Lockable, rodent-resistant, and water-resistant bin with cover that stays securely open while in use.
3. Measures: Approximately 24-inch wide, 24-inch high, and 28-inch deep.
4. Material and Finish: Heavy duty polyethylene, Architect to choose color from manufacturer's standards.

2.3 TACK ROOM ACCESSORIES

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

1. Saddle Stackers.
2. Architect Approved Equal.

C. Bridle Rack:

1. Basis-of-Design Product: Saddle Stackers, Bridle Rack One or Architect Approved Equal.
2. Description: Semi-circle bridle hook and flat halter hanger.
3. Mounting: Surface mounted.
4. Measures: 2-3/4-inch wide, 6-1/2-inch high, and 2-1/2-inch deep.
5. Weight: 1 pound.
6. Material and Finish: As indicated by manufacturer's designations.

D. Wall Mounted Saddle Rack:

1. Basis-of-Design Product: Saddle Stackers, Single Wall Mounted Rack or Architect Approved Equal.
2. Description: Single wall mounted rack for horse saddles.
3. Mounting: Surface mounted.
4. Measures: 8-1/2-inch wide, 5-1/2-inch high, and 24-1/2-inch deep.
5. Material and Finish: As indicated by manufacturer's designations.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

PART 4 - MEASUREMENT AND PAYMENT

ITEM NO. 90

For furnishing and installing **CORNER HAY RACKS**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **EACH** price bid.

The price bid shall be an **EACH**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

ITEM NO. 91

For furnishing and installing **WALL FEED PANS**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **EACH** price bid.

The price bid shall be an **EACH**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

ITEM NO. 92

For furnishing and installing **FEED STORAGE BINS**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **EACH** price bid.

The price bid shall be an **EACH**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

ITEM NO. 93

For furnishing and installing **BRIDLE RACKS**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **EACH** price bid.

The price bid shall be an **EACH**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

ITEM NO. 94

For furnishing and installing **WALL MOUNTED SADDLE RACKS**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **EACH** price bid.

The price bid shall be an **EACH**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

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ITEM NO. 95 **FLEXIBLE FENCE AND GATES**

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Flexible horse fence.
2. Swing gates.
3. Fence posts.
4. Fence and gate accessories.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples: For each fence material and for each color specified.

PART 2 - PRODUCTS

2.1 FLEXIBLE FENCES

A. Flexible Fences:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. RAMM Horse Fencing & Stalls; 4.25-inch Flex-Fence, 2-Wire, 4 Rails.
 - b. Architect Approved Equal.
- B. Posts: Round pressure-treated pine posts, 4-inch by 8-foot or as recommended by manufacturer, paint to match flexible fence.
- C. Rails:
 1. Steel Wire: 12.5 gauge, high-tensile, pre-straightened.
 2. Plastic.
- D. Brackets: Hot-dipped galvanized steel..
- E. Color: Chosen by Architect from manufacturer's standards.

2.2 GATES

A. Gates:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. RAMM Horse Fencing & Stalls.
 - b. Architect Approved Equal.
2. Material:
 - a. Tubes: Hot-dipped galvanized 16 gauge 2" diameter steel.
 - b. Finish: Zinc coated.
3. Size:
 - a. Length: 10-foot and 16-foot.
 - b. Height: 50-inch.

B. Accessories:

1. Gate Latches.
2. Gate Hinges.
3. Gate Anchors.
4. Gate Wheels.

2.3 MISCELLANEOUS MATERIALS

- A. Concrete Footing: Normal-weight concrete complying with requirements in Section "Average Concrete".
- B. All accessories needed for the installation of flexible fence and gates.

PART 3 - EXECUTION

3.1 FLEXIBLE FENCE INSTALLATION

- A. Install fences according to manufacturer's written instructions.
- B. Install fences by setting posts as indicated by manufacturer and fastening to fence and gate accessories according to manufacturer's written instructions.
- C. Post Excavation: Excavate holes to a diameter and a depth according to manufacturer's written instructions.

- D. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.

3.2 GATE INSTALLATION

- A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

PART 4 - MEASUREMENT AND PAYMENT

For furnishing and installing **FLEXIBLE FENCES AND GATES**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

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ITEM NO. 96 **FULL DEPTH ASPHALT PAVEMENT**

WORK: Under these items, the Contractor shall furnish and install **FULL DEPTH ASPHALT PAVEMENT** in accordance with the plans, specifications, and directions of the Engineer.

DESCRIPTION: The asphalt pavement shall consist of a binder course and a top course to the dimensions as shown on the plans and details. The binder course shall be asphalt concrete, Type 3 and the top course(s) shall be Type 7 or Type 7F as defined by the N.Y.S. D.O.T. Standard Specifications.

MATERIALS:

Asphalt: The following requirements shall apply for both Binder Course and Top Course:

Asphalt Cement shall be 100% soluble in Trichloroethylene. The mixing and placing temperature shall be 250 degrees to 325 degrees F. The viscosity of the asphalt shall be AC 20.

The mix shall have a minimum Marshall Stability of 500 lbs, flow of 8 to 16, and percent of air voids 3 to 5 percent. For full depth asphalt pavement (top and base courses), the asphalt mix may contain a maximum of 15% by weight of Recycled Asphalt Pavement (R.A.P.) material. The R.A.P. shall be certified by the inspection service before use and shall be free of dirt, debris, garbage, metal, glass and any other deleterious material. R.A.P. shall be tested by an approved laboratory for (%) percent asphalt cement before mixing. R.A.P. shall be screened prior to mixing so that final mix meets the specification delineated below. The City reserves the right to reject the R.A.P. asphalt mix if in the determination of the Engineer, the mix is contaminated with dirt, debris, garbage, metal, or glass. R.A.P. is not acceptable for the top courses of asphalt pavement for tennis courts.

R.A.P. shall comply with N.Y.S. D.O.T. Section 703-09 "Reclaimed Asphalt".

Binder Course: The material for the binder course shall meet the requirements of the latest edition of the N.Y.S. Department of Transportation Standard Specification Section 400 "Bituminous Pavements". Composition of the asphalt concrete binder shall be Type 3 as indicated in the following table:

COMPOSITION OF BINDER TYPE 3

<u>SCREEN SIZE</u>	<u>GENERAL LIMITS % PASSING</u>	<u>JOB MIX TOL. %</u>
1 1/2"	100	---
1"	95-100	---
1/2"	70-90	+/-6
1/4"	48-74	+/-7
1/8"	32-62	+/-7
No. 20	15-39	+/-7
No. 40	8-27	+/-7
No. 80	4-16	+/-4
No. 200	2-8	+/-2

Asphalt Content, % 4.5-6.5 +/-0.4

Top Course: The material for the top course shall meet the requirements of the latest edition of the NYS DOT Standard Specifications Section 400 "Bituminous Pavements". Composition of the asphalt concrete top course shall be Type 7 or Type 7F as indicated in the following table:

COMPOSITION OF TOP COURSE- TYPE 7
GENERAL LIMITS

<u>SCREEN SIZE</u>	<u>% PASSING</u>	<u>JOB MIX TOL %</u>
1/2"	100	-
1/4"	90-100	-
1/8"	45-70	+/-6
No. 20	15-40	+/-7
No. 40	8-27	+/-7
No. 80	4-16	+/-4
No. 200	2-6	+/-2
Asphalt Content %	6.0-8.0	+/-4

Forms: The forms for this work shall be of wood of an approved type and a minimum length of ten feet (10') for tangents and curves, unless otherwise shown of the plans.

All forms shall be straight, free from bends and warps at all times, and shall be cleaned thoroughly and oiled before pavement is placed against them; this cleaning and oiling being repeated daily as the forms are moved ahead. The forms shall rest firmly upon the thoroughly compacted sub-grade throughout their entire length, shall be joined neatly and tightly and staked securely to line and grade at least two hundred feet (200') in advance of the point of placing pavement by using at least three (3) bracing pins or stakes to each ten foot (10') length of side form, so that they will resist the pressure of the pavement and the impact of the roller without springing.

Approval of Sources of Supply: Approval of the sources of supply of aggregates shall be obtained from the Engineer prior to the delivery of material.

Inspection: Equipment, materials, and preparation of the mixtures will be subject to inspection and approval at the refineries and plant as may be directed. In conjunction therewith, the Contractor shall employ the services of an approved inspection service for the purposes of providing plant certification of the asphalt pavement mixtures conformance to these specifications. The inspection service shall be under the jurisdiction of and shall report directly to the Engineer.

Mix Samples: The Contractor shall submit, when required by the Engineer, samples of the materials and mixtures he proposes to use. Submittals shall be in accordance with the General Conditions. For the top course, the following samples shall be submitted:

- (a) Coarse aggregate.....2 pounds
- (b) Fine aggregate.....2 pounds
- (c) Filler.....2 pounds
- (d) Asphalt.....1 quart
- (e) Asphaltic mixture.....10 pounds

Pavement Samples: The Contractor shall furnish for testing, when required by the Engineer, samples from the completed work. The areas of pavement so removed shall be replaced by new mixture and refinished without additional compensation.

Tests: Unless otherwise specifically provided, tests of materials shall be made in accordance with the latest specifications of the American Society for Testing and Materials.

Transporting: Shipments of material shall be made in tight vehicles previously cleaned of all foreign material, and delivered to the work, so that it will not become contaminated in any way.

INSTALLATION:

Subgrade Preparation: The subgrade shall be compacted with equipment that will yield the following density:

Cohesive Subgrade -	Minimum of 95% of AASHO T 180 Method D density
Cohesionless Subgrade -	Minimum 100% of AASHO T 180 Method D density

Spreading of Binder Course: Plant-Mixed binder course, shall be furnished and laid by means of a mechanical spreader of approved design to a depth which after final compaction shall be equal to the specified depth. In areas where the use of a mechanical spreader is impractical, as determined by the Engineer, other approved means of spreading and compacting may be permitted. The use of hand rakes will not be permitted. The Contractor shall use lutes where necessary.

Rolling and Compacting: The asphalt concrete binder course when properly spread shall be rolled with one or more power-driven rollers weighing not less than ten (10) tons. Rolling shall proceed continuously not in excess of the following rates:

<u>Method of Placement</u>	<u>Square Yards/Hour/Roller</u>
Hand	800
Machine	1200

After the final compaction, the binder course shall have a density of not less than 95% percent of the theoretical maximum density as calculated in accordance with Appendix B of the Asphalt Institute Manual, MS-2.

After the compaction of the binder course and before the placing of the top course, the binder course

shall be checked for depressions. The Contractor shall check the entire area using a ten foot (10') wood or metal straight-edge. Any depression greater than one-eighth inch (1/8") shall be corrected before the placing of the top course.

Tack Coat: All contact surfaces, including binder and intermediate, shall be applied with hot asphaltic cement, RC-70 or MC-70 before the surface mixture(s) are laid.

Spreading of Top Course: The top course mixture shall be furnished and laid by means of a mechanical spreader of approved design to a depth which after final compaction shall be equal to the specified depth. In areas where the use of a mechanical spreader is impractical, as determined by the Engineer, other means of spreading and compacting may be permitted. The use of hand rakes will not be permitted. The Contractor shall use lutes where necessary.

Where suitable abutting curb or headers are not available, grade control forms satisfactory to the Engineer shall be provided for screening. No extra payment will be made for these forms, but the cost of these shall be deemed included in the price bid for this item. The forms shall be removed, or with the approval of the Engineer, may be left in place.

Mixture shall be laid only where the surface to be covered is free from loose or foreign material, dry, and only when weather conditions, in the opinion of the Engineer, are suitable.

The Contractor shall provide suitable means for keeping all small tools clean and free from bituminous accumulations.

Rolling and Compacting: Upon completion of the spreading of the top course mixture, the material shall be consolidated thoroughly and uniformly with self-propelled tandem rollers. The top course shall be free from roller marks.

Rollers used for compacting the top course shall be well balanced, self-propelled, tandem rollers, weighing between seven (7) and eight (8) tons. The roller shall have a compression under the rear wheel of between 200 and 300 pounds per linear inch of roll at a rate not exceeding 800 square yards per hour per roller. After compaction, the surface course shall have a density not less than 97% theoretical maximum density as determined by Appendix B of The Asphalt Institute Manual MS-2.

In locations inaccessible to the roller, the compression shall be effected with iron tampers weighing not less than twenty-five (25) pounds and having a bearing area not exceeding forty-eight (48) square inches, or other impact type equipment.

Joints: Construction shall be as nearly continuous as is possible. The roller shall pass over the end of the laid mixture only when a practical necessity. When the operation of laying is interrupted, the end of the laid material shall be left unrolled until such time as work is resumed, in order that there be no joints throughout the project. If it is necessary to roll the end of the laid mixture during construction, or permit traffic to pass over such temporary end, thus consolidating it, the joint so made shall be cut back before re-commencing the operation of laying, in order to present a fresh, clean surface for contact with the newly placed material. The edges of such joints shall be painted with liquid asphalt (RC-70 or MC-70)

and the use of hot smoothing irons in finishing such joints, shall not be permitted.

Finished Surface: The surface of the top course of the pavement after compression shall be smooth and true to crown and grade, free from depressions, waves, bunches, overlapping seams and unevenness in surface.

After the compaction of the top course the Contractor shall check the entire paved area for depressions, using a ten foot (10') wood or metal straight-edge. Any depressions greater than three-sixteenths of an inch (3/16") shall be corrected by removing the top course of the affected areas, and replacing with new material to form a true and even surface.

DEFECTS: Where defects in composition, compression or finish appear in the completed work, such finished areas shall be removed to the full depth of the course and the defective material replaced with the required thickness of pavement at the expense of the Contractor for such removing and replacing.

COLD WEATHER: Asphaltic pavement shall be mixed and placed in accordance with minimum placement temperature as specified in the following table:

MINIMUM PLACEMENT TEMPERATURES						
SURFACE TEMP. (F)	MAT THICKNESS IN INCHES					
	1/2"	3/4"	1"	1 1/2"	2"	3"
	TEMPERATURE OF THE MIX					
+32-40	--	--	--	305	295	280
+40-50	--	--	310	300	285	275
+50-60	--	310	300	295	280	270
+60-70	310	300	290	285	275	265
+70-80	300	290	285	280	270	265
+80-90	290	280	275	270	265	260
+90	280	275	270	265	260	255
ROLLING TIME MINUTES	4	6	8	12	15	15

Unless notified by the Engineer in writing, no material shall be mixed or placed when the temperature is at, or lower than 50 degrees F. Where paving between the temperatures of 33 and 50 degrees F is approved in writing by the Engineer, paving shall be permitted under condition that the Resident Engineer shall verify compliance with the minimum temperatures for both the temperature of the surface and temperature of the mix as shown in the chart above. The Contractor shall provide thermometers to verify compliance with the minimum requirements. No material shall be mixed or placed at temperatures of 32 degrees and below.

PRECIPITATION PROBABILITY: Placement of bituminous paving materials shall not be scheduled when the Precipitation Probability, obtained by the Contractor from the U.S. Weather Bureau within three (3) hours prior to the start of such operations, equals or exceeds fifty percent (50%). The Contractor shall notify the Engineer of the exact time at which the above information was obtained.

MEASUREMENT AND PAYMENT: The quantity of **FULL DEPTH ASPHALT PAVEMENT** to be paid for under this item shall be the number of **SQUARE YARDS** of full depth asphalt pavement furnished and placed to the lines and grades shown on the plans or as directed by the Engineer.

The price bid shall be a unit price per **SQUARE YARD** of full depth asphalt pavement, and shall include the cost of furnishing all labor, materials, and equipment, including inspection services, and other incidental expenses to complete the work in accordance with the plans and specifications and to the satisfaction of the Engineer, except excavation, which shall be paid for under their respective items..

All costs associated with plant inspections and laboratory tests shall be borne by the Contractor and shall be deemed included in the price bid for full depth asphalt pavement.

END OF PAGE

ITEM NO. 97 **CEMENT CONCRETE PAVEMENT**

WORK: Under these Items, the Contractor shall furnish and place **CEMENT CONCRETE PAVEMENT**, in accordance with the plans, specifications, and directions of the Engineer.

MATERIALS: Unless otherwise herein specified, all materials of construction shall comply with Section B, "Materials and Methods of Construction".

Pavement shall consist of a single course, thickness as shown on the plans or as directed by the Engineer, except driveways and quadrants, which shall be seven inches (7") thick to conform with N.Y.C. Department of Transportation Builders Pavement requirements. Detectable warning for pedestrian ramps shall comply with the Individuals with Disabilities Act (ADA) and be installed as shown on the plans.

Cement: Air Entraining Gray Portland Cement shall comply with the ASTM Specifications for Portland Cement, Designation C150.

Concrete Pavement: The pavement shall be consist of a single course, thickness and reinforcement as shown. Concrete shall conform to N.Y.C. Dept. of Transportation Class B-32, Type II A, air entrained, moderate sulphate resistant. The batch shall contain a minimum of six (6) bags of cement per cubic yard of concrete, maximum of six and one-quarter (6 1/4) gallons of water per bag, a maximum of three (3") inch slump, and compressive strength of 3,200 psi. Large aggregate shall be limited to one (1") inch. The Contractor shall, at the direction of the Engineer, or when quantities exceed 180 square yards, furnish a certified report by an approved Materials Testing Laboratory showing the sieve analysis for the aggregate in the concrete.

Foundation Base: Material for Foundation shall be a straight run of single size aggregate and shall consist of either all one and one-half (1 1/2") inch stone or all three-quarter (3/4") inch stone in accordance with ASTM C33, free from organic or other deleterious material. In addition, Foundation Material may contain no more than five (5%) percent of fines, defined as aggregates passing a No.4 sieve or smaller.

The Magnesium Sulfate Soundness loss after ten (10) cycles shall be eighteen (18%) percent or less, as per ASTM C88. Coarse aggregate may be one of the following:

- A. **Broken Stone or gravel** of approved quality and conforming to the requirements of Appendix Items, Section B, "Materials of Construction".
- B. **Recycled Material** consisting of at least ninety five (95%) percent by weight of the following:
 - 1. Recycled Portland Cement Concrete Aggregate or
 - 2. Recycled Portland Cement Concrete Aggregate mixed with Stone Gravel.

Laboratory Testing: The Contractor shall, at the direction of the Engineer, or when quantities

exceed thirty (30) cubic yards, furnish a certified report by an approved Materials Testing Laboratory showing the materials composition, sieve analysis, plasticity index, and soundness of the representative samples of recycled material they propose to use.

The Engineer shall deliver the samples to an independent testing laboratory. The Contractor shall bear responsibility for all costs associated with laboratory testing. No recycled material shall be delivered to the site until positive test results have been obtained. The Engineer reserves the right to reject, on or after delivery, any material, which does not, in their opinion, meet these specifications.

Expansion Joint: The expansion joint material shall be one of the following:

A premolded bituminous fiber joint filler, as specified in Section "B" (requires a bond breaker and sealant) or,

A premolded closed cell expanded polyethylene foam joint filler, such as Sonoflex F by Sonneborn Corporation, Shakopee, MN (requires only sealant) or,

an approved equal of any of the above.

Bond Breaker: If bituminous fiber material is used, a bond breaker such as one-half inch (1/2") width polyethylene tape or five-eighths inch (5/8") diameter expanded polyethylene foam backer rod shall be installed as recommended by manufacturer. A bond breaker will not be required for a premoulded foam joint or a shredded recycled rubber aggregate joint filler, but sealant is always required.

Sealant: Prepared expansion joints shall be coated with a primer followed by installation of a bond breaker and a self-leveling two-component polyurethane-based elastomeric sealant. The Contractor shall apply Sikaflex 429 primer with Sikaflex - 2C SL sealant, manufactured by Sika Corp., Lyndhurst, N.J.; or Sonneborn 733 primer with Sonolastic SL 2 sealant, by BASF Building Systems, Inc., Shakopee, MN, or approved equal. Color of sealant shall be concrete gray. Asphalt cement will not be approved as a sealant.

INSTALLATION:

Preparation of Fine Grade: Before any pavement is placed upon the fine grade, the fine grade shall be prepared to line and grade and compacted, where practicable, with an approved self propelling roller weighing not less than ten (10) tons. All hollows and depressions, which develop under rolling, shall be filled with acceptable material and shall again be rolled. This process of shaping, filling, and rolling shall be repeated until no depressions develop.

The Contractor shall remove from the subgrade all debris, foreign material, and all other undesirable material designated by the Engineer. The fine grade shall not be muddy or otherwise unsatisfactory when the pavement is placed upon it. If the fine grade becomes rutted or displaced, due to any cause whatsoever, the Contractor shall regrade same without additional payment.

Spreading: Material for foundation base shall be evenly spread on a prepared sub-grade in the position shown on the plans or directed by the Engineer, in four inch (4") layers, each layer to be rolled while wet with a seven (7) to (12) ton tandem roller (or other approved method satisfactory to the Engineer) to the thickness shown on the plans or as directed by the Engineer.

Forms: Forms shall be made of substantial material (preferably steel), with suitable metal dividing plates and of sufficient strength to satisfactorily resist distortion when fastened together and secured in place. Forms and dividing plates shall be of a depth not less than that of the thickness of the concrete slab, be properly located with tops set to the designated sidewalk surface, and be left in place until the concrete is set.

Construction: Foundation course shall be wetted immediately before concrete is placed. The concrete shall be placed within the forms and thoroughly tamped until the surface is at the finished grade. The top surfaces shall be finished to true smooth planes by trowelling, and finally, by wood floats. Each rectangular slab shall have all edges neatly rounded with proper tools and be bounded on all sides by a trowelled border about one inch (1") in width.

Slabs: Pavement shall be constructed in independent rectangular slabs, four (4') or five feet (5') long, or in approximately twenty foot (20') slabs between expansion joints, as shown on the plans or as directed by the Engineer. Sidewalks shall conform to NYCDOT Builders Pavement requirements; refer to Builders Pavement Plan if included in drawings. The expansion joints shall be constructed after every four hundred (400) square feet of concrete paving.

When pavement is constructed in independent slabs, they shall be separated by joints approximately one-quarter inch (1/4") wide. When twenty foot (20') slabs are placed, tooled dummy joints shall be provided as directed. Adjacent to structures, (manholes, hydrants, etc.) expansion joints and sealant shall be installed as directed.

Expansion Joint: For pavements located within DPR property, expansion joints shall conform to this specification. For sidewalks, the expansion joints shall conform to NYCDOT Builders Pavement requirements.

After the concrete is placed, finished and set, and the bond breaker, if necessary, installed, the space, as shown in the drawings, shall be filled with a joint sealant. Thoroughly clean expansion joints of dirt, loose particles, asphalt, tar, paint, wax, waterproofing, and curing compounds. When dry, apply primer to the clean dry surfaces by brushing on a thin, uniform coat. Allow primer to dry, tack free. Fill joint with joint filler where necessary and compressible backer rod and leave a one-half inch (1/2") deep void for placement of sealant. Cover adjacent sides of joints with masking tape to prevent spillage onto pavement.

Sealant: Fully mix the two component sealant and pour into joint slot in one direction and allow to flow and level out as necessary. Smaller joints can be filled from a bulk-loading gun. Fill joints from bottom to prevent air voids. Tool lightly to smooth out ripples and maximize adhesion to the sides of joints. If bubbles form, wait 5-10 minutes before tooling to break the bubbles. Remove excess

sealant promptly as the work progresses and clean adjacent surfaces. Remove masking tape.

Install sealant in accordance with manufacturer's instructions including allowable minimum temperature of 40 degrees Fahrenheit.

PROTECTION AND CURING: Pavement shall be carefully protected from the drying effects of the sun and wind, traffic, or other causes by means of suitable guards and coverings, and shall be kept moist for a period of three days. Curing shall be performed in accordance with Section B, Article 27, subheading p. 'Curing Concrete.' Concrete shall be kept moist for the required period or cured by application of a water based curing compound similar to Day-Chem Rez Cure (J-11-W) as manufactured by Dayton Superior Corp., Oregon, IL, or approved equal. When concrete is to be painted, the curing compound shall be removed first with a stripper such as Citrus Peel as manufactured by Dayton Superior Corp., Oregon, IL, or approved equal. Apply all products according to manufacturer's written instructions. Curing shall begin immediately after finishing.

SUBMITTALS: All submittals shall be in accordance with the requirements of the General Conditions.

Curing: The Contractor shall submit the method of curing they intend to use.

Mix Samples: The Contractor shall submit samples of the materials and mixtures they propose to use as directed. A sieve analysis of the aggregate for the concrete and the foundation material shall be submitted .

MEASUREMENT AND PAYMENT: The quantity of **CEMENT CONCRETE PAVEMENT** to be paid for under these Items shall be the number of **SQUARE YARDS** of pavement constructed, as shown on the plans or as directed by the Engineer.

The price bid shall be a unit price per **SQUARE YARD** and shall include the cost of all labor, materials, and equipment to furnish and place pavements, including fine grading, foundation base material, tar paper sleeves, laboratory testing (if necessary), expansion joint material, sealant, and incidental expenses necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

Excavation and Reinforcement will be paid for under their respective Items. Where pedestrian ramps are shown with Detectable Warnings, no deduction shall be made in the concrete pavement quantity. Detectable warning shall be paid for separately.

END OF PAGE

ITEM NO.98

ITEM DELETED

ITEM NO.99

PIPE HANDRAIL

WORK: Under these Items, the Contractor shall furnish and erect powder coated Pipe Handrail for the steps and /or ramps where shown on the plans or directed by the Engineer, in accordance with the plans and specifications. All handrail including extensions shall comply with Americans with Disability Act (ADA) provisions as described in ANSI A117.1-1998 (or the most recent edition).

MATERIAL: All posts and rails shall be galvanized steel pipe in accordance with A.S.T.M. Specification F-1 083 schedule 40. All material as delivered shall be in condition for erection without field fitting or cutting. Pipe handrail shall be as manufactured by Shannon Fence and Painting, Deer Park, NY or approved equal.

WELDING: Welding shall be done by competent mechanics as specified under Section B, "Materials and Methods of Construction" and all welds shall be ground smooth.

TOUCH-UPS AND REPAIRS: For minor damage caused by installation or transportation and field welded metal powder coated surfaces, clean welds, bolted connections, and abraded areas;

1. On damaged galvanized surfaces, apply organic zinc repair paint complying with ASTM A780. Galvanizing repair paint shall have 65 percent zinc by weight. Thickness of repair paint shall be not less than that required by ASTM A123.

ERECTION: The pipe handrail shall be attached to the galvanized steel fence as shown on drawings.

SUBMITTALS: All submittals shall be submitted in accordance with the requirements of the General Conditions.

Sample: Submit one twelve (12") inch section of galvanized, powder coated pipe for approval.

Shop Drawings: Contractor shall submit shop drawings in accordance of the requirements of the General Conditions. Piperail shall be fabricated in strict accordance with plans and shop drawings. Shop drawings to include complete details of fence construction, height, post spacing layout, dimensions, and concrete footing detail prior to manufacture.

Certificate: Contractor to submit certification that material used complies with this specification.

MEASUREMENT AND PAYMENT: The quantity of pipe hand to be paid for under this Item shall be the number of **LINEAR FEET** of powder coated handrail, including handrail extensions furnished and erected complete in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per **LINEAR FOOT** of handrail and shall include the cost of furnishing all labor, materials and equipment necessary to erect fence complete, including powder coating

and powder coating touch-up and all incidental expenses necessary to complete the work in accordance with the plans and specifications to the satisfaction of the Engineer.
Core drilling, if required, and concrete piers will be paid for under their separate items, "Core Drilling" and "Average Concrete".

END OF PAGE

ITEM NO. 100

ITEM DELETED

ITEM NO. 101

EQUESTRIAN FENCE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Equestrian Wire Fence.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For each fence material and for each color specified.

PART 2 - PRODUCTS

2.1 FLEXIBLE FENCES

A. Flexible Fences:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. 440 Back 40 Wire Rope Ranch Fence by Ameristar.
- b. Architect Approved Equal.

B. Posts: Round 2 3/8" 13 ga. Steel posts with PermaCoat factory applied finish.

C. Cable Fence: 1/2" high tensile galvanized steel braided cable enclosed in clear vinyl coating.

1. Steel Wire: 1/2" high tensile galvanized steel braided cable.
2. Plastic: Clear vinyl cable enclosure.

D. Brackets: Steel wire brackets with PermaCoat factory applied finish.

E. Color: Chosen by Architect from manufacturer's standards.

PART 3 - EXECUTION

3.1 FLEXIBLE FENCE INSTALLATION

- A. Install fences according to manufacturer's written instructions.
- B. Install fences by setting posts as indicated by manufacturer and fastening to fence and gate accessories according to manufacturer's written instructions.
- C. Post Excavation: Excavate holes to a diameter and a depth according to manufacturer's written instructions.
- D. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.

3.2 GATE INSTALLATION

- A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

PART 4 - MEASUREMENT AND PAYMENT

For furnishing and installing **EQUESTRIAN FENCES AND GATES**, in accordance with the plans, specifications, and directions of the Resident Engineer, the contractor shall receive the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM**, and shall include the cost of all labor, materials, equipment and incidentals necessary or required to complete the work in accordance with the plans and specifications and to the satisfaction of the Resident Engineer.

END OF PAGE

ITEM NO. 102

STEEL FACED CONCRETE CURB

WORK: Under this item, the Contractor shall furnish and incorporate in the work, steel faced curb with backing and foundations of poured concrete, at the locations shown on the plans and in accordance with these specifications.

MATERIALS: Unless otherwise herein specified, all materials and methods of construction shall comply with Appendix Item, Section B, "Materials and Methods of Construction.

Cement: Air Entraining Portland Cement shall comply with the ASTM Specifications for Portland Cement, Designation C150.

Concrete: Concrete shall conform to N.Y.C. Department of Transportation class B-32, Type IIA, air entrained, moderate sulphate resistant. The batch shall contain a minimum of six (6) bags of cement per cubic yard, a one and one-half (1 ½") to four (4") inch slump, and compressive strength of 3,200 psi. Large aggregate shall be limited to one (1") inch.

Steel Facing: Steel facing shall be in accordance with the standard details for steel faced curb-Steel Facing Type D - Bent Plate of the New York City Dept. of Transportation. The steel facing shall be bent to the radius shown on the plan provided with straight tangents at the ends, three (3) feet in length, and shall be provided with anchors of the shape and size and attached at such points as shown.

Steel Rods: Steel rods for anchoring the steel facing in the concrete shall conform with Section B.

Finish: Steel facing shall receive three coats of paint. Steel surfaces shall be clean and rust free.

First Coat (Shop Applied): Kem Kromik Universal Metal Primer, B50Z Series, color shall be Buff, as manufactured by Sherwin Williams Company, Woodside, NY or approved equal. Primer is an alkyd resin , flat finish coating having a dry film thickness of 3 to 4 Mills. Paint requires 16 hours @ 77° F before recoating. Performance shall meet or exceed the standards of Federal Spec. TT-P-86H, Type III & IV.

Second and Third Coats: Sherwin Williams A-100® Exterior Latex Flat, A6 Series, Steely Gray (SW2120), as manufactured by Sherwin Williams Company, Woodside, NY or an approved equal. Flat finish , 100 % acrylic latex coating having a dry film& (Field thickness of 1.3 mils. Requires 4 hours (@ 77 drying time before recoating. Applied)

Expansion Joint: The expansion joint material shall be one of the following:

A premoulded bituminous fiber joint filler, as specified in Section "B" (requires a bond breaker and sealant) or,

A premoulded closed cell expanded polyethylene foam joint filler, such as Sonoflex F by Sonneborn Corporation (requires only sealant), Shakopee, MN, or,

an approved equal of any of the above.

Bond Breaker: If bituminous fiber material is used, a bond breaker such as one-half inch (1/2") wide polyethylene tape or five-eighths inch (5/8") diameter expanded polyethylene foam backer rod shall be installed as recommended by the manufacturer. A bond breaker will not be required for a premoulded foam joint, but sealant is always required.

Sealant: Prepared expansion joints shall be coated with a primer followed by installation of a bond breaker and a self-leveling two-component polyurethane-based elastomeric sealant. Contractor shall apply Sikaflex 429 primer with Sikaflex - 2C, SL sealant, or Sonneborn 733 primer with Sonolastic SL 2 sealant or approved equal. Color of sealant shall be concrete gray. Asphalt cement will not be approved as a sealant.

Sikaflex products are manufactured by Sika Corp., Lyndhurst, NJ. Sonolastic products are manufactured by Sonneborn and Chem Rex Inc., Shakopee, MN.

METHODS OF CONSTRUCTION: The steel faced curb shall be set on a concrete foundation and backed with concrete for a width of eight (8) inches from the face of the curb, as shown on the standard detail "Street Curbs and Ramps" of the Department of Parks. The steel facing shall be placed within forms, upon suitable chairs to the proper line and grade. The concrete shall be poured carefully into the forms and worked around anchors in a workmanlike manner. It shall be placed in sections equal in length to length of steel angle, and the ends provided with expansion joints as required.

Care shall be taken when installing curbs that all the requirements of Appendix Item, Section A, "Tree Protection" shall be followed. In addition, where tree roots of one (1") inch or greater are encountered, or if directed by the Director of Landscape Construction or his designated representative, the DPR Standard Detail for Root Bridging shall be used.

Forms: Forms shall be metal or planed lumber of sufficient thickness to resist distortion, support the front face of the steel curb, and be rigidly held in position during construction.

Pouring Concrete: The concrete shall be poured into forms behind the steel facing. It shall be worked around the anchors of the steel facing to insure satisfactory bond.

The top of concrete shall be finished by troweling and wood floating.

The concrete shall be carefully protected against injury from rain, frost, the drying effects of sun and wind, traffic or other causes by means of suitable guards and covering and shall be

kept moist as required.

MEASUREMENT AND PAYMENT: The quantity of steel faced concrete curb to be paid for shall be the number of **LINEAR FEET** including radial curb, constructed in accordance with the plans and specifications and directions of the Engineer.

The price bid shall be a unit price per **LINEAR FOOT** of curb furnished and incorporated in the work, and shall include the cost of furnishing all labor, material, and equipment, including steel facing, expansion joints painting and all incidentals necessary to complete the work in accordance with plans and specifications, to the satisfaction of the Engineer.

Excavation, Saw Cutting and Restoration of Street Pavement shall be paid for under their respective items.

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ITEM NO. 103
ITEM NO. 104

REMOVE AND RESET CONCRETE WHEEL STOP
PRECAST CONCRETE WHEELSTOP

WORK: Under these items, the Contractor shall furnish and install **PRECAST CONCRETE WHEEL STOP** and **REMOVE AND RESET CONCRETE WHEEL STOP**, in accordance with the plans, specifications, and directions of the Engineer.

MATERIALS: Unless otherwise herein specified, all materials and methods of construction shall comply with Section B, "Materials and Methods of Construction."

Precast Concrete Wheel Stop: Size and shape of wheel stop shall match existing. Concrete shall have a compressive strength of 5,000 psi. No chipped, broken or checked stone will be accepted. Checked stone shall be defined as stones showing fine hair cracks or checks on the surface. All wheel stop which are discolored, injured or defaced through handling or setting, shall be replaced by the Contractor at his own expense.

Steel Reinforcement: Reinforcement shall meet the requirements of Section B, "Materials and Methods of Construction".

Dowels: Anchoring dowels shall be No. 6 epoxy coated steel reinforcement bars, 1'-6" long minimum to secure the wheel stop.

EXECUTION:

Remove Existing Wheel Stop: The Contractor shall carefully remove and salvage the existing concrete wheel stops for re-installation.

Installation: Existing and new wheel stops shall be installed in accordance with the plans. Wheel stops shall be set on pavement and anchor dowels shall be driven down through pre-drilled holes in the wheel stop and into the pavement. Steel dowels shall be flush with the top of the wheel stop. New dowels shall be installed for the existing wheel stops.

MEASUREMENT AND PAYMENT: For furnishing and installing **PRECAST CONCRETE WHEEL STOP** and to **REMOVE AND RESET CONCRETE WHEEL STOP**, in accordance with the plans, specifications, and directions of the Engineer, the Contractor shall receive the unit price bid.

The price bid shall be a unit price for **EACH** Precast Concrete Wheel Stop and **EACH** Concrete Wheel Stop resetted and shall include the cost of all labor and materials, including the precast concrete wheel stop, epoxy coated steel anchor dowels, storing and re-installing existing wheel stops, and all incidental expenses necessary to complete the work, in accordance with the plans and specifications, to the satisfaction of the Engineer.

END OF PAGE

ITEM NO. 105 THERMOPLASTIC HFPRM - ARROW

WORK; Under the items the Contractor shall furnish and install Thermoplastic Heat Fused Preformed Reflective Markings, (hereafter known as Thermoplastic HFPRM) in accordance with the plans, specifications and directions of the Engineer. The markings include symbols.

DESCRIPTION: Typical symbols and word messages are shown on the plans. Markings shall include, but not be limited to the following word messages and symbols:

Traffic Lane Arrows: in parking level as shown on contract drawings.

MATERIAL: The Preformed Markings shall be capable of adhering to asphaltic concrete and cement concrete pavements by means of heat fusion. Adhesives, primers or sealers shall not be used prior to the preformed markings application on pavements. They shall be very durable, oil and grease impervious and provide immediate and continuing retroreflectivity. Preformed markings shall be as manufactured by American Reflective Products, Bedminster, NJ, or approved equal.

The Preformed Marking material shall consist of a resilient white, green and yellow polymer thermoplastic with uniformly distributed glass beads throughout its entire cross section, and shall conform to the current edition of the Manual of Uniform Traffic Control Devices for Streets and Highways as issued by the U.S.A. Federal Highway Administration.

The preformed markings shall conform to pavement contours, breaks and faults through the action of traffic at normal pavement temperatures. The markings shall have resealing characteristics and be capable of fusing to itself and previously applied worn hydrocarbon and/or alkyd thermoplastic pavement markings.

The Preformed Markings shall be capable of application on new, dense and open graded asphalt concrete wearing courses during the paving operation in accordance with the manufacturer's instructions. After application, the markings shall be immediately ready for traffic. The preformed markings shall be suitable for use for one (1) year after the date of receipt when stored in accordance with the manufacturer's recommendations.

The Preformed Markings shall not be brittle and must be sufficiently cohesive and flexible at temperatures exceeding 50 degrees F for one person to carry without the danger of fracturing the material prior to application. They shall be highly durable retroreflective pliant polymer thermoplastic materials designed for transverse, longitudinal, legend and symbol markings subjected to high urban traffic volumes and particularly severe wear conditions such as repeated shear action from crossover or encroachment on typical configurations such as crosswalks, edge lines and lane lines.

Composition: The markings shall consist of a homogeneous mixture of high quality polymeric

thermoplastic binders, pigments, fillers and glass beads. The thermoplastic material must conform to AASHTO designation M249-79(86) with the exception of the relevant differences due to the material being preformed. They shall contain a minimum of 30% glass spheres which shall conform to AASHTO M247-81 Type 1, except that glass spheres shall have a minimum of 70% true spheres on each sieve and 80% true spheres overall. The glass beads must be homogeneously blended throughout the material with a securely bonded protruding exposed layer of beads that provide immediate and continuous retroreflectivity; no additional glass beads shall be dropped on the material during application. Curved arrows must be available without protruding glass beads if reversibility is needed.

Retroreflectivity: The preformed markings shall, upon application, exhibit uniform adequate nighttime retroreflectivity. At 86 degree 30' incidence angle and 1 degree 30' divergence angle, the markings shall have average minimum intensities of 350 millicandelas for white and 175 millicandelas for yellow as measured with a Mirolux retroreflectometer.

Color Characteristics: The thermoplastic material without glass beads shall meet the following:

White: Daylight reflectance at 45 degree/ 0 degree of 80% minimum.

Yellow: Daylight reflectance at 45 degree/ 0 degree of 45% minimum.

The daylight reflectance shall not change significantly when the preformed thermoplastic is properly applied to the roadway surface. Yellow material shall not degrade when exposed to heat placed by appliance torch.

For highway use, the white markings shall contain a minimum of 8% by weight of Titanium Dioxide pigment. Yellow color shall reasonably match color chip number 13538 of Federal Standard number 595 and be lead free.

Green shall be American Reflective Products- (Magna code #912-1), or approved equal.

Skid Resistance: The surface of the preformed thermoplastic markings shall provide a minimum skid resistance value of 55BPN when tested according to ASTM E303-74.

Thickness: The width of the supplied material shall have a minimum average thickness of .090 inch (2.3mm), (Expressed as 90 mils), except for lanes markings and symbols for Park paths which shall be 60 mils.

Tensile Strength and Elongation: The preformed thermoplastic film shall have a minimum tensile strength of 150 lbs. per square inch of cross section, at 90 mil (2.3mm) thickness, when tested according to ASTM-D-638-76 except that a sample 6" by 1" shall be tested at a temperature between 70 degrees F and 80 degrees F using a jaw speed of 10" to 12" per minute. The sample shall have a maximum elongation of 20% at break when tested by this method.

Environmental Resistance: The applied markings shall be resistant to deterioration due to exposure to sunlight, water, oil, diesel fuels, gasoline, pavement oil content, salt and adverse weather

conditions.

Effective Performance Life: When properly applied, in accordance with manufacturer's instructions, the pavement markings shall be neat and durable. The markings shall remain retroreflective and show no fading, lifting, shrinkage, tearing, roll back or other signs of poor adhesion and shall not dissolve or smear after rubbing a small amount of motor oil on a small piece of preformed thermoplastic for two (2) minutes.

INSTALLATION: The markings shall be applied in strict accordance with the manufacturer's recommendations on clean and dry surfaces. New concrete surfaces must be sandblasted to entirely remove curing compound. No additional payment will be made for said sandblasting, the cost therefore shall be considered part of the price bid for this item.

Marking configuration shall be in accordance with the "Manual on Uniform Traffic Control Devices".

The work included under this item shall be done in a neat, workmanlike manner, pleasing to the eye, and shall be kept straight so far as total alignment is concerned. To insure alignment, the Contractor shall snap guidelines. Spotting, spilling, or other marking of the roadway with marking material will not be tolerated, especially if due to carelessness or lack of skill on the part of the Contractor, and must be removed by the Contractor.

SUBMITTALS: All submittals shall be in accordance with the requirements of the General Conditions.

Samples: The Contractor shall submit the following for approval:

One four inch (4") by four inch (4") sample of the HFPRM material.

One drawing, at a reasonable scale, of each symbol to be used in this contract.

MEASUREMENT AND PAYMENT: The quantity of **THERMOPLASTIC HFPRM-ARROWS** and **SYMBOLS** to be paid for under this item shall be the number of **EACH** type furnished and installed complete in accordance with plans and specifications and directions of the Engineer.

For furnishing and installing **THERMOPLASTIC HFPRM-WORD MESSAGES** the Contractor shall be paid for **EACH** letter of word message furnished and installed in accordance with the plans, specifications and directions of the Engineer.

The prices bid shall be a unit price for **EACH** Arrow or Symbol and **EACH** letter included in each word message and shall include the cost of all labor, material and equipment necessary, including preparing pavements for application, and all incidental expenses necessary to complete the work in accordance with the plans, specifications and directions of the Engineer.

Lane and Center lines (where shown on the drawings) shall be paid under the item "Thermoplastic Extruded line-4" width".

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ITEM NO. 106 ITEM DELETED
ITEM NO. 107 BICYCLE RACK

WORK: Under this item the Contractor shall furnish and erect a Bicycle Rack in accordance with the plans and specifications and directions of the Engineer.

MATERIALS: Pipe shall be standard weight schedule 40, hot-dipped galvanized steel pipe of sizes shown on the plans in accordance with A.S.T.M. Specification A-120, except that pipe shall be unthreaded and untested for water pressure.

EXECUTION:

Basis of Design Product: NYCDOT "Cityrack" Circle Rack "or approved equal".

Frame: Ductile Iron ASTM A536, Grade 60-40-18

Finish: Hot dipped galvanized, ASTM 123

Comply with manufacturer's written installation instructions.

Install level plumb, true, securely anchored and positioned at location indicated on Drawings.

MEASUREMENT AND PAYMENT: For furnishing and erecting Bicycle Rack, complete in accordance with the plans and specifications and directions of the Engineer, the Contractor shall receive the unit price bid.

The price bid shall be a unit price for EACH bicycle rack and shall include the cost of all labor, materials, equipment, and incidental expenses necessary to complete the work including excavation and concrete footings. In accordance with the plans and specifications, to the satisfaction of the Engineer.

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ITEM NO. 108
ITEM NO. 109

THERMOPLASTIC HFPRM- A.D.A. PARKING SYMBOL
THERMOPLASTIC HFPRM -PARKING LINES-4" WIDTH

WORK: Under this item the Contractor shall furnish and install various **THERMOPLASTIC HEAT FUSED PREFORMED REFLECTIVE MARKING (hereafter known as THERMOPLASTIC HFPRM)**, primarily (but not exclusively) for the purpose of compliance with the **AMERICANS WITH DISABILITIES ACT (A.D.A.)**. Markings include **A.D.A. PARKING SYMBOL, A.D.A. ROUTE SYMBOL and PARKING LINES-4" WIDTH**, installed in accordance with the plans, specifications, directions, and the direction of the Engineer.

New York City DOT Designations: The following codes are the applicable NYC DOT codes for the respective symbols:

MATERIAL: The Preformed Markings shall be capable of adhering to asphaltic concrete and cement concrete pavements by means of heat fusion. Adhesives, primers or sealers shall not be used prior to the preformed markings application on pavements. They shall be very durable, oil and grease impervious and provide immediate and continuing retroreflectivity.

Unless otherwise herein specified, all materials of construction shall comply with Appendix Item, Section B, "Materials and Methods of Construction".

The graphic shall be a thermoplastic compound that is prefabricated and installed on site and shall contain a minimum of 35% glass beads as part of the aggregate in the material to act as the basic reflective material. The graphics shall be in colors as shown on the drawings and shall be manufactured by Surface Signs, Middle Village, NY, or approved equal.

A.D.A. Parking Symbol: Shall consist of a solid 3 foot by 4-foot rectangular shaped background with a 32" inch wheelchair symbol as shown on the drawings.

Parking Lines: for A.D.A. parking spot shall be 4 inches in width.

Colors for Symbols/lines shall be as follows (unless otherwise shown on the drawings):

Background - Aqua blue
Wheelchair Symbol - white
Directional Arrow - white
Parking lines-aqua blue or white (per drawing)

The thermoplastic material shall be 100% virgin stock, using no reprocessed materials. Pigments, beads and filler shall be uniformly dispersed in the resin. The material shall be free of all skins, dirt and foreign materials.

The manufacturer has the option of formulating the thermoplastic material according to his/her own specifications. However, the manufacturer shall meet the minimum requirements specified herein, including but not limited to, composition, physical characteristics, etc. The physical and chemical properties contained in this specification shall apply regardless of the type of formulation used.

The thermoplastic graphics shall be of an alkyd type and the material shall consist of the following:

- 20% - Bonding Agent (Minimum)
- 35% - Titanium and white filler
- 10% - White sand
- 35% - Glass Beads (Minimum)

The following physical specifications shall be strictly adhered to:

(a) The Contractor shall furnish a laboratory report of the material, consisting of the following tests:

- | | |
|------------------------------------|---------------------------------------|
| 1. Color Retention | ASTM D620-57T |
| 2. Indentation | ASTM D2240-68 |
| 3. Flexibility | ASTM D747 |
| 4. Binder Content | ASTM D4797 |
| 5. Titanium Dioxide Content | X-Ray Fluorescence ASTM D476 - Type 2 |
| 6. Glass Beads | ASTM D1155 |
| 7. Condition of Wetness | ASTM E2177 |
| 8. Condition of Continuous Wetness | ASTM E2176 |

(b) Color Retention: The retention of the initial color shall be determined as follows:

Specimens shall be prepared and tested from samples submitted in accordance with ASTM designation D620-57T, "Tentative method of test for color fastness of plastic; Ultra Violet Light and Condensate Exposure, ASTM G53, 300 hours total, alternate 4 hours condensate exposure at 40 deg.C, 4 hours UV exposure at 60 deg. C.

(c) Indentation Resistance: The reading of the shore durometer, Type A2, as described in ASTM designation D2240-68, after fifteen seconds shall not be less than 95 when the material is tested after heating for four hours at 400 deg. F, and cooled at 75 deg. F.

(d) Cracking Resistance: At low temperatures after heating the thermoplastic material for 4 hours at 218 deg. C (425 deg. F), applied and cooled to -9.4 +/-1.7 deg. C (15 +/-3 deg. F) the thermoplastic material shall show no sign of cracking or chipping.

(e) Glass beads: The glass spheres shall be colorless, clean, transparent, free from milkiness or excessive air bubbles and essentially clean from surface scarring or scratching. They shall be spherical in shape and at least 70% of the glass beads shall be true spheres when tested in accordance with ASTM D1155. The refractive index of the spheres shall be a minimum of 1.50 as determined by the liquid immersion method at 25 deg. C.

(f) General Characteristics: The thermoplastic material shall be readily applicable at temperatures between 200 & 250 deg. F from the approved equipment to produce graphics and symbols of the required thickness as described in the contract document. The thermoplastic material shall not deteriorate or discolor when held at the application temperature.

The compound shall not deteriorate by contact with sodium chloride, calcium chloride, or other chemicals used against formation of ice on roadways or streets, or because of the oil content of pavement materials, or from oil droppings from traffic. Deposits of dirt, tar, road material, tires, or other foreign material shall not adhere to the installed line. The line shall not blacken or discolor after vehicles pass over the line.

(g) Other Requirements: Thermoplastic material shall not emit fumes that are toxic or injurious to persons or property when it is heated to application temperature. The material shall not emit excessive smoke during heating or application.

INSTALLATION: Thermoplastic graphics are not to be applied below 40 deg. F, or on wet pavements, or during periods of high humidity, except with special permission of the Engineer. Before proceeding to install any graphics, the Contractor shall clean the area of the surface to be marked, and make certain that the pavement is free of dirt, foreign material, oil, etc. A.D.A. Symbol shall be placed as shown on the plans.

The work included herein shall be done in a neat, professional manner, pleasing to the eye, and shall be kept straight so far as total alignment is concerned. The graphics shall be protected from both vehicular and pedestrian traffic until it is set. Final layout of the graphics shall be approved by the Landscape Architect before heat is applied to make the graphics permanent. The arrow on the A.D.A. Route Symbol shall point in the direction of the designated accessible route.

SUBMITTALS: All submittals shall be in accordance with the requirements of the General Conditions, Section C, Special Provisions, Article 11 and be submitted prior to manufacture.

Approval: The Contractor shall submit for approval complete details of the thermoplastic pavement graphics system he proposes to use. The specifications of all information (products or systems, manufacturer's names, product description, technical and laboratory data) as may be required to demonstrate to the satisfaction of the Engineer that the system the Contractor proposes to use meets the requirements of these specifications.

Guarantee: Contractor shall submit a five- (5) year Manufacturer's guarantee against fading and peeling.

Samples: The Contractor shall submit one four inch (4") by four inch (4") sample of each color to be used in this contract. No work shall be performed until the color samples are approved.

MEASUREMENT AND PAYMENT: The quantity of **THERMOPLASTIC HFPRM SYMBOLS** to be paid for under this item shall be the number of symbols of **EACH** type furnished and installed in accordance with the plans, specifications and directions of the Engineer.

The price bid shall be a unit price for **EACH** Thermoplastic HFPRM symbol, and shall include the cost of all labor, materials, equipment, and incidentals expenses, including but not limited to, site preparation, installation in accordance with the manufacturers recommendation, submittals all in accordance with the plans and specifications, to the satisfaction of the Engineer.

MEASUREMENT AND PAYMENT: The quantity of **THERMOPLASTIC HFPRM PARKING LINES-4" WIDTH**, to be paid for under this item shall be the number of **LINEAR FEET**, furnished and installed in accordance with the plans, specifications and directions of the Engineer. Payment for lines other than 4" wide will be based upon the equivalent of four inch lines, (for example, an eight inch line would be paid at two linear feet for each one foot of line).

The price bid shall be a unit price per **LINEAR FOOT** and shall include the cost of all labor, materials and equipment, and incidentals necessary to complete the work in accordance with the plans and specifications to the satisfaction of the Engineer.

END OF PAGE

ITEM NO. 110

A.D.A. SIGNS

WORK: Under this item the Contractor shall furnish and install various types of Americans with Disabilities Act Signs, hereafter known as **A.D.A. SIGNS**, in accordance with the plans, specifications, and directions of the Engineer.

MATERIALS: Unless otherwise specified, all materials shall meet the requirements of Section B, "Materials and Methods of Construction".

A.D.A. SIGNS: Signs shall be made of thermally stabilized reflective aluminum alloy, Engineer grade, 0.080" in thickness. Each sign blank shall be cut from one piece of aluminum, and shall be free from wind, buckle, dents or twist. Welded or jointed sign blanks will not be accepted. All edges shall be filed or ground smooth, leaving the entire blank free from sharp edges and burrs. All corners shall be rounded with a one half ($1/2$) inch radius corner or as indicated on the plans. Color of signs shall be blue and white. Signs shall be manufactured by Street Signs USA, Binghamton, NY, Corcraft, Napanoch, NY, or approved equal.

Signs shall be weather-resistant, and following cleaning shall show no appreciable discoloration, cracking, blistering, or dimensional change, and retain not less than 80% of the specified minimum brightness values when exposed to accelerated weathering in accordance with ASTM D822, latest revision.

All signs shall be punched with three-eighths ($3/8$) inch diameter holes as necessary for proper center or flag-mounting according to the plans. Holes shall be a minimum of one (1") inch from the edges. The distances between holes must be accurately maintained to permit interchangeability of signs on existing sign brackets or posts, if necessary.

The four different types of signs shall be as follows:

- **Reserved Accessible Parking:** Reserved accessible parking sign shall conform to M.U.T.C.D. Sign No. R7-8. Size of sign shall be 12" x 18", similar to model no. "usa-r7-8nra5" as manufactured by Street Signs USA, or approved equal.
- **Van Accessible Parking:** Van Accessible parking sign shall be 12" x 18", similar to model no. "usa-g-64ra5" as manufactured by Street Signs USA, or approved equal.
- **Preferred Parking for Carpools and Vanpools:** parking sign shall be 12" x 18", similar to model no. "usa-g-64ra5" as manufactured by Street Signs USA, or approved equal.
- **Preferred Parking for Low Emitting or Fuel Efficient Vehicles:** parking sign shall be 12" x 18", similar to model no. "usa-g-64ra5" as manufactured by Street Signs USA, or approved equal.

FASTENERS AND HARDWARE: Any visible portion of mounting brackets and the heads of exposed fasteners shall match sign color specified. Fasteners shall be stainless steel or zinc coated and shall be $2\ 1/2$ " x $5/16$ ". Attachment and installation methods shall be in accordance with best practices using devices and fasteners to suit the conditions of the surface to receive the installation. All fasteners and hardware shall be vandal-proof.

A. Horizontal Sign Clearance: Horizontal sign clearance shall be as shown on the plans and in accordance with the following manuals.

B. Vertical Sign Clearance: Vertical sign clearance shall be as shown on the plans and in accordance with the following manuals.

C. Sign Face Layout: Sign face layout shall be as shown on the plans and in accordance with the following manuals.

1. Metric Standard Sheets, NYS Department of Transportation, latest revision.
2. Manual of Uniform Traffic Control Devices for Streets and Highways, latest edition.
3. New York State Manual of Uniform Traffic Control Devices, latest edition.
4. Any and all other rules, laws or regulations regarding signage.

INSTALLATION:

Sign Locations: Prior to installation, the Contractor shall stake out the location of all signs as shown on the plans. The Contractor shall verify sign locations with the Landscape Architect prior to installation. Signs shall be installed in accordance with ADA Standards for Accessible Design, 28 CFR Part 36, and Section A4.6.4. Accessible parking spaces shall be designated as reserved by a sign showing the symbol of accessibility. Such signs shall be located so they cannot be obscured by a vehicle parked in the space.

A.D.A. Signs shall be installed in accordance with the Contract drawings, Standard Details, and as directed by the Engineer, using the specified hardware. Contractor shall supply all necessary mounting brackets, nuts, and bolts to mount the signs on a steel drive rail, existing fence, or other supports as shown on the drawings. All bolts shall be cut and peened after installation is complete.

A.D.A sign may be installed on a steel drive rail or an existing or new chain link fence, steel fence, walls, poles or other structure. Unless otherwise shown, sign installation shall be assembly edge mounted on steel drive rail. Steel drive rail shall be furnished, installed and paid for under its own item.

SUBMITTALS: All submittals shall be submitted prior to manufacture and in accordance with the requirements of the General Conditions.

Shop Drawings: Contractor shall submit shop drawings showing the layout of sign fabrication, sizes and shapes of members. Contractor shall also submit proposed graphics, including typography, symbols and/or graphics for approval.

Samples: Upon request, samples of all materials and products, color samples, and all finishes shall be submitted for approval prior to fabrication.

PAYMENT SCHEDULE: The Contractor will be paid at the following rates for the different A.D.A. Signs:

<u>SIGN TYPE</u>	<u>PAYMENT PER SIGN</u>
Reserved Accessible Parking	100% of unit price bid
Van Accessible Parking	100% of unit price bid
Preferred Parking for Carpools and Vanpools	100% of unit price bid
Preferred Parking for Low Emitting or Fuel Efficient Vehicles	100% of unit price bid

MEASUREMENT AND PAYMENT: The quantity of **A.D.A. SIGNS** to be paid for under this item shall be the number of **EACH** sign provided, calculated based on the payment schedule, and installed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price for **EACH** A.D.A. Sign furnished and installed and shall include the cost of all labor, materials, equipment, hardware and all incidental expenses necessary to complete the work in accordance with the plans, specifications and directions of the Engineer.

Drive rail, where required shall be paid for under DPR Standard Item "Steel Drive Rail".

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ITEM NO.: 111

STEEL DRIVERAIL

WORK: Under this item the Contractor shall furnish and install Steel Driverail, including footings, in accordance with the plans, specifications, directions of the Engineer and Bureau of Traffic Operations (BTO) Standard drawings. The steel driverail shall be installed as shown on, and in locations specified on, the drawings.

MATERIALS: Steel Driverail shall be a single length of flanged channel section steel that shall weigh three (3) pounds per foot. Length shall be twelve (12) feet.

The minimum dimensions of posts shall be as follows:

<u>Width of Flange Face</u>	<u>Width of Back</u>	<u>Depth from Face of Flange to Back</u>
3 3/8"	1 7/8"	1 3/4"

Post shall be rolled and fabricated from billet steel in accordance with A.S.T.M. Specification A576-79 or Rail Steel in accordance with A.S.T.M. Specification 499-81. Post shall have a ribbed back as per the drawings. Post shall be pre-punched with 3/8th inch holes on one (1") inch centers for it's entire length.

The finished post shall be machine straightened and have a smooth uniform finish free from cracks, flaws, injurious seams, laps, blisters, ragged, sharp and imperfect edges, or other defects affecting strength, durability or appearance.

All posts shall be painted with a weather-resistant, rust-prohibitive, high-quality, dark green enamel, which shall produce a hard, mar-resistant coating, free from paint cracks, blisters or other defects. Before painting, all posts shall be thoroughly cleaned of all dirt, rust, loose scale, oil or grease. The quality of the paint and prior preparation shall be such that when the finished post is struck with a light blow with a sharp tool, the paint shall not crack or chip, and if scratched with a knife, shall not powder. The minimum thickness of the dry film enamel shall be one mil.

The painted post shall pass a standard 100 hour salt spray test (203 solution by spray or fog at 21.11 degees centigrade). Painting shall be the final process after fabrication and punching has been completed.

Concrete Footings: Concrete for footings shall be Class B-32, Type IIA: Cement shall be Portland - Type II, Sand shall be Type 1A, Coarse aggregate shall be Type 1, grade B or type 2, size no. 57. Concrete shall include an approved air-entraining agent which shall be added at the time the concrete is mixed.

Concrete Wall: Concrete wall shall be as per concrete specification Item #97.

INSTALLATION: Steel Driverails shall be installed in new concrete wall or asphalt pavement or earth, as shown on drawings.. The work shall include cutting or coredrilling, excavation, backfilling, the restoration of pavements or landscapes and the placement of concrete footings, if required. The

Driverail shall be installed perfectly plumb and at the proper orientation for placement of signs.

The Contractor shall saw cut a neat hole in the concrete wall, pavement or asphalt (or dig a hole in the earth), and excavate to the required depth, then pour the concrete and install the sign post in the fresh concrete, as shown on the drawings. The concrete mix and placement shall meet the requirements of the applicable portions of Appendix Item, Section B "Materials and Methods of Construction", for average concrete. The exposed surface shall be troweled to a neat, smooth finish, sloped to provide drainage away from the post.

MEASUREMENT AND PAYMENT: For furnishing and installing Steel Driverail in accordance with the plans, specifications and directions of the Engineer, the Contractor shall receive the unit bid price.

The price bid shall be a unit price for **EACH** Steel Driverail furnished and installed and shall include the cost of all labor, material and equipment required to complete the work, including sawcutting, excavation, removals, backfilling, average concrete, and site/pavement restoration, all in accordance with the plans, specifications and the directions of the Engineer.

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ITEM NO. 112 ITEM DELETED

ITEM NO. 113 TOPSOIL FOR SEEDED AREAS

WORK: Under this Item, the Contractor shall furnish, place, and incorporate **TOPSOIL FOR SEEDED AREAS** in accordance with the plans, specifications, and directions of the Engineer. The Contractor shall be liable for any damage to property caused by topsoil operations and all areas and construction disturbed shall be restored to their original condition, to the satisfaction of the Engineer.

MATERIALS:

Topsoil: Shall be a sandy/ loam, friable soil that has been removed to a depth of one foot (1') or less, if subsoil is encountered. Topsoil shall be of uniform quality, free from hard clods, stiff clay, hard pan, sods, partially disintegrated stone, lime, cement, ashes, slag, concrete, tar residues, tarred paper, boards, chips, sticks, or any other undesirable material. No topsoil shall be delivered in a frozen or muddy condition.

Topsoil shall be provided by Island Topsoil, Syosset, NY; American Landscape Supply Limited, Huntington Station, NY or approved equal.

1. Organic Content: Topsoil shall contain at least three percent (3%) organic matter determined by loss on ignition, of moisture-free samples dried in accordance with the current method of the Association of Official Agricultural Chemists. The organic content shall not exceed eight percent (8%).

2. The acidity range shall be pH 6.0 to pH 7.2 inclusive.

3. Soil Textural Analysis: Topsoil shall consist of the following percentages of sand, silt and clay. Any soil that does not meet the requirements below will be rejected and removed from the site. When directed by Landscape Construction, the Contractor may be granted permission to screen delivered topsoil in order to achieve particle size compliance. Additional testing at the Contractor's expense will be required to confirm compliance after completion of on-site screening.

Sand (0.05 to 2 mm)	40% to 75%
Silt (0.002 to 0.05 mm)	15% to 65%
Clay (<0.002 mm)	20% maximum

4. Electrical Conductivity shall be maximum 1.50 mmhos/cm. A higher level would indicate excessive salt content and material will be rejected and removed from the site.

5. Nutrients: Topsoil test results shall show recommendations for soil additives or fertilizers to correct nutrient deficiencies as necessary. Soil additives and fertilizers shall be incorporated as necessary at the Contractor's expense. Follow the fertilizer recommendation as provided by the required laboratory.

The Contractor shall at the direction and discretion of the Engineer, or when quantities exceed one hundred (100) cubic yards, furnish a certified report of an approved Analytical Chemist showing the analysis of representative samples of the topsoil which they propose to use. All samples are to be

received by the Engineer and delivered to the laboratory, and the price bid shall include inspection and laboratory charges. Samples shall be submitted 48 hours prior to the delivery of topsoil.

No topsoil shall be delivered until the approval of samples by the Engineer, but such approval shall not constitute final acceptance. The Engineer reserves the right to reject on or after delivery any material that does not, in their opinion, meet these specifications.

INSTALLATION:

Preparation of Subgrade: Hollows, depressions, and gullies shall be filled with acceptable material free from stones over two inches (2") in diameter, cinders, rubbish, and other unsuitable material. All surplus material and debris shall be removed and disposed of as directed by the Engineer.

Loosen subsoil by scarifying, ripping or tilling using disks, harrows or other suitable equipment to a depth of (4"-6") immediately before placing any topsoil. Repeat cultivation in areas where equipment used for hauling and spreading topsoil has compacted subsoil.

Placement and Spreading of Topsoil : No topsoil shall be handled when, in the opinion of the Engineer, it is too wet. Place and spread approved topsoil in dry weather on dry unfrozen grade.

Preparation of Final Grade: Thoroughly cultivate topsoil to minimum depth of (4") by rototilling or hand methods where compaction has occurred and to break up all soil lumps. Float until surface is smooth. Topsoil for all seeded or sodded areas shall be spread to a compacted depth of five inches (5").

SUBMITTALS: All submittals shall be as per the General Conditions.

Proposed Samples and Test Results: The Contractor shall submit two (2) five pound (5 lb.) bags to the Landscape Architect, with the testing report attached, for approval prior to delivering material to the site. The Contractor shall at the direction and discretion of the Engineer, or when quantities exceed one hundred (100) cubic yards, furnish a certified report showing the analysis of representative samples of the topsoil which they propose to use. Testing shall be performed by Rutgers Cooperative Research & Extension Testing laboratories or equivalent laboratory as approved in writing by the Agency's Specifications and Estimating department. Laboratory testing performed more than six months prior to the Contractor's submittal date will be rejected. The testing shall include: pH, organic matter content (loss on ignition method), soluble salt level, sieve analysis and soil textural analysis and nutrient additive recommendations. Price bid shall include all inspection and laboratory fees.

No topsoil shall be delivered to the site until the approval of samples by the Landscape Architect, but such approval shall not constitute final acceptance.

DELIVERY AND APPROVAL: The Contractor shall notify the Resident Engineer a minimum of 48 hours prior to the intended topsoil delivery date. All imported topsoil shall be delivered in trucks and will be subject to visual inspection and additional testing. The topsoil shall NOT be spread until the Engineers' sampling and testing is completed, unless otherwise directed. The Engineer reserves the right to reject any topsoil which does not fall within acceptable limitations of this specification and the initial

submittal to design including the landscape architect approved sample and the approved test report. Where the topsoil is rejected, it shall be immediately removed from the site. Where it has been determined by the Landscape Construction Supervisor that soil amendments are needed per soil lab recommendations, the correction shall be made at the Contractor's expense. Additional testing after amending shall also be at the Contractor's expense. All testing shall be performed by Rutgers Cooperative Research & Extension testing laboratories or equivalent laboratory as approved in writing by the Agency's Specifications and Estimating department.

Engineer's determination based on test results of delivered material: Under no circumstances shall the organic content exceed twelve percent (12%). Should Agency test results of delivered material show organic content greater than twelve percent (12%), the soil shall be rejected and removed from the site. Should Agency's test results show pH between pH 5.0 and 6.0, and where directed by the Engineer, limestone may be added to bring the soil to the required minimum pH 6.0. The Contractor will be required to re-test after incorporation of limestone to assure a minimum pH 6.0. Should Engineer's test results of delivered material show a pH greater than 7.2 the soil shall be rejected and removed from the site.

The Engineer reserves the right to reject on or after delivery any material that does not, in their opinion, meet these specifications.

APPEAL PROCESS: The Resident Engineer shall visually check for discrepancies between the delivered soil and the approved submittal and sample. If the Engineer suspects that the topsoil delivered to the site has excessively high levels of organic matter, pH, clay, etc. that would not be within the allowable levels listed in this specification, the soil will be rejected until additional testing proves otherwise. Should the Contractor contest the Engineer's determination, Landscape construction will take samples so additional tests may be performed at Contractor's expense. Testing shall be performed by Rutgers Cooperative Research & Extension Testing laboratories or equivalent laboratory as approved in writing by the Agency's Specifications and Estimating department. These results shall be considered final.

MEASUREMENT AND PAYMENT: The quantity of **TOPSOIL FOR SEEDED AREAS*** to be paid for under this Item shall be the number of **CUBIC YARDS** of topsoil furnished, placed, and incorporated in the completed work in accordance with the plans, specifications, and directions of the Engineer, measured in trucks used for delivery, at the site of the work. No topsoil shall be furnished until ordered by the Engineer.

The price bid shall be a unit price per **CUBIC YARD** of topsoil measured in trucks used for delivery, and shall include the cost of all labor, materials, and equipment necessary to prepare topsoil areas, soil testing, furnish, place, and incorporate topsoil and all other work incidental thereto, in accordance with the plans and specifications, to the satisfaction of the Engineer.

The furnishing and incorporating of limestone where deemed necessary by the Agency shall be paid for under the item "Limestone".

Unclassified Excavation, Earth Moving Operations, or Strip, Store and Spread Existing Topsoil (where required prior to installation of new topsoil) shall be paid under their respective items.

*Delivery ticket with name and address of vendor, date, and estimated volume must be supplied to the Engineer prior to truck measurement.

END OF PAGE

ITEM NO. 114 COMMERCIAL FERTILIZER LOW PHOSPHORUS (SLOW RELEASE)

WORK: Under this Item, the Contractor shall furnish, spread, **COMMERCIAL FERTILIZER LOW PHOSPHORUS (SLOW RELEASE)** and in all areas to be seeded or sodded, in accordance with the plans and specifications, or as directed by the Engineer.

MATERIAL: COMMERCIAL FERTILIZER LOW PHOSPHORUS (SLOW RELEASE) shall have the following composition by weight: Nitrogen (N) shall be min. 7% - max. 10%, of which min. of 50% is slow-release; available Phosphorus (P) shall be min. 1% - max. 2%; and soluble Potash (K) shall be min. 4% - max. 12%.

Fertilizer shall be a *pesticide free* (no weed-and-feed) product such as "Healthy Turf (8-1-9)" as manufactured by Plant Health Care, Inc, Pittsburgh, PA; or Safer Ringer Lawn Restore (10-2-6) as manufactured by Woodstream Corp., Lifitz, PA; or Nutrients Plus (7-2-12) as manufactured by Nutrients Plus, Virginia Beach VA, or approved equal.

All COMMERCIAL FERTILIZER LOW PHOSPHORUS (SLOW RELEASE) shall be delivered in standard size bags, showing weight, analysis, and name of manufacturer. It shall be stored as directed by the Engineer in such a manner that its' effectiveness will not be impaired. The Engineer reserves the right to reject on or after delivery, any material which does not, in their opinion, meet these specifications.

METHOD: COMMERCIAL FERTILIZER LOW PHOSPHORUS (SLOW RELEASE) shall be incorporated as specified under individual items (i.e. "Grass Seed", "Sod", or "Aerate, Topdress and Seed", "Restore Lawn" or as directed by the Engineer.

EXTRA MATERIALS: The Contractor shall furnish (supply & deliver only; not install) extra materials and deliver to D.P.R. Borough Maintenance and Operations (M. & O.) as follows:

400 (Four hundred) pounds of COMMERCIAL FERTILIZER LOW PHOSPHORUS (SLOW RELEASE) in either 25 (Twenty-five) or 40 (Forty) or 50 (Fifty) pound bags. Fertilizer shall meet the Specifications listed under the "MATERIALS" Heading of this Item.

The above materials shall be delivered to the Sector A.P.R.M. or Borough Foreman of Mechanics (ONLY), and a signed receipt (from M. & O.) shall be submitted to the Engineer to acknowledge M. & O. receipt of the aforementioned materials.

MEASUREMENT AND PAYMENT: The quantity of , **COMMERCIAL FERTILIZER LOW PHOSPHORUS (SLOW RELEASE)** to be paid for under this item shall be the number of POUNDS of Commercial Fertilizer furnished, spread, and incorporated in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per **POUND** of COMMERCIAL FERTILIZER LOW PHOSPHORUS (SLOW RELEASE) and shall include the cost of all labor, materials, and equipment necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

In addition, the Contractor shall deliver EXTRA MATERIALS, as outlined above, to D.P.R. M. & O. No additional payment shall be made for extra materials. The Contractor shall include the cost in the bid price. Failure to supply EXTRA MATERIALS shall result in the city taking a Total Credit of \$100.00 (One hundred dollars), regardless of number of pounds of fertilizer installed.

Furnishing and incorporating Limestone and Topsoil shall be paid for under the Items: Limestone, and Topsoil for Seeded & Sodded Areas. The price bid shall include all delivery charges.

END OF PAGE

ITEM NO. 115 **LIMESTONE**

WORK: Under this Item, the Contractor shall furnish, spread, and incorporate **LIMESTONE** in all areas to be seeded or sodded in accordance with the plans, specifications, and directions of the Engineer.

MATERIAL: Ground Limestone (Calcium Carbonate) shall have the following analysis: at least fifty percent (50%) shall pass a 200 mesh sieve; at least ninety percent (90%) shall pass a 100 mesh sieve; and one hundred percent (100%) shall pass a 10 mesh sieve. Total carbonates shall not be less than eighty (80) percent or 44.8% Calcium oxide equivalent. Pelleted limestone may be substituted at the discretion of the Engineer, when wind conditions exceed five (5) miles per hour.

The Contractor shall, at the direction and discretion of the Engineer, furnish a certified report of chemical analysis of representative samples of the Limestone which he proposes to use. All samples are to be taken by the Engineer and delivered to the laboratory: the price bid shall include inspection and laboratory charges. Limestone shall not be delivered until samples have been approved by the Engineer, but such approval does not constitute final acceptance of the material. The Engineer reserves the right to reject on or after delivery any material which does not, in his opinion, meet these specifications.

METHOD: Limestone shall be incorporated as specified under the items "Grass Seed", "Sod", or "Aerate, Topdress and Seed" or as directed by the Engineer.

Lime Requirements (Tons per Acre)		
Soil Texture	From pH 4.5 to 5.5	From pH 5.5 to 6.5
Sandy and loamy sand	0.5	0.6
Sandy loam	0.8	1.3
Loam	1.2	1.7
Silt loam	1.5	2.0
Clay loam	1.9	2.3
Muck	3.8	4.3

MEASUREMENT AND PAYMENT: The quantity of **LIMESTONE** to be paid for under this item shall be the number of **TONS** (2,000 lbs.) or **POUNDS** of Limestone furnished, spread and incorporated in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per **TON** (2,000 lbs.) or per **POUND** of Limestone and shall include the cost of all labor, materials, and equipment, necessary or required to furnish, spread, and incorporate Limestone and all other work incidental thereto in accordance with the plans and specifications, to the satisfaction of the Engineer.

Furnishing and incorporating COMMERCIAL FERTILIZER LOW PHOSPHORUS (SLOW RELEASE), and TOPSOIL shall be paid for under the items: COMMERCIAL FERTILIZER LOW PHOSPHORUS (SLOW RELEASE), and TOPSOIL FOR SEEDED AND SODDED AREAS.

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ITEM NO. 116 **ELEMENTAL SULFUR**

WORK: Under this Item, the Contractor shall furnish, spread, and incorporate **ELEMENTAL SULFUR** in all areas to be seeded in accordance with the plans, specifications, and direction of the Engineer.

INTENT: Elemental Sulphur is used to lower pH to desired levels as per design requirements. It is to be incorporated into the soil of new lawn and new plantings, and never into existing lawn or planting.

MATERIAL: Elemental Sulfur shall contain 90% sulfur with 10% bentonite as a binder.

The Contractor shall, at the direction and discretion of the engineer, furnish a certified report of chemical analysis of representative samples of the Elemental Sulfur which he proposes to use.

Elemental Sulfur shall be delivered in standard size bags of the manufacturer showing weight, analysis and name of manufacturer. The Engineer reserves the right to make test on the material at any time and acceptance or rejection shall be based upon the results of these tests. All samples are to be taken by the Engineer. The Engineer will designate where the Elemental Sulfur shall be stored on the job.

METHOD: Elemental Sulfur shall not be broadcast, but shall be applied by machine, to a depth of 6", or as directed by the Engineer, according to the following table:

Pounds of elemental sulfur needed to lower soil pH of a silt loam soil to a depth of 6 inches*.					
Present pH	Desired soil pH				
	6.5	6.0	5.5	5.0	4.5
	----- lb. S per 100 sq. ft. -----				
8.0	3.0	4.0	5.5	7.0	8.0
7.5	4.0	3.5	4.5	6.0	7.0
7.0	1.0	2.0	3.5	5.0	6.0
6.5	---	1.0	2.5	4.0	4.5
6.0	---	---	1.0	2.5	3.5

*For sandy soils, reduce amount by 1/3; for clayey soils, increase amount by 1/2; if aluminum sulfate is used, multiply by 6.9.

MEASUREMENT AND PAYMENT: The quantity of **ELEMENTAL SULFUR** to be paid for under this item shall be the number of **POUNDS** of Elemental Sulfur furnished, spread and incorporated in accordance with the plans, specifications, and direction of the Engineer.

The price bid shall be a unit price per **POUND OF** Elemental Sulfur and shall include the cost of all labor, materials, and equipment, necessary or required to furnish, spread, and incorporate Elemental Sulfur and all other work incidental thereto in accordance with the plans and specifications, to the satisfaction of the Engineer.

END OF PAGE

ITEM NO. 117 **COMPOST - TRUCK MEASURE**

WORK: Under this Item, the Contractor shall furnish, spread, and incorporate **COMPOST – TRUCK MEASURE** in accordance with the plans and specifications, to the satisfaction of the Engineer.

MATERIALS: Compost shall contain organic matter, or material of generally humus nature capable of sustaining the growth of vegetation, with no admixture of refuse or material toxic to plant growth. The Compost shall be free of pathogens and stones, lumps, or similar objects larger than two inches (2") in greatest diameter, as well as roots, brush, and weeds.

Composts that have been derived from organic wastes such as food and agriculture residues, animal manures, and sewage sludge that meet the above requirements, and are approved by the New York State DEC, are acceptable compost sources. Compost shall have an approximate N-P-K analysis of at least 1-1-0 as delivered, with a pH between 5.5 and 8.0 and a solids content of at least fifty percent (50%). Compost shall have a minimum of twenty five (25%) to a maximum of fifty percent (50%) organic material.

Compost shall be from Long Island Compost, Islip, NY or "Nature's Choice Compost" by Nature's Choice Corp., Union, NJ, or Agresoil compost by Agresource, Inc. Amesbury, MA or approved equal.

Compost available from NYC Department of Sanitation may be acceptable for purposes of this specification. See www.nyc.gov/sanitation or www.nyccompost.org for pick-up sites.

Organic biosolids are not acceptable.

SUBMITTAL: All submittals shall be in accordance with the requirements of the General Conditions. The Contractor shall submit samples of compost for the approval of the Landscape Architect. The Contractor, at the direction and discretion of the Engineer, shall furnish a certified report of an approved analytical chemist showing the mechanical and chemical analysis of representative samples of the compost they propose to use. All samples are to be taken by the Engineer and delivered to the Laboratory. The price bid shall include laboratory and inspection charges. If the Contractor submits substitute compost, or at the request of the Engineer, Contractor must submit the manufacturer's NYSDEC Authorization Certificate.

No compost shall be delivered until the approval of samples by the Engineer, but such approval does not constitute final acceptance. The Engineer reserves the right to reject, on or after delivery, any material which does not, in their opinion, meet these specifications. When compost is stored on the job, it shall be done as directed by the Engineer.

Certification: Contractor shall provide written certification that the organic biosolid humus provided is Class A, EQ as determined by the USEPA. This certification shall include a list of what the compost is tested for.

METHOD: After all areas to be seeded, sodded or planted have been fine graded to their compacted depth as per the seed, sod or planting specification, compost shall be spread over all areas to be seeded at the rate of one inch (1") over the spread topsoil. Thoroughly incorporate the compost into the top five inches (5") of the soil by rototilling.

When compost has been thoroughly incorporated, the soil shall be tested for pH and limestone added if needed, based on the rates in the seeding specifications. Applications "Commercial Fertilizer Low Phosphorus (Slow Release)" described in the Items "Sod (or Grass Seed) Without Compost", "Sod (or Grass Seed) With Compost", "Aerating, Topdressing, and Seeding Lawn Area", "Construct Lawn", and "Reconstruct Lawn" shall be incorporated in the soil as described under the respective Item.

MEASUREMENT AND PAYMENT: The quantity of **COMPOST - TRUCK MEASURE** to be paid for under this Item shall be the number of **CUBIC YARDS** furnished in accordance with the plans and specifications, to the satisfaction of the Engineer. The compost shall be measured in trucks by the Engineer at the point of delivery.

The price bid shall be a unit price per **CUBIC YARD** of Compost and shall include the cost of all labor, materials, and equipment necessary or required to furnish, spread, and incorporate compost and all other work incidental thereto, in accordance with the plans and specifications, to the satisfaction of the Engineer.

END OF PAGE

ITEM NO. 118 ITEM DELETED
ITEM NO. 119 RECONSTRUCT LAWN

WORK: Under this Item, the Contractor shall **RECONSTRUCT LAWN** areas disturbed by construction with grass seed, ground limestone, fertilizer, superphosphate, compost, and topsoil and shall prepare, plant, and maintain lawn areas in accordance with the plans, specifications, and directions of the Engineer.

MATERIALS:

Grass Seed: Grass seed shall be fresh, recleaned seed of the latest crop, mixed in the following proportions by weight and meeting the following standards of pure live seed content (Purity & Germination) and maximum allowable weed seed content. All seed shall be free of noxious weeds and undesirable grasses.

GRASS SEED MIXTURE

PERCENT BY WEIGHT	GRASS SEED	PURITY	GERMINATION	MAXIMUM WEEDSEED
60%	TALL FESCUE - One or more of the following varieties: Apache II, Arid 3 Cochise III, Coronado Gold, Falcon IV, Justice, Jaguar III, Lancer (SH), Masterpiece, Rebel IV, Rebel Jr.(SH), Rebel Sentry, Rembrandt, Tomahawk E+, RTF or approved equal.	98%	85%	.25%
20%	BLUEGRASS - One or more of the following varieties: Able I (SH), Blacksburg, Glade (SH) Moonlight, Midnight, America (SH) Brilliant, Ram (SH), Touchdown (SH) Warren's A-34 (SH), Bristol (SH), Lofts 1757 (SH) or approved equal.	98%	80%	.10%
20%	PERENNIAL RYEGRASS - One or more of the following varieties: Brightstar II, Manhattan 4, Citation Fore, Elfkin or approved equal.	98%	85%	.25%

NOTE: The cultivars followed by "(SH)" exhibit better shade tolerance than other varieties, under

moderate shade.

All seed shall be interagency certified under the auspices of a State Seed Improvement Cooperative and must bear their seals of certification on each fifty pound (50 lb.) bag. All Grass Seed shall be delivered in sealed standard size bags of the vendor, showing weight, analysis, and name of vendor. It shall be stored as directed by the Engineer, in such a manner that its' effectiveness will not be impaired. The Engineer reserves the right to reject, on or after delivery, all material which does not, in their opinion, meet these specifications. The rate of seeding shall be ten pounds (10 lbs.) per thousand (1,000) square feet.

Ground Limestone: Ground Limestone (Calcium Carbonate) shall have the following analysis: at least fifty per cent (50%) shall pass a 200 mesh sieve, at least ninety per cent (90%) shall pass a 100 mesh sieve, and one hundred per cent (100%) shall pass a 10 mesh sieve.

Total carbonates shall not be less than eighty per cent (80%) or 44.8% calcium oxide equivalent. The Contractor shall, at the direction and discretion of the Engineer, furnish a certified report of chemical analysis of representative samples of the limestone they propose to use. All samples are to be taken by the Engineer and delivered to the laboratory. The price bid shall include inspection and laboratory charges. No limestone shall be delivered until the approval of samples by the Engineer, but such approval does not constitute final acceptance of the material. The Engineer reserves the right to reject on or after delivery any material which does not, in their opinion, meet these specifications. All limestone shall be delivered in standard size bags of the manufacturer showing weight, analysis, and name of the manufacturer. It shall be stored in such a manner that its' effectiveness will not be impaired, as directed by the Engineer.

The rate of application of limestone per thousand (1,000) square feet shall be as follows, depending on the hydrogen ion concentration (pH) shown by a pH test (test to be provided by the Contractor at no additional cost to the City):

<u>pH</u>	<u>Rate Pounds</u>
5.0-5.5	100
5.5-6.0	50
6.0-6.8	25
over 6.8	0

Commercial Fertilizer Low Phosphorus (Slow Release): shall have the following composition by weight: Nitrogen (N) shall be min. 7% - max. 10%, of which min. of 50% is slow-release; available Phosphorus (P) shall be min. 1% - max. 2%; and soluble Potash (K) shall be min. 4% - max. 12%.

Fertilizer shall be a *pesticide free* (no weed-and-feed) product such as "Healthy Turf (8-1-9)" as manufactured by Plant Health Care, Inc, Pittsburgh, PA; or Safer Ringer Lawn Restore (10-2-6) as manufactured by Woodstream Corp., Lifitz, PA; or Nutrients Plus (7-2-12) as manufactured by Nutrients Plus, Virginia Beach VA, or approved equal.

All Commercial Fertilizer Low Phosphorus (Slow Release) shall be delivered in standard size bags of the

manufacturer, showing weight, analysis, and name of manufacturer. It shall be stored as directed by the Engineer in such a manner that its' effectiveness will not be impaired.

Two (2) applications of acceptable commercial fertilizer shall be applied by machine, each application at the rate of twenty (20) pounds per thousand (1,000) square feet or as recommended by the manufacturer. The first application shall be made at the time of installation of seed.

The second application shall be made approximately six (6) months after the first application. This treatment shall take place during the next appropriate fertilizing season; that is, the following Spring or Fall, and shall be subject to the direction of the Engineer and/or Landscape Architect.

The second application shall be applied to the surface only. Incorporation shall be achieved by thoroughly watering the entire area after application. The Contractor shall provide all labor and materials including water if not available from NYC sources.

Compost: Cured compost shall be spread over all areas to be seeded at the rate of one cubic yard per thousand(1,000) square feet. Compost shall contain organic matter or material of generally humus nature capable of sustaining the growth of vegetation, with no admixture of refuse or material toxic to plant growth. The Compost shall be free of pathogens and stones, roots, lumps, or similar objects larger than two inches (2") in greatest diameter, as well as roots, brush, and weeds.

Composts that have been derived from organic wastes such as food and agricultural residues, animal manures, and sewage sludge that meet the above requirements and are approved by NYSDEC are acceptable compost sources. Compost shall have an approximate N-P-K analysis of at least 1-1-0 as delivered, with a pH between 5.5 and 8.5 and a solids content of at least fifty percent (50%). Compost shall contain a minimum of fifty percent (50%) organic material.

Compost shall be from Long Island Compost, Islip, NY or "Nature's Choice Compost" by Nature's Choice Corp., Union, NJ, or approved equal. Compost available from NYC Department of Sanitation may be acceptable for purposes of this specifications. See www.nyc.gov/sanitation for DOS contacts in each borough.

Topsoil: Material shall consist of natural loam topsoil, free from subsoil, obtained from an area which has never been stripped. It shall be removed to a depth of one foot (1'), or less, if subsoil is encountered. Topsoil, shall be of uniform quality, free from hard clods, stiff clay, hard pan, sods, partially disintegrated stone, lime, cement, ashes, slag, concrete, tar residues, tarred paper, boards, chips, sticks, or any other undesirable material. No topsoil shall delivered in a frozen or muddy condition.

Topsoil shall contain at least four percent (4%) organic matter determined by loss on ignition, of moisture-free samples dried in accordance with the current method of the Association of Official Agricultural Chemists. The acidity range shall be pH 6.0 to pH 7.2 inclusive. The mechanical analysis of the soil shall be as follows:

Sieve Analysis: by Wash Test, ASTM D-422. *Standard Test Method for Particle –Size Analysis of Soils*

<u>Passing</u>	<u>Material</u>	<u>Acceptable Percentage Range of Total Sample</u>
1" screen	all topsoil material	99%-97%
1" screen	gravel	5%
1/4" screen	sand	40%-60%
No.100	very fine sand, silt, and clay	40%-60%
No. 200		+/- 15%

When the topsoil otherwise complies with the requirements of the specification but shows a deficiency of not more than one percent (1%) organic matter content, humus, compost or other approved organic matter may be incorporated when or as permitted by the Engineer.

The Contractor shall at the direction and discretion of the Engineer, or when quantities exceed thirty (30) cubic yards, furnish a certified report of an approved analytical chemist showing the analysis of representative samples of the topsoil they propose to use. All samples are to be taken by the Engineer and delivered to the laboratory. The price bid shall include inspection and laboratory charges. No topsoil shall be delivered until the approval of samples by the Engineer, but such approval shall not constitute final acceptance. The Engineer reserves the right to reject on or after delivery any material which does not, in their opinion, meet these specifications.

The Engineer reserves the right to reject topsoil in which more than sixty percent (60%) of the material passing the No.100 mesh sieve consists of clay, as determined by the Buoyoucouous Hydrometer or by the decantation method. All percentages are to be based on dry weight of the sample. If the Engineer directs, topsoil which varies only slightly from the specifications may be made acceptable by such corrections as the Engineer deems necessary. No topsoil shall be handled when, in the opinion of the Engineer, it is too wet.

TIME OF SEEDING: Grass Seed shall be sown in the Fall during August and September, or in the Spring during March, April, and May or at such other times as are approved by the Engineer. All seeding is to be done in moderately dry to moist (not wet) soil and at times when the wind does not exceed a velocity of five (5) miles per hour.

PREPARATION OF SEED BED: Prior to seeding, all areas to receive seed shall be mown to a height of three-quarter inch (3/4") and raked clean. The subgrade shall be thoroughly loosened with a rototiller to a six inch (6") depth prior to seeding, and all sticks, stones, roots, vegetation, or other objectionable material which might interfere with the formation of a finely pulverized seed bed shall be removed from the soil. If additional topsoil is required to achieve a full six inch (6") depth, it shall be added prior to seeding and raked smooth. When topsoil is four inches (4") or more in depth, it shall be compacted to the satisfaction of the Engineer.

INSTALLATION: Compost shall be thoroughly incorporated into the top five inches (5") of existing soil. After the compost has been incorporated, limestone, fertilizer, shall be worked into the top three

inches (3") of soil. Grass seed shall be sown, covered to the proper depth, and firmed in such a manner that a uniform stand of grass will result. All areas to receive seed shall then be compacted using a two hundred pound (200 lb.) roller.

MAINTENANCE: The Contractor shall maintain all seeded areas until acceptance of the contract. The Contractor shall properly water as required to maintain a moist seed bed for optimum germination and as often as required to maintain optimum growing conditions for the new stand of grass until final acceptance of the contract. If water is not available from NYC sources, the Contractor is responsible for supplying water from their own source.

The Contractor shall reseed any areas which fail to show a satisfactory stand of grass with the specified mixture of seed and fertilizer as many times as is necessary, at no additional cost to the City, until final acceptance of the Contract. The Contractor shall properly mow and otherwise maintain the grass at a maximum height of three inches (3") or as directed by the Engineer until final acceptance of the whole work under this contract.

MEASUREMENT AND PAYMENT: The quantity of **RECONSTRUCT LAWN** to be paid for under this item, shall be the number of **SQUARE YARDS** of lawn area prepared, seeded, and maintained in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per **SQUARE YARD** of reconstructed lawn area and shall include the cost of grass seed, limestone, Commercial Fertilizer Low Phosphorus (Slow Release), compost, topsoil, and the cost of all labor, materials (including water), and equipment necessary or required to reconstruct lawn areas in accordance with the plans and specifications, to the satisfaction of the Engineer.

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ITEM NO. 120 **SHREDDED BARK MULCH**

WORK: Under this Item, the Contractor shall furnish and place **SHREDDED BARK MULCH** in accordance with the plans, specifications, and directions of the Engineer.

MATERIAL:

Shredded Bark Mulch shall be a natural forest product composed of shredded bark or wood not exceeding three inches (3") in length and one inch (1") in width. Mulch shall be derived from tree material, not from wood waste or by-products like sawdust, shredded palettes, or other debris. Mulch shall be natural in color and not dyed. It shall be of a uniform grade with no additives or any other treatment. Mulch with leaves, twigs, and/or debris shall not be acceptable. The pH factor should range from 5.8 to 6.2.

Commercial Fertilizer Low Phosphorus (Slow Release): shall have the following composition by weight: Nitrogen (N) shall be min. 7% - max. 10%, of which min. of 50% is slow-release; available Phosphorus (P) shall be min. 1% - max. 2%; and soluble Potash (K) shall be min. 4% - max. 12%.

Fertilizer shall be a *pesticide free* (no weed-and-feed) product such as "Healthy Turf (8-1-9)" as manufactured by Plant Health Care, Inc, Pittsburgh, PA; or Safer Ringer Lawn Restore (10-2-6) as manufactured by Woodstream Corp., Lifitz, PA; or Nutrients Plus (7-2-12) as manufactured by Nutrients Plus, Virginia Beach VA, or approved equal.

All Commercial Fertilizer Low Phosphorous (Slow Release) shall be delivered in standard size bags of the manufacturer, showing weight, analysis, and name of manufacturer. It shall be stored as directed by the Engineer in such a manner that its effectiveness will not be impaired.

METHOD:

Prior to application of **SHREDDED BARK MULCH**, Commercial Fertilizer Low Phosphorous (Slow Release) shall be incorporated into soil to a depth of three inches (3") at the rate of twenty pounds per thousand square feet. ((20 lbs./1,000 s.f.). Mulch shall be applied to a uniform depth of three to four inches (3"-4") over existing tree pit and existing shrub bed areas and two to three inches (2"-3") over existing groundcover beds, and shall be so distributed as to create a smooth level cover over the exposed soil. Plants shall not be covered.

MEASUREMENT AND PAYMENT: The quantity of **SHREDDED BARK MULCH** and **SHREDDED BARK MULCH w/out FERTILIZER** to be paid for under this item shall be the number of **SQUARE YARDS** of mulch measured in final position, furnished and installed in accordance with the plans, specifications, and directions of the Engineer.

The price bid of **SHREDDED BARK MULCH** shall be a unit price per **SQUARE YARD** and shall include the cost of all labor, materials, and equipment necessary or required to complete the work including furnishing and applying Commercial Fertilizer Low Phosphorous (Slow Release), mulch, and watering, all in accordance with the plans and specifications, to the satisfaction of the Engineer.

Landscape Fabric shall be paid for separately under its own item.

END OF PAGE

ITEM NO. 121 **ITEM DELETED**

ITEM NO. 122 **LANDSCAPE FABRIC**

WORK: Under this Item, the Contractor shall furnish, place, and staple **LANDSCAPE FABRIC** on each designated planting bed in accordance with the plans, specifications, and directions of the Engineer.

MATERIALS: Landscape Fabric shall be a one hundred percent (100%) continuous monofilament polypropylene spun bond fabric with UV inhibitors, such as DeepRoot Xavan®, as manufactured by DuPont, Ontario, CA, available from the subsidiary company DeepRoot Partners, LP, San Francisco, CA, No. 3201 as manufactured by Tyvar, Old Hickory, TN, or approved equal. The landscape fabric shall prevent weed germination and reduce maintenance while allowing water, herbicides, and fertilizers to pass through. The fabric shall demonstrate the following minimum characteristics:

Area Weight (ASTM 5261): 4.0 oz/yard
Tensile Strength (ASTM D 4595): 48.57 lbs./ inch
Strength @ 5% Elongation: 22.86 lbs./ inch
Energy Absorption: 22 lbs./ inch
Grab Strength (ASTM D 4632): 167.42 psi
Burst Strength (ASTM D 3786) 166.79 psi
Tear Strength (ASTM D 4533): 83.15 lbs.
Puncture (ASTM D 4833): 56.18 lbs.
Hydraulic Properties: opening size (ASTM D 4751) 210 microns, US Sieve 70

Staples shall be a least six (6") inches in length and made of a rust-resistant material, such as aluminum, galvanized steel, or approved equal that will adequately secure the landscape fabric to the planting bed.

METHOD: Landscape fabric shall be placed on the entire area of each planting bed, or as directed by the Engineer so that it lays loosely on the soil and in contact with the soil at all points. The Contractor shall remove any large sharp stones from the planting bed, along with invasive perennial weeds, such as mugwort, or hedge garlic, which may be treated with herbicide. The Contractor shall vertically anchor the edge of the fabric into the ground utilizing a small overlap and a blunt shovel along the perimeter of the bed to a depth of six inches (6").

Landscape Fabric must be secured into the soil with staples placed at eighteen (18") inch intervals along the edges of the fabric, through both layers, or as directed by the Engineer.

The Contractor shall mark the fabric with chalk or paint to lay out the locations of specific plants and then cut a cross shape into the fabric no larger than the size of the root ball or container of the plant. The Contractor shall then fold the corners under the fabric and dig a planting hole, reserve the soil for another use, place the plant, and reset the

folds of the fabric to their original position, water the area thoroughly, and place mulch over the fabric as directed under the Item "Plant Material".

MEASUREMENT AND PAYMENT: The quantity of **LANDSCAPE FABRIC** to be paid shall be the number of square yards of surface area on which landscape fabric has been installed in accordance with the plans and specifications, to the satisfaction of the Engineer.

The price bid for furnishing and placing landscape fabric shall be a unit price per **SQUARE YARD** and shall include the cost of all labor, materials (including staples), equipment, and incidental expenses necessary to furnish and install the landscape fabric in accordance with the plans, specifications, and directions of the Engineer.

END OF ITEM

ITEM NO. 123 TOPSOIL FOR NATIVE PLANTING PITS & BEDS

WORK: Under this Item, the Contractor shall furnish, place, and incorporate **TOPSOIL FOR NATIVE PLANTING PITS & BEDS** in accordance with the plans, specifications, and directions of the Engineer. The Contractor shall be liable for any damage to property caused by topsoil operations and all areas and construction disturbed shall be restored to their original condition, to the satisfaction of the Engineer.

MATERIALS:

Topsoil: Shall be a sandy/ loam, friable soil that has been removed to a depth of one foot (1') or less, if subsoil is encountered. Topsoil shall be of uniform quality, free from hard clods, stiff clay, hard pan, sods, partially disintegrated stone, lime, cement, ashes, slag, concrete, tar residues, tarred paper, boards, chips, sticks, or any other undesirable material. No topsoil shall be delivered in a frozen or muddy condition.

Topsoil shall be provided by Island Topsoil, Syosset, NY, Long Island Compost, Yaphank, NY or approved equal.

1. Organic Content: Topsoil shall contain at least two percent (2%) organic matter determined by loss on ignition, of moisture-free samples dried in accordance with the current method of the Association of Official Agricultural Chemists. The organic matter shall not exceed four percent (5%).

2. The acidity range shall be pH 5.6 to pH 6.5 inclusive.

3. Soil Textural Analysis: Topsoil shall consist of the following percentages of sand, silt and clay. Any soil that does not meet the requirements below will be rejected and removed from the site. When directed by Landscape Construction, the Contractor may be granted permission to screen delivered topsoil in order to achieve particle size compliance. Additional testing at the Contractor's expense will be required to confirm compliance after completion of on-site screening.

Sand (0.05 to 2 mm)	50% to 85%
Silt (0.002 to 0.05 mm)	0% to 50%
Clay (<0.002 mm)	10% to 20%

4. Electrical Conductivity shall be maximum of 1.50 mmhos/cm. A higher level would indicate excessive salt content and material will be rejected and removed from the site.

5. Nutrients: Topsoil test results shall show recommendations for soil additives or fertilizers to correct nutrient deficiencies as necessary. Magnesium shall be minimum 32 ppm. Phosphorus (Phosphate - P₂O₅) shall not to exceed 69 ppm. Potassium (K₂O) shall be minimum 78 ppm. Soil additives and fertilizers shall be incorporated as necessary at the Contractor's expense. Follow the fertilizer recommendation as provided by the required laboratory.

The Contractor shall at the direction and discretion of the Engineer, or when quantities exceed one

hundred (100) cubic yards, furnish a certified report of an approved Analytical Chemist showing the analysis of representative samples of the topsoil which they propose to use. All samples are to be received by the Engineer and delivered to the laboratory, and the price bid shall include inspection and laboratory charges. Samples shall be submitted 48 hours prior to the delivery of topsoil.

No topsoil shall be delivered until the approval of samples by the Engineer, but such approval shall not constitute final acceptance. The Engineer reserves the right to reject on or after delivery any material that does not, in their opinion, meet these specifications.

INSTALLATION:

Preparation of Subgrade: Hollows, depressions, and gullies shall be filled with acceptable material free from stones over two inches (2") in diameter, cinders, rubbish, and other unsuitable material. All surplus material and debris shall be removed and disposed of as directed by the Engineer.

Loosen subsoil by scarifying, ripping or tilling using disks, harrows or other suitable equipment to a depth of (4"- 6") immediately before placing any topsoil. Repeat cultivation in areas where equipment used for hauling and spreading topsoil has compacted subsoil.

Placement and Spreading of Topsoil : No topsoil shall be handled when, in the opinion of the Engineer, it is too wet. Place and spread approved topsoil in dry weather on dry unfrozen grade. Topsoil for groundcover and herbaceous plant areas shall be mixed with the compost in the proportions of seven (7) cubic yards of topsoil to two (2) cubic yards of compost and spread to a compacted depth of nine (9"), or as indicated on the drawings. No deduction shall be made for the volume of compost in the measurement of topsoil quantities.

Preparation of Final Grade: Thoroughly cultivate topsoil to minimum depth of (4") by rototilling or hand methods where compaction has occurred and to break up all soil lumps. Float until surface is smooth.

SUBMITTALS: All submittals shall be as per the General Conditions.

Proposed Samples and Test Results: The Contractor shall submit two (2) five pound (5 lb.) bags to the Landscape Architect, with the testing report attached, for approval prior to delivering material to the site. The Contractor shall at the direction and discretion of the Engineer, or when quantities exceed one hundred (100) cubic yards, furnish a certified report showing the analysis of representative samples of the topsoil which they propose to use. Testing shall be performed by Rutgers Cooperative Research & Extension Testing laboratories or equivalent laboratory as approved in writing by the Agency's Specifications and Estimating department. Laboratory testing performed more than six months prior to the Contractor's submittal date will be rejected. The testing shall include: pH, organic matter content (loss on ignition method), soluble salt level and soil textural analysis. Price bid shall include all inspection and laboratory fees.

No topsoil shall be delivered to the site until the approval of samples by the Landscape Architect, but such approval shall not constitute final acceptance.

DELIVERY AND APPROVAL: The Contractor shall notify the Resident Engineer a minimum of 48 hours prior to the intended topsoil delivery date. All imported topsoil shall be delivered in trucks and will be subject to visual inspection and additional testing. The topsoil shall NOT be spread until the Engineers' sampling and testing is completed, unless otherwise directed. The Engineer reserves the right to reject any topsoil which does not fall within acceptable limitations of this specification and the initial submittal to design including the landscape architect approved sample and the approved test report. Where the topsoil is rejected, it shall be immediately removed from the site. Where it has been determined by the Landscape Construction Supervisor that soil amendments are allowable, the correction shall be made at the Contractor's expense, except as outlined below. Additional testing after amending shall also be at the Contractor's expense. All testing shall be performed by Rutgers Cooperative Research & Extension Testing laboratories or equivalent laboratory as approved in writing by the Agency's Specifications and Estimating department.

Engineer's determination based on test results of delivered material: Should Agency's test results show organic content between 3% and 5%, and where allowed by the Engineer, organic matter may be added and thoroughly incorporated in the stockpile to bring the soil to the required minimum of 5% organic content. The Contractor will be required to re-test after incorporation of additional organic matter to assure a minimum organic content of 2%. Under no circumstances shall the organic content exceed five percent (5%). Should Agency test results of delivered material show organic content greater than five percent (5%), the soil shall be rejected and removed from the site.

Should Agency's test results show pH between pH 5.0 and 5.6, and where directed by the Engineer, limestone may be added **at the Contractor's expense** to bring the soil to the required minimum pH 5.6.

The Contractor will be required to re-test after incorporation of limestone to assure a minimum pH 5.6. Should Engineer's test results of delivered material show a pH greater than 6.5 the soil shall be rejected and removed from the site.

The Engineer reserves the right to reject on or after delivery any material that does not, in their opinion, meet these specifications.

APPEAL PROCESS: The Resident Engineer shall visually check for discrepancies between the delivered soil and the approved submittal and sample. If the Engineer suspects that the topsoil delivered to the site has excessively high levels of organic matter, clay, etc. that would not be within the allowable levels listed in this specification, the soil will be rejected until additional testing proves otherwise. Should the Contractor contest the Engineer's determination, Landscape construction will take samples so additional tests may be performed at Contractor's expense. Testing shall be performed by Rutgers Cooperative Research & Extension Testing laboratories or equivalent laboratory as approved in writing by the Agency's Specifications and Estimating department. These results shall be considered final.

MEASUREMENT AND PAYMENT: The quantity of **TOPSOIL FOR NATIVE PLANTING PITS & BEDS** to be paid for under this Item shall be the number of **CUBIC YARDS** of topsoil furnished, placed, and incorporated in the completed work in accordance with the plans, specifications, and directions of the Engineer, measured in trucks used for delivery, at the site of the work. No topsoil shall be furnished until ordered by the Engineer.

The price bid shall be a unit price per **CUBIC YARD** of topsoil measured in trucks used for delivery, and shall include the cost of all labor, materials, and equipment necessary to prepare topsoil areas, test, furnish, place, and incorporate topsoil and all other work incidental thereto, in accordance with the plans and specifications, to the satisfaction of the Engineer.

The furnishing and incorporating of limestone or compost, where deemed necessary by the Agency shall be paid for under the items "Compost".

Unclassified Excavation or Earth Moving Operations shall be paid under their respective items.

*Delivery ticket with name and address of vendor, date, and estimated volume must be supplied to the Engineer prior to truck measurement.

END OF PAGE

ITEM NO. 124 - 131

PLANT MATERIAL

WORK: Under this Item, the Contractor shall excavate all plant pits and furnish, plant, maintain, and replace all **PLANT MATERIAL** specified in the following plant schedule, in accordance with the plans and specifications, or as directed by the Engineer.

The Contractor shall be liable for any damages to property caused by planting operations, and all areas and construction disturbed shall be restored to their original conditions, to the satisfaction of the Engineer.

NAMES: Plant names, size, and grading standards shall conform to those prepared by the American Standard for Nursery Stock (ANSI Z60.1-2004) unless otherwise specified. No substitution shall be permitted, except with the written permission of the Engineer and the approval of the Design Division.

ASIAN LONGHORNED BEETLE QUARANTINE ZONE REGULATIONS: Due to current Federal, State and NYC DPR policy, the following host species may not be planted in the quarantine zone. Host species are as follows: Acer-Maple, Aesculus-Horsechestnut/Buckeye, Salix-Willow, Betula-Birch, Populus-Poplar, Ulmus-Elm, Albizia-Mimosa/Silk Tree, Celtis-Hackberry, Fraxinus-Ash, Platanus-London Planetree, Sycamore, Sorbus-Mountain Ash.

In addition, Nurseries located within the quarantine zone shall comply with State and Federal Law and all Contractors and/or Subcontractors shall be Certified by the New York State Department of Agriculture and Markets to perform work within the Quarantine Zone (see Submittals section below). For additional information, including the extent of the quarantine zone, see Appendix Items, Section A, "Tree Work".

QUALITY: All plants shall be typical of their species or variety. They shall have normal, well-developed branches and vigorous fibrous root systems. They shall be sound, healthy, vigorous plants free from defects, disfiguring knots, sun scald injuries, dead or broken branches, abrasions of the bark, plant diseases, insect eggs, borers, and all forms of infestation. All plant material shall be tagged by the Director of Landscape Construction, Matt DiVittorio, (718) 760-6736, who shall reject all plant materials not meeting the above specifications, and trees having damaged or missing leaders, multiple leaders, Y-crotches, or indications of topping or heading back.

All plants shall be nursery-grown, unless otherwise stated. All trees and shrubs shall have been growing under similar climatic conditions as the project site two (2) years prior to the date of the contract. Plants held in storage will be rejected if they show signs of growth during storage. Collected plants shall be taken from a soil favorable to good root development. All collected material shall be clean sound stock, free from decaying stumps.

Herbaceous plants, vines, and groundcover shall be vigorous healthy plants, a minimum two (2) years old, from cuttings, seed, or division, with well-developed root systems and crowns, as specified in the Plant Schedule. Bulbs, corms, tubers and rhizomes shall be firm, non-desiccated, and certified

free of disease and viral infection, of the sizes, grades, and varieties indicated in the Plant Schedule.

PLANT SOURCES FOR NATIVE PLANTS ONLY, WHERE APPLICABLE:

Native plant material must be derived from the local genotypes of the native Plants specified. For purposes of this native plant material paragraph, "local" shall mean within 150 miles from the planting site. However, a reasonable effort shall be made to obtain sources of plant material as close to the planting site as possible. All plants must have been grown in a hardiness zone no warmer than Zone 7 or colder than Zone 6 as determined by the USDA Agricultural Research Service, Plant Hardiness Zone Map. Plant quality shall be typical of their species. Plant material should exhibit the range of variation typical of local genotypes of the species as determined by the Engineer. They shall have normal branching and vigorous fibrous root systems. They shall be sound, healthy plants, free from sunscald injuries, or other mechanical injury, plant diseases, insect eggs, borers and all forms of infestations. All plants shall be nursery grown unless otherwise stated. Collected material will not be accepted. Except as may otherwise be specified in this native plant material paragraph, all other sections of this Plant Material specification shall also apply to the Native Plants. The native plant material, subject to availability and adherence to the requirements of this paragraph, may be purchased from the following nurseries or approved equal nurseries as determined by Matthew DiVittorio, Director of Landscape Construction and Fiona Watt, Chief of Forestry and Horticulture:

Greenbelt Native Plant Center, Staten Island, NY

Pineland's Nursery, Columbus, NJ

Wild Earth, Freehold, NJ

Sylva Native, New Freedom, PA

North Creek Nurseries, Landeberg, PA.

ORDERING PLANT MATERIALS: The Contractor shall notify the Director of Landscape Construction of the unavailability of any tree, shrub, herbaceous plant, or bulb species designated in the contract, as well as provide confirmation to the Engineer of all orders from all sources of supply. Any request for species substitution due to unavailability must be submitted in writing to the Landscape Architect, Design Division, within fifteen (15) days of the award of contract. The Contractor must include the names and addresses of at least ten (10) nurseries they have contacted in an effort to locate these species, and the list shall be submitted to the Landscape Architect. All nurseries supplying material shall be required to have a registration certificate from the Department of Agriculture and Markets, Division of Plant Industry, New York, or any other state where plant material is obtained, certifying that plant material is apparently free of injurious insects and diseases.

DIMENSIONS: A plant shall be dimensioned as it stands in its natural position. Trees up to and including four-inch (4") caliper size shall be measured six inches (6") above ground level. Trees over four inches (4") in caliper size shall be measured twelve inches (12") above ground level. Stock furnished shall be a fair average of the minimum and maximum sizes specified. Larger plants cut back to sizes specified will not be accepted.

Container grown herbaceous plants, groundcover, and vines shall be well rooted in the container size indicated on the Plant Schedule, grown in the container at least one year prior to planting. Bulbs, corms, tubers and rhizomes shall be Top Size, or as indicated on the Plant Schedule. Annual flowering plants shall be vigorous, well rooted, with no indications of disease or stress.

PREPARATION OF PLANTS: All precautions customary in good trade practice shall be taken in preparing plants for moving. Workmanship that fails to meet the highest standards will be rejected. All plants shall be dug immediately before moving unless otherwise specified. All plants shall be dug to retain as many fibrous roots as possible. Balled and burlapped and balled and platformed plants shall have a solid ball of earth of minimum specified size, securely held in place by burlap and stout rope or twine. Oversized or exceptionally heavy plants are acceptable if the size of the ball or spread of roots is proportionately increased, to the satisfaction of the Engineer. Loose, broken, or manufactured balls will be rejected. Bare root plants shall be puddled immediately after digging by immersing the roots in a hydrogel slurry, so as to completely coat the roots.

DELIVERY: Plants shall be packed, transported, and handled with utmost care to insure adequate protection against injury. When transported in closed vehicles, plants shall receive adequate ventilation to prevent sweating. When transported in open vehicles, plants shall be protected by tarpaulins or other suitable cover material. All bare root plants shall be adequately protected from drying out by covering the roots with a plastic bag and planting within 2 weeks of being dug. Balled and burlapped plants shall be set on the ground and the ball covered with soil. Until planted, all material shall be properly maintained and kept adequately moist, to the satisfaction of the Engineer.

INSPECTION: Inspection may be made before digging if the Engineer directs, but no plant material shall be planted by the Contractor until inspected by the Engineer at the site of the work. Plant material will be rejected if delivered with broken or damaged root balls, or if damaged on site by rough handling. All rejected material shall be immediately removed from the site and replaced with acceptable material at no additional cost. Final inspection shall be made upon completion of the contract.

PLANT SCHEDULE

ABBREVIATIONS

Cal.	Indicates the caliper of the trunk of the tree.
B & B	Indicates tree or shrub to be balled and burlapped.
B.R.	Indicates a tree or shrub to be delivered "bare root".
O.C.	Indicates "on center" or spacing between plants in all directions.

Ht. Indicates overall height of tree.

Item No. Indicates specific species of plant material, including a description. Example below:
ITEM NO. Genus species
Plant description.

TREES: All trees shall be B&B, major trees branched 6-7' from the ground, minor trees as specified. Sizes shall be as indicated. Rootball size shall correspond to American Association of Nurserymen Standards for the corresponding caliper size. Well-branched top and fibrous root system essential.

SHRUBS: Sizes shall be as indicated. Rootball or container sizes shall correspond to A.A.N. Standards for the corresponding shrub height. Heavy root system, all shrubs shall be well branched to the ground. Sizes shall be as indicated.

VINES, GROUND COVER, AND HERBACEOUS PLANTS: Container size shall be as indicated on the plans. All plants shall have vigorous root systems and have grown in the container for at least one year prior to planting.

PLUGS: Plugs shall have vigorous root systems.

ANNUALS: Annual flowering plants shall be vigorous, well rooted, with no indications of disease or stress.

BULBS, CORMS, TUBERS AND RHIZOMES: All bulbs, corms, tubers and rhizomes shall be top size, firm, and non-desiccated.

P L A N T S C H E D U L E

CONTRACT NO. R149-608MA1

CONTRACT NAME: THE CONSTRUCTION OF AN INDOOR HORSE RIDING ARENA, LOCATED WEST OF FATHER CAPODANNO BOULEVARD AND NORTH OF SEAVIEW AVENUE, IN OCEAN BREEZE PARK, BOROUGH OF STATEN ISLAND

ITEM NO. QTY. NAME AND DESCRIPTION

TREES

- Item No. 124 6 **Cornus florida 'Cherokee', Flowering Dogwood**
1 1/2"-2" cal. 10' - 12' ht, branched 6-7' from ground. B&B heavy fibrous root system with a minimum root-ball diameter of 20". Single straight trunk with leader intact, well branched.
- Item No. 125 4 **Nyssa sylvatica, Sourwood 2-2 1/2" cal.**
12-14' ht, B & B, healthy tap root system with a minimum root-ball diameter of 24", tree shall be well branched and branching shall start a min of 6' -7' above the ground, compact form. Trees to come from within 100 miles.
- Item No. 126 5 **Amelanchier Canadensis, Shadblow**
1 1/2"-2" cal. 8' - 10' ht, B&B heavy fibrous root system with a minimum root-ball diameter of 20". Multi stemmed, well branched.

SHRUBS

- Item No. 127 6 **Viburnum Trifolium 5'-6' Ht.**
B&B, 20" rootball, well branched to the ground with min. 5 canes and a good vigorous root system.
- Item No. 128 12 **Myrica pensylvanica, Northern Bayberry 4'-5' Ht.**
B&B, 18" rootball, well branched to the ground with min. 5 canes and a good vigorous root system.
- Item No. 129 25 **Rosa 'Knock-Out', Landscape Rose 3'-4' Ht.**
B&B, 14" rootball, well branched to the ground with min. 5 canes and a good vigorous root system.
- Item No. 130 28 **Fothergilla gardenii, Dwarf Summersweet 3'-4' Ht.**
B&B, 14" rootball, well branched to the ground with min. 5 canes and a good vigorous root system.
- Item No. 131 2,100 sf **Carex radiata, Eastern Star Sedge.**
Trays of 32 plugs spaced at 24" o.c. (2.46 x 3.05 inches in size).

PLANTING OPERATIONS:

TIME OF PLANTING: Unless otherwise directed by the Engineer, deciduous material shall be planted from March 1st to May 1st and from October 15th to December 15th. Evergreen material shall be planted from April 1st to May 15th and from September 1st to October 15th, or as approved by the Engineer.

LOCATION: Site characteristics, such as overhead power lines, existing vegetation, and infrastructure items, such as curbs and sidewalks, shall be considered. Trees that grow taller than thirty feet (30') should not be planted directly under power lines. When the design allows, the tree leader shall be offset from power lines.

EXCAVATION OF PLANT PITS: Sizes of plant pits shall be as shown on the planting plan. Planting soil shall be unamended existing soil excavated from the planting pit, unless amendments or topsoil are specified elsewhere in the contract. When subsurface obstructions are encountered during excavation, the Contractor shall restore the disturbed area to its original condition.

When planting in Structural Soil and the depth of the rootball exceeds the depth to the filter fabric underlying the Structural Soil installation, the Contractor shall score the filter fabric in an 'X' and excavate sufficiently to permit the top of the ball to rest at finished grade. All plant material in all planting applications should be checked to ensure the crown hasn't been buried during containerization or balling and burlapping. If so, the additional soil should be removed and the plant set at the correct finished grade.

Each tree shall be planted in an individual pit as specified. Pits for balled and burlapped material shall be dug three (3) times the size of the root ball in diameter and only deep enough so that the root ball sits on undisturbed subgrade, except in situations where curbs and/or adjacent pavements prevent achievement of planting pit dimensions. Sizes of restricted planting pits (i.e. street trees) shall be at the maximum width allowed, and the same depth as the root ball being planted. Any changes in the planting pit sizes shall be broad enough to accommodate the roots fully extended and only deep enough so that the uppermost roots will be just below the original grade.

No plant pits shall be dug until the proposed locations have been staked on the ground by the Contractor and approved by the Engineer. No plant pits shall be backfilled until planting is approved by the Engineer. **All pits shall have sloped sides unless otherwise directed.** Excavated material, when found to be unsuitable, shall be removed from the site and replaced with topsoil, as directed by the Engineer, and paid for under the Items, 'Unclassified Excavation' and 'Topsoil'. Any amendment will be as directed and determined by the Landscape Architect.

Extreme care shall be taken not to excavate to a depth greater than required. The subgrade below the root ball shall be tamped slightly to prevent settlement. Where, in the opinion of the Engineer, the subgrade material is unsuitable, the size of the plant pits shall be dug one-half (1/2) wider than normally required. The bottom and sides of the pit shall be backfilled with the existing soil, without amendments, and thoroughly worked into place to remove air pockets and voids.

Planting beds for Shrubs, Vines, Herbaceous, and Groundcover plants shall be excavated to the dimensions and depths indicated on the plans and backfilled with approved topsoil. Bulbs, Corms, Tubers, Rhizomes and Annuals shall be planted in the existing unamended soil or prepared planting beds with improved soil and/or a water absorbent medium, as designated on the drawings.

Planting beds that are installed within tree protection zones, as defined in Article 14, Section C, General Requirements, can only be done in the presence of the Director of Landscape Construction or his designated representative. All excavation and plant installation is to be done by hand, with minimal soil disturbance. No roots over 1" in diameter shall be cut. Plants shall not be placed within (three) 3 feet of the tree trunk.

Mycorrhizal Fungi Inoculant: Shall be applied by means of a three ounce (3 oz.) premeasured dry formulation packet, such as Mycor Tree Saver Transplant®, as manufactured by Plant Health Care, Inc., Pittsburgh, PA. Rhizanova Tree Transplant, as manufactured by Becker Underwood, Inc., Ames, IA, or approved equal. Packets shall contain, as a minimum: one thousand (1000) live spores of Vesicular-Arbuscular fungi, including: *Entrophosphora columbiana*, *Glomus clarum*, *Glomus etunicatum*, and *Glomus sp.*; seventeen million five hundred thousand (17,500,000) live spores of Ectomycorrhizal fungi (*Pisolithus tinctorius*); Biostimulant ingredients including *Yucca schidigera* extract; soluble sea kelp extract derived from *Ascophylum nodosum*; humic acids; and acrylamide copolymer gel as a water absorbent medium. Mycorrhizal fungi inoculant shall be added to the top six to eight inches (6-8") of backfill soil in each planting pit and thoroughly mixed to distribute the inoculant. The material shall be applied according to the following chart:

<u>Size of rootball or container</u>	<u>Ounces per plant</u>
1 gallon	1
2 gal.	2
3 gal.	3
5 gal.	3
7 gal.	3
10 gal.	3
15 gal.	3
20" B&B	6
24" B&B	9
30" B&B	9
36" B&B	12
12" B&B	12

Water Retention Additive: Water Retention Additives shall be a granular polyacrylamide polymer of a potassium base and not a sodium base that slowly releases moisture into the root zone such as Terra Sorb, as manufactured by Plant Health Care, Inc., Pittsburgh, Pa., or approved equal. It shall be applied at the time of planting during a dry planting as defined by Parks and Recreation. When planting trees, each tree shall receive three (3) ounces or amount specified by product instructions. Half should be added at a depth of 8-10 inches and the other half just below the finished surface. When planting shrubs, perennials or annuals, the product should be applied as per product instructions.

Range Fence: When planting trees in lawn areas, the Contractor shall provide range fencing, in an area approximately five feet (5') square, in order to protect the trees from lawn mowers and trimmers. Fence shall be installed according to the method outlined in the DPR Standard Specification "Range Fence – 4'-0" Height".

Planting: Shall be performed by an approved Sub/Contractor. No planting shall be done except in the presence of the Engineer. All material shall be inspected by the Engineer as it is removed from the truck, prior to placing in an approved storage area or the designated planting site. All rejected material shall be removed from the site and replaced with acceptable material at no additional cost to the City.

Bare root material shall be adequately protected from drying out. It shall be removed from its plastic bag and planted immediately after inspection. The bundles of heeled-in plants shall be set upright on the ground, covered with mulch, and kept adequately moist until the time of installation. Until the time of planting, all plant material shall be stored in an approved location, securely fenced and maintained, to the satisfaction of the Engineer, at no additional cost to the City. All plants not planted immediately shall be watered as necessary to maintain optimal health until planting.

Place balled and burlapped material in the prepared planting pit by lifting, and carry it by the rootball. Set the tree or shrub straight and in the center of the pit, with the most desirable side facing toward the predominant view. All material shall set, after settlement, at the same level at which they have grown in the nursery. Care shall be exercised in setting the plants plumb. All ropes, stones, etc. shall be removed from the pit before backfilling. Soil for backfill shall be loose and friable and not frozen or compacted.

Cut and remove rope or wire from the top fifty percent (50%) of the rootball and cut off the burlap back to the edge of the ball. Remove as much woven product and twine as possible. All plastic or synthetic fabric must be removed from the ball at the time of planting. Any wire basket enclosed root ball will need to have at least two-thirds (2/3) of the wire basket cut away from the sides and top of the ball and removed. Remaining lateral wires must be cut to prevent future root interference. Wire must not be galvanized or aluminum wire.

Balled and burlapped plants shall be handled so that the ball will not be loosened. After the soil has been thoroughly firmed under and around the ball, the burlap shall be cut away from the upper half of the ball, and the remaining burlap adjusted to prevent the formation of air pockets. Where directed by the Engineer, the burlap shall be entirely removed. Soil shall be firmed at six to eight inch (6-8") intervals and thoroughly settled with water. Plants with exposed roots shall be placed in the proper position in the center of the pit after the soil in the bottom of the pit has been firmed. Roots shall be arranged in their natural position and existing soil worked in among them, firmed at intervals, and mycorrhizal inoculant and water retention additive worked into the top eight inches (8") of backfill soil in the correct proportions. The plants shall then be thoroughly settled in with water. Care shall be taken to avoid bruising or breaking the roots when tamping the soil. All large and fleshy roots that are bruised or broken shall be pruned, making a clean cut before planting.

Vines, Herbaceous, and Groundcover plants shall be carefully removed from containers or flats

immediately prior to planting and set to the same depths as they were grown in the nursery bed or container, to the correct spacing indicated on the plans. Roots shall be arranged in their natural position and topsoil worked in among them, taking care to avoid bruising or damaging the roots, and fertilizer tablets added to the top four inches (4") of backfill soil in the correct proportion for the respective pot size. No later than one hour after planting, all plants shall be thoroughly settled in with water.

Annual flowering plants shall be carefully removed from the flats or cell-packs to avoid damaging roots or stems and planted in prepared planting beds at the same depth they were growing in the containers. Soil shall be thoroughly firmed around each crown, and plants thoroughly watered in no longer than one hour after planting.

Bulbs shall be planted in the locations indicated on the plans and to the depths and spacing indicated on the Plant Schedule. Spring Flowering Bulbs, Corms, Tubers, and Rhizomes shall be planted in late September or October, no more than six (6) weeks before frost. Summer and Fall Flowering Bulbs, Corms, Tubers, Rhizomes and Plugs shall be planted in spring, after the last killing frost, or as directed by the Engineer. All of the above shall be planted according to best horticultural practice. Prior to planting, bulbs shall be stored in a cool, dry, well-ventilated location for no longer than two (2) weeks before planting.

FINISHING SURFACE AFTER BACKFILLING: The Contractor shall cultivate and rake over finished planting areas and shall leave the site in an orderly condition. On level ground or slight slopes, a shallow basin a little larger than the diameter of the plant pit shall be left around each plant, as shown on the plans, or as directed by the Engineer. On steep slopes, the soil on the lower side of the plant shall be graded in such a manner that it will catch and hold water, as shown on the plans, or as directed by the Engineer. Upon completion of planting, all debris and waste material resulting from the planting operation shall be removed from the project area, and the affected area raked and cleaned as necessary.

All work done in preparing shallow basins or grading of plant pits on steep slopes and regrading and reseeding of plant saucers shall be deemed included in the unit price per plant. All berms raised for shallow basins in level or gently sloping grass areas shall be removed at the end of the guarantee period, as well as tree stakes and irrigation bags, if present. This topsoil shall be cast evenly over the surrounding grass areas and grass seed sown over the removed berms.

After the shallow tree basins and plant saucers and shrub beds have been prepared, they shall be mulched, three to four inches (3-4") in depth, inside and along the outside edge of the basins/saucers. Perennial beds shall be mulched to a two inch (2") depth. Mulch shall consist of shredded bark not exceeding three inches (3") in length and one inch (1") in width. Mulch contaminated with leaves, twigs, and/or debris shall not be acceptable. Only mulch derived from tree material, not from wood waste products like sawdust, shall be acceptable. Mulch for tree pits and shrub and/or perennial beds shall be included in the bid price. After placing mulch on tree pits, the tree irrigation bags shall be installed and filled as per manufacturer's recommendations. Tree irrigation bags shall be included in the unit prices bid for the various Contract Items.

STAKING: All staking shall be done immediately after planting and all stakes and wire shall be maintained. Plants shall stand plumb after staking. Stakes shall be of white cedar with bark attached. They may have a maximum allowable deflection of ten percent (10%). Stakes of the dimensions shown on the plans and details shall be placed outside the root ball and shall be driven to the depths indicated on the plans and details.

Stakes shall be fastened to the tree with double No. 12 gauge annealed galvanized steel wire run through a suitable length of new reinforced one-half inch (1/2") rubber hose or with a suitable length of 3/4" wide, flat, woven polypropylene material as manufactured by DeepRoot, San Francisco, CA or approved equal, that is knotted and nailed to the stakes with 1" galvanized roofing nails as directed by the Engineer. Stakes shall be set parallel to the contours, curbs, or walks, unless otherwise directed by the Engineer. The length of doubled wire between the tree and stakes shall be hand twisted several times prior to fastening to the stakes. The wires shall be tied off firmly at the stake, not crank twisted at the center. Trees shall stand plumb after staking. Stakes, wires and hoses shall be removed at the end of the one year guarantee period, unless directed otherwise by the Engineer and shall become the property of the Contractor. At the time the stakes are removed any holes left by the stake shall be filled with topsoil as specified in the "Topsoil" specification. If directed by the Engineer, Tree irrigation bags shall be removed by the Contractor at the end of the guarantee period and, if they are in functional condition, shall become the property of the New York City Parks Department.

PRUNING: Broken or badly bruised branches shall be removed with a clean cut. Do not cut leaders or use wound paint or dressing to treat cut areas. Crossed branches shall be pruned with a sharp tool in such a manner as to preserve and encourage the plant's natural growth form. The crowns of young trees should not be cut back to compensate for root loss.

EDGING OF PLANTING AREAS: The Contractor shall establish a neat edge where planting areas meet grass areas, as shown on the plan or as directed by the Engineer. Edging shall be done by competent mechanics in a workmanlike manner with a spade or edging tool immediately after all planting and seeding is completed. Particular care shall be exercised in edging to establish good flowing curves, as shown on the plan or as directed by the Engineer. Edging shall be maintained by the Contractor until final acceptance of the contract.

MAINTENANCE: At the time of planting, the soil around each plant shall be thoroughly saturated with water, and as many times later as seasonable conditions require, until final acceptance of the plant materials. Where water is supplied from City hydrants, the Contractor shall obtain a free hydrant permit from the Department of Environmental Protection, Bureau of Consumer Service, (718 595 6699). Permits are issued for a 30 day period, and the Contractor is responsible for keeping the permit current. The permits are available from each borough office. To obtain a permit, the Contractor should bring a copy of their DPR contract indicating exemption from the permit fee, as described in Article 13, with a general description of the hydrant location(s) they propose to access.

The Contractor must have all tools necessary for using city hydrants in his possession at time of planting to ensure that this specification is adhered to. If conditions do not allow the use of New York City water sources, the Contractor must obtain their own source of water. No direct payment

shall be made for water obtained from other than city sources, but the cost thereof shall be deemed included in various Items of the contract.

Maintenance shall include watering, including filling tree irrigation bags to capacity at least once per week, weeding, cultivating, edging, control of insects, fungal infections, and other diseases by means of spraying with an approved insecticide or fungicide, pruning, adjustment and repair of stakes, anchors, and wires, repair of minor washouts and gullies up to twelve inches (12") in depth, and other horticultural operations necessary for the proper growth of all trees, as well as replacement of plants stolen or vandalized prior to the Final Inspection, to a degree judged sufficient for replacement by the Engineer and/or Director of Landscape Construction. The Contractor shall also be responsible for keeping the entire area within the contract limits neat in appearance until the final acceptance and completion of the whole work of this contract. All planting areas shall be watered, cultivated, and weeded with hoes or other approved tools within the growing season extending from May 1st to October 1st, and such cultivating and weeding shall be repeated at least once a week. Under no condition shall weeds be allowed to attain more than six inches (6") of growth. The cost of such maintenance shall be included in the bid price.

REPLACEMENT: The Contractor shall replace, in accordance with the contract plans and specifications, any plant material that is dead or, in the opinion of the Engineer, in an unhealthy or unsightly condition, and/or have lost their natural shape due to dead branches, excessive pruning, inadequate or improper maintenance, vandalism or other causes, prior to final acceptance. Replacement plants shall be installed in the following planting season. There shall be a two (2) year guarantee on plant material commencing after the final acceptance and the completion of the whole work of this contract. When instructed by the Engineer, plant material that has died after final acceptance shall be replaced in the next appropriate planting season, even when the next planting season falls outside the one (1) year period. Plant material that dies within the one (1) year guarantee period shall be replaced as many times as necessary. The cost of replacements(s) shall be included in the unit price bid for the various furnished items of the contract.

Where vandalism or related causes are agreed by the Engineer as the cause for plant material replacement, the Contractor shall be responsible for one replacement during the one-year guarantee period after final acceptance.

Where dead plant material has been identified, whether due to natural causes or vandalism, the Contractor shall remove the dead material, including stakes, and wire (if applicable) **within three (3) weeks of notification**

Where dead plant material has been identified, whether due to natural causes or vandalism, the Contractor shall remove the dead plant material, including stakes, burlap, tree irrigation bags, if any, and wire. Earth will be leveled and new topsoil and seed, or appropriate paving material, added at the direction of the Engineer to eliminate any hazardous conditions.

The Contractor shall maintain Replaced Plant Material to the standards outlined in the "Maintenance" section above.

SUBMITTALS: All submittals shall be as per the General Conditions.

State Certification (in quarantine zone only): The Sub/Contractor shall submit a copy of a valid Compliance Agreement issued by the State of New York Department of Agriculture and Markets, Division of Plant Industry for review and approval prior to performing work.

Invoice: The Sub/Contractor shall submit an original invoice for all plant material delivered to the site. The invoice(s) must be on the Nursery letterhead and must indicate genus and species along with the quantity and size for each individual plant material delivered to the site.

MEASUREMENT AND PAYMENT: The quantity of **PLANT MATERIAL** to be paid for under these Items shall be the number of trees, shrubs, vines, herbaceous plants, groundcovers, and bulbs of each size planted and maintained, in accordance with the plans and specifications, to the satisfaction of the Engineer.

The price bid shall be a unit price per **EACH** tree, shrub or plug of each size, as specified in the Plant Schedule (ITEM 131 shall be **SQUARE FOOT**), and shall include the cost of furnishing plants, mycorrhizal inoculant, water retention additive, shredded bark mulch for tree pits, shrub beds, and perennial or groundcover beds, inspecting, planting, staking, anchoring, watering, replacing, and maintaining all plant material and all work incidental thereto, in accordance with the plans and specifications, to the satisfaction of the Engineer.

All plant material substitutions must be pre-approved as described in "Ordering Plant Materials". Approved substitutions where size and/or description vary from that listed in the plant schedule included herein may result in a monetary credit due to the City.

Topsoil, excavation, and compost, where called for in the plans or details, will be paid under their respective Items. Shredded bark mulch beyond the tree pit and shrub or perennial bed outlines shall be paid for separately under the Item 'Shredded Bark Mulch'. Range fencing, if required, will be paid for separately under the Item "Range Fence 4'-0" Height". The price of water, regardless of source, is deemed included in the unit price bid. No extra payment will be made for water coming from the Contractor's own source.

END OF PAGE

TREE WORK
SECTION A

1. PROTECTION OF EXISTING TREES AND SHRUBS:

A tree protection plan shall be formulated and/or finalized in consultation with the Resident Engineer, Landscape Architectural Designer, Capital Arborist and the Director of Landscape Construction.

This plan should include, but not necessarily be limited to, the location of temporary wooden tree guards, construction fence, temporary snow fence boundary, range fencing, micro tunneling, soil erosion and sediment control, hand and/or pneumatic excavation, soil compaction prevention and mitigation requirements, impact of trenching and/or cut and fill operations and a compensatory pruning and fertilization schedule.

In addition, the plan should address the Contractor's operations, including designated staging areas, site access and stockpiling of materials.

Mandatory provisions of the tree protection plan always include, but are not limited to, the following provisions:

The Contractor shall not be permitted to park vehicles or equipment or to stockpile materials of any nature under the drip line of trees and shrubs in order to minimize surface and subsurface root damage and soil compaction. This directive shall apply to all areas within or outside the contract limit line.

All Tree pruning and tree removal is to be performed by an arborist holding certification from the International Society of Arboriculture (ISA) or equivalent education and experience.

All contact between equipment and overhead tree limbs should be avoided. Bending or breakage of limbs is prohibited. If clearance pruning is proposed, it shall not take place without the written permission of the Agency, and then shall only be performed with professional equipment as per the Agency's standards and specifications for such work.

All trees within the limits of the contract limit line are to receive at least one (1") inch (the equivalent of 750 gallons of water per 1000 square feet of tree protection zone) of water per week between the months of March and October as directed by the Director of Landscape Construction. If rainwater in any given week is below this quantity, the Contractor must supplement the amount received by utilizing soaker hoses or as directed by the Agency. If a water source is unavailable at the site, then the Contractor must provide tree irrigation bags or a water truck to apply the requisite amount of water.

Where excavations are performed within the tree protection zone for removal of existing features or installations of new work, the excavated area shall be backfilled immediately and/or roots shall be kept constantly moist with burlap covered with white plastic and checked a minimum of two (2) times a day, once in the morning and once in the afternoon, for a maximum of forty-eight (48) hours, until backfill is complete as directed by the Director of Landscape Construction, or his representative. If directed, soaker hoses shall be installed to facilitate properly moist conditions. No pooling of water or continuous running water shall occur within the tree protection zones other than that during the irrigation process.

The Contractor shall exercise extreme care in removing concrete or asphalt within the tree protection zone, lifting rather than dragging paving pieces. Tools and equipment for this activity shall be approved by the Director of Landscape Construction or his representative prior to the start of excavation.

Any excavation or trenching for utility or infrastructure installation within a tree protection zone or elsewhere on the site as designated by the Director of Landscape Construction shall be done by hand or pneumatic excavation, or micro tunneling.

If directed, the root zone of a tree shall be covered with mulch to a depth of at least six (6) inches or with plywood in order to protect roots from damage caused by heavy equipment. Such covering shall be maintained during the course of construction and removed after the end of construction. Removal shall be by hand or as specified by the Director of Landscape Construction.

Roots over 1" in diameter shall not be cut without the written permission of the Director of Landscape Construction or his designated representative.

Protective fencing shall be paid for separately as per the drawings or as directed by the Director of Landscape Construction.

Tree guards with tree wraps shall be installed on all trees within the contract limit lines or limits of the construction zone as shown on the Tree Protection Plan. Protective fencing shall be installed along the perimeter of the tree protection zones for individual trees or groups of trees within the contract limit line or limits of the construction zone.

Fencing material shall follow Parks specifications and standards and shall be construction (chain link) fencing or orange polyethylene (snow) fencings or range fencing, as specified by the Director of Landscape Construction, or his designated representative. The minimum height of fencing shall be four feet (4').

Fences and tree guards shall not be removed or moved without written permission of the Director of Landscape Construction, or his designated representative.

All tree protection fenced zones shall be so indicated with signage posted visibly on the fenced in area as directed by Landscape Contractor. Wording shall read "Tree Protection Zone".

Signs will be provided by the Agency. Contractor is to be held responsible for fixing and maintaining signs for the duration of the Contract.

Planting beds that are installed within tree protection zones can only be done in the presence of the Director of Landscape Construction or his designated representative. All excavation and plant installation is do be done by hand, with minimal soil disturbance. No roots over 1" in diameter shall be cut without the written authorization of the Director of Landscape Construction. Plants shall not be placed within 3 feet of the tree trunk unless directed by the Director of Landscape Construction or his designated representative.

REMEDICATION – In the event of damages to trees and shrubs resulting from the Contractor's work, as determined by the Director of Landscape Construction, the following shall apply:

At the completion of the construction project and in response to field conditions

any of the following site restoration/mitigation measures may be required by the Agency in addition to those specified in the tree protection plan. These measures shall be assumed at the expense of the Contractor and shall not be done without the approval of the Director of Landscape Construction.

- a. Soil analysis. Soil testing may be required to determine fertilization and soil amendment applications.
- b. Compensatory soil decompaction/ enrichment (scarification, vertical mulching and/or fertilization, radial trenching) See specification.
- c. Soil aeration, i.e. the injection of air or pressurized water into the soil. (Terravent or other similar method sees specification).

- d. Pruning of dead or diseased tree branches, and/or dead tree removal.
- e. Root collar excavation, to remove any soil that accumulated around the base of the tree during construction.
- f. Tree irrigation, for up to one year after the end of construction. Method is to be as directed by the Director of Landscape Construction, or as per the applicable specification.
- g. Mature tree regeneration, i.e. Pacloblutrazol injection.
- h. Soil replacement in eroded areas.
- i. Root pruning.

DAMAGE ASSESSMENT:

a. Tree damage. For trees that are damaged during the course of construction, a monetary credit shall be taken. The monetary assessment shall be the difference between the tree's condition rating, as per the International Society of Arboriculture appraisal method, before and after the damage. The damage assessment shall be determined by qualified Agency personnel.

b. Tree Destruction. Any trees irreparably damaged during the course of construction, as determined by the Director of Landscape Construction shall be removed at the Contractor's sole expense. Restitution shall be made according to the Basal Area Replacement formula, as determined by the Agency. Restitution can be met by the Contractor through the following options:

- (1) Direct planting by the Contractor or its subcontractor of the required equivalent number of replacement trees at locations determined by the Director of Landscape Construction; or
- (2) A monetary credit for the value of the tree destroyed; or
- (3) A combination of (1) and (2) above, as determined by the Director of Landscape Construction. If the Contractor plants some replacement trees, a monetary credit shall be taken for the difference between the full value of the destroyed tree and the value of the number of replacement trees planted.

c. Tree Removal. Restitution for any prohibited tree removals shall be made according to the Basal Area Replacement formula, with adjustments for tree condition as per the International Society of Arboriculture appraisal method, as determined by the Agency.

d. Tree protection deficiencies. In addition to the remedial actions described above, failure to follow the tree protection guidelines in this Article 14 will result in assessment of liquidated damages. When a tree protection deficiency, as determined by the Director Landscape Construction, is identified, it must be remedied within 24 hours of notification by the Agency. Failure to correct the deficiency within this timeframe will result in a liquidated damages assessment of \$300 for each day, or part thereof, that the tree protection deficiency is not remedied.

2. ASIAN LONGHORNED BEETLE QUARANTINE ZONE:

Any Sub/Contractor who will perform tree work of any kind within the Asian Longhorned Beetle (ALB) Quarantine Zone must be Certified by the State of New York Department of Agriculture and Markets. Tree work includes, but is not limited to planting trees, transplanting trees, pruning & fertilizing trees, removing trees and stumps, and clearing and grubbing trees or roots. To view a current map of the geographic area included in the quarantine zone within New York City, see the following website:

http://www.aphis.usda.gov/plant_health/plant_pest_info/asian_lhb/alb_maps.shtml

The Asian Longhorned Beetle (ALB) is a destructive wood boring insect. It can cause serious damage to healthy trees by boring into their heartwood and eventually killing them. Nursery stock, logs, green lumber, firewood, stumps, roots, branches and debris of one-half (1/2") inch or more in diameter are subject to infestation. In an effort to control the spread of the beetle to other areas, quarantine has been imposed on large portions of the City of New York as per Part 139 of Title 1 NYCRR by the State of New York Department of Agriculture and Markets. All Sub/Contractors will be held responsible for compliance with State of New York Agriculture and Market Law and Emergency Rule Making. For additional information regarding procedures, contact the Director of Landscape Construction at (718) 760-6736 and see the U.S. Department of Agriculture (USDA) website: <http://www.aphis.usda.gov>.

3. UTILITY PRUNING REQUIREMENTS:

Wires shall be treated as live and high voltage until verified by the utility. Branches touching wires shall be pruned by the utility before work begins. Limbs and branches shall not be dropped onto overhead wires. If limbs or branches fall across electrical wires, all work shall stop immediately and the utility shall be notified.

When climbing or working in trees, pruners shall try to position themselves so that the trunk or limbs are between their bodies and electrical wires. Pruners shall not work with their backs toward electrical wires. A bucket truck is the preferred method of pruning when climbing poses a greater electrical contact threat.

Personal protective gear shall have appropriate all-electric characteristics needed for working near electricity.

MATERIALS AND METHODS OF CONSTRUCTION
SECTION B

ARTICLE 1. GENERAL REQUIREMENTS: All materials proposed to be used in construction shall have due examination and be subjected to the required tests before acceptance. Those which are to be tested by the Laboratory shall have samples taken and submitted in accordance with the Engineer's instructions. Samples are to be taken of all sand, gravel, stone, cement, concrete, bars, steel fabric, bituminous material or other materials used in construction when the Engineer in charge has not been notified that such samples have already been taken. Such materials shall be tested by the Laboratory and no materials of which laboratory tests are required shall be used, unless otherwise directed, until the Engineer has received written notification of acceptance, and then only so long as its quality remains equal to that of the accepted sample. The Contractor shall furnish all samples, shall bear all expense in connection with their sampling and transportation, and shall furnish all facilities and labor required in connection with their testing.

The acceptance at any time of any materials shall not be a bar to its' future rejection if subsequently found to be defective or inferior in quality or uniformity to the material specified.

Contractors shall furnish to companies from whom they purchase materials, which are inspected at manufacturing plants, the contract number and destination for each shipment of material so ordered. If any part of the contract is sublet, the sub-contractor shall also conform to the foregoing requirements.

Any materials which have been plant inspected and accepted by the Engineer shall not be shipped to other work under another Contract unless so authorized by the Engineer.

Materials which have been rejected based upon the results of Laboratory tests will not be resampled or retested except as provided for in the Specifications for any particular material, unless otherwise directed by the Engineer.

Weight shall be used in all cases for percentage determination on all solid material.

Any material may be rejected if, in the opinion of the Engineer, service records indicated that it is

unsound or otherwise unsatisfactory.

The results obtained in the test of any materials for concrete may be compared with the records of similar materials in actual service and when such service record is unsatisfactory, as determined by the Engineer, the use of the material will not be allowed even though the tests are satisfactory.

ARTICLE 2. AGGREGATES: The term "aggregate" shall mean inert material which is mixed with cement and water to produce concrete, consisting in general of sand, pebbles, gravel, cinders, crushed stones, blast furnace slag, burnt shale or clay, or similar materials.

Concrete aggregates shall conform to "Standard Specification for Concrete Aggregates," A.S.T.M. C33, or to "Standard Specification for Lightweight Aggregates for Structural Concrete," of A.S.T.M. C330; lightweight aggregate shall be approved by the Board of Standards and Appeals. The size of the aggregate shall be at most one-fifth of the narrowest dimension between forms of the member for which the concrete is to be used, three-fourths of the minimum clear spacing between reinforcing bars.

All sources of aggregate shall be thoroughly stripped of all inferior and objectionable material before operations are started and shall be kept stripped far enough from the working face to insure against undesirable material becoming mixed with output.

Aggregate stock piles shall be located at points approved by the Engineer and so arranged that the fine and coarse aggregates or coarse aggregates separated by the specification requirements do not become mixed. The Contractor shall provide either approved platforms or prepared bases satisfactory to the Engineer; or at least 6 inches of the base stock pile material shall be left undisturbed until the completion of the pavement and structures. Materials from different sources of supply shall not be stored in the same stock pile unless approved by the Engineer.

Aggregates shall be delivered to the mixer in the batch boxes or trucks with the compartments of sufficient capacity to carry individual batches so there will be no loss or overrun of concrete materials either during transit or during the operation of dumping batches at the mixer. Truck bodies or batch boxes used to transport cement shall be equipped with waterproof tarpaulins for protection against rain and wind. Railroad cars, barges, etc., used for the transportation of materials shall be clear when any materials are deposited therein.

If undesirable material is furnished from acceptable sources of supply through faulty operation or any other cause whatsoever, all material from the source of supply may be rejected by the Engineer.

Representative samples of both fine and coarse aggregate shall be taken and sent by the representative of the Engineer to the Laboratory unless materials from the same source of supply have been tested and approved during the year preceding the award of the Contract except that local stone need not be resampled if the supply has not been worked and the test is not more than three years old; and except that local sand and gravel need not be resampled if the supply has not been worked and the test is not more than two years old.

If, after approval, the character of the material changes it shall be subjected to further test for approval or rejection.

If, after trial, it is found that partly developed quarries, ledges, pits, banks or other sources of supply do not furnish a uniform product, or if for any reason, the product from any source, at any time, proves to be unsatisfactory to the Engineer, said Engineer may require the Contractor to furnish acceptable material from other sources of supply, and the Contractor shall have no claim for increased payment on account of such requirements.

Whenever any specifications or methods of test are stipulated in these Specifications the same shall mean that specification or method of test given by the serial designation mentioned or the bulletin referred to.

When a sieve number is mentioned in these Specifications the same is to comply with the Tyler Standard Screen Scale Sieves as to size of sieve opening.

ARTICLE 3. PORTLAND CEMENT: All Portland Cement shall be sampled at the mill by a representative of the Engineer.

Portland Cement shall be tested according to approved methods of tests and shall conform to "Standard Specifications for Portland Cement" of A.S.T.M. Designation: C 150, where not otherwise modified by these specifications and except that test samples for cement taken from

cars, bins or warehouses shall represent amounts to be determined by the Laboratory. Samples of each lot shall be required to show practically uniform results in tests; marked deviation from such results may be considered cause for rejection, even though test requirements may be otherwise fulfilled.

Compound percentages shall be computed to the nearest one-tenth of one per cent and reported to the nearest one percent.

Cement may be accepted on the results of the seven-day tests provided these tests are satisfactory. Cement not satisfactory in the seven-day tests may be held awaiting the results of twenty-eight day tests before acceptance or rejection. The Engineer, however, reserves the right to reject any cement that fails to meet the requirements of the twenty-eight-day tests, even though it had been previously accepted on the seven-day tests. The cement shall be delivered in suitable bags of an approved type with the brand and the name of the manufacturer plainly marked thereon. A bag shall contain 94 pounds net. A barrel shall contain 376 pounds net. One bag of cement shall be considered as containing 1 cubic foot.

Bulk cement may be used providing it is batched by an approved weighing device meeting the following requirements:

The weighing hopper and scale entirely encased and arrangement made for locking.

The discharge chute shall be so arranged that cement will not lodge therein and so that there will be no loss of cement.

The hopper inlet mechanism shall be interlocked against opening when the discharge gate is open.

The hopper discharge mechanism shall be inter-locked against opening until the full batch is in the hopper scales, balanced against opening while hopper is being filled, against closing until hopper is entirely discharged and scales back is balance, and against opening if batch in hopper is either over or under weight by more than one per cent of the amount specified.

The weighing hopper discharge gate shall be operated by electrical mechanism.

The weighing hopper discharge chute shall be suspended from the encasement and not from the weighing hopper.

Shipment or transportation of cement in cloth bags will not be permitted.

Provision shall be made by the Contractor for storing cement, in a dry place and in such a manner as to permit easy access for proper inspection and identification of each shipment.

The use of cement of a temperature in excess of 1400 F will not be permitted.

All cement stored over winter by the Contractor shall not be used until retested by the Laboratory. All accepted cement held in storage more than six months at mills, plants, storage sheds, etc., shall be resampled and retested before use. However, accepted cement which has been in storage more than one (1) year from the time of original sampling shall not be used.

Cement failing to meet the requirements of the Specifications shall be neither resampled nor retested, except as provided for in the Standard Specifications of the American Society for Testing Materials.

ARTICLE 4. FINE AGGREGATE FOR CONCRETE: Fine aggregate shall consist of sand, ore or garnet tailings, stone screenings (except limestone screenings) or a mixture of these, which shall conform to the following requirements and sieve analysis when dry.

Fine aggregate for concrete shall consist of grains or particles of hard and durable rocks, the surfaces of which are not coated with any injurious material. Any fine aggregate may be rejected if, in the opinion of the Engineer, it contains sufficient deleterious or unsound material to be harmful.

Natural or concrete sand shall be so graded that, when dry, 100 per cent shall pass 1/4-inch sieve, 90 to 100 per cent shall pass a No.4 sieve; 50 to 85 per cent shall pass a No.16 sieve; 10 to 30 per cent shall pass a No.50 sieve, and 2 to 10 per cent shall pass a No.100 sieve.

Stone screenings, ore or garnet tailings shall be so graded that when dry, 100 per cent shall pass a

1/4 -inch sieve; 90 to 100 per cent shall pass a No.4 sieve; 55 to 85 per cent shall pass a No. 16 sieve; 15 to 30 per cent shall pass a No. 50 sieve, and not more than 10 percent shall pass a No. 100 sieve.

When subjected to ten (10) alternations of the sodium sulphate solution and soundness test, it shall lose not more than ten (10) per cent by weight.

All natural sand shall be thoroughly washed before using. All washed fine aggregate shall be stored in stock piles for a period of at least twelve (12) hours before batching. No new aggregate shall be added to any stock pile while materials from that pile is being batched.

Fine aggregate shall be rejected if it contains more than two (2%) per cent by weight of four (4%) per cent by volume of loam and slit.

Fine aggregate shall be tested for Mortar-Making properties as described in the standard method of test for Measuring Mortar-Making Properties of Fine Aggregate, A.A.S.H.O. Designation T71.

Fine aggregate for masonry mortar shall consist of natural sand or manufactured sand and shall meet the requirements of the Standard Specification for Aggregate for Masonry Mortar of A.S.T.M. Designation:C 144.

Samples tested during the progress of the work may be accepted on the basis of the seven-day test. The Engineer, however, reserves the right to rescind such acceptance if mortar fails on the 28-day test.

All proportioning tables for fine aggregate have been increased by three (3) per cent to take care of average moisture conditions.

ARTICLE 5. MORTAR SAND: The requirements for Fine Aggregate for Concrete shall apply except as herein modified. When dry, 100 percent shall pass a No. 4 sieve, 95-100 per cent shall pass a No. 8 sieve, 10-35 per cent a No. 50 sieve and 2-15 per cent a No. 100 sieve. Sand shall be rejected if it contains more than 2% by weight or 4% by volume of loam and slit.

ARTICLE 6. GROUT SAND: Grout sand shall consists of clean, hard, durable, uncoated stone particles free from lumps of clay and all deleterious substances.

Grout sand shall be of such a size that when dry 100 per cent shall pass a No. 16 sieve and 0-10 per cent by weight shall pass a No. 100 sieve.

Sand may be rejected for this class if it contains more than 6 per cent by volume of loam and slit. When the sand is mixed with Portland Cement in the proportions of 1 part of cement to 3 parts of sand, the resulting mortar shall have a compressive strength of at least 60 per cent of that developed in the same time by a mortar of the same proportion and consistency made of the same cement and standard Ottawa sand.

ARTICLE 7. CUSHION SAND: Cushion sand shall consist of clean, hard, durable, uncoated stone particles free from lumps of clay and all deleterious substances.

Cushion sand shall be so graded that when dry, 100 per cent shall pass a one quarter (1/4) inch square opening sieve; and 0- 35 per cent by weight shall pass a No. 50 sieve, and 0- 10 per cent by weight shall pass a No. 100 sieve.

Sand may be rejected for this category if it contains more than ten (10) per cent by weight of loam and slit.

ARTICLE 8. COARSE AGGREGATE: Coarse aggregate shall consist of well graded, uniformly mixed broken stone, crushed gravel, screened gravel, or broken slag, and shall meet the requirements given for these materials. Broken slag or screened gravel shall not be used as coarse aggregate in any item unless it is so noted on the plans or in the itemized proposal. The coarse aggregate for concrete in reinforced concrete piles and in slabs, curbs, beams, steel encasement, arches, roadway pavement and frames shall be broken stone. The Contractor may use either gravel or broken stone for other concrete.

If deliveries of coarse aggregate show segregation of sizes, material shall be deposited in stock piles and mixed before using.

Coarse aggregate shall be graded within the ranges shown to produce maximum density.

Coarse aggregate coated with or containing mud, clay, dirt, stone dust, quicksand, or other objectionable material, shall be washed to the satisfaction of the Engineer. Run of bank

gravel, a.k.a. "Bank run" shall not be permitted for concrete aggregate.

Coarse aggregate for concrete in which the maximum size aggregate is limited to No. 2 size shall consist of a mixture of No. 1 and No. 2 size particles, providing that no more than 50 percent or less than 30 percent shall be of No. 1 size and not more than 70 percent or less than 50 percent shall be of No. 2 size.

Stone or crushed gravel coarse aggregate for other concrete shall consist of a mixture of No. 1, No. 2 and No. 3- a size particles, 50 to 60 percent of which shall be of No. 3-a size, 40 to 50 percent of which shall be combined No. 1 and No. 2 sizes at least 40 percent of these combined No. 1 and No. 2 sizes shall be of No. 1 size particles. The combined No. 1 and No. 2 sizes shall be stored and batched separately except that separate delivery and stocking of the coarse aggregate will not be necessary where weight batching is not required.

Where stone is produced locally the crusher bins shall be so arranged that the No. 1 and No. 2 size particles are collected in the same bin.

Gravel coarse aggregate for other concrete shall consist of a mixture of No. 1, No. 2 and No. 3 size particles, not more than 40 percent of which shall be of No. 3 size, 60 to 100 percent of which shall be of No. 3 size, 60 to 100 percent of which shall be combined No. 1 and No. 2 sizes of which not less than 40 percent nor more than 50 percent of these combined No. 1 and No. 2 sizes shall be of No. 1 size particles. The combined No. 1 and No. 2 sizes shall be stored and batched separately except that separate delivery and stocking of the coarse aggregate will not be necessary where weight batching is not required.

When broken slag coarse aggregate is permitted, it shall meet the gradation requirements for coarse aggregate in which the maximum size is limited to 1 inch; and in items requiring weight batching it shall be adjusted in the field at the direction of the Engineer.

For slabs and structural concrete not exceeding one foot in thickness, for concrete deposited under water, and for concrete in pipe piles or concrete piles, the aggregate shall be limited to no larger than No. 2 size.

The sizes of all stone, gravel, slag, etc., furnished locally or commercially and used under these Specifications shall be determined by its passing over the minimum and through the maximum square apertures for the various sizes tabulated as follows:

SIZES, OF STONE, GRAVEL AND SLAG

Percentage by Weight Passing the Following Square Openings (Sieve)

Sizes	4"	3-1/4"	2-1/4"	1-7/8"	1"	1/2"	1/4"	1/8"	No. 80
Screenings*						100	90-100		
IB							100	90-100	0-15
IA						100	90-100	0-15	
I					100	90-100	0-15		
2				100	90-100	0-15			
3A			100	90-100	0-15				
3		100	90-100		0-15				
4	100	90-100	0-15						
5	90-100	0-15							

*Screenings shall include all of the fine material passing a one quarter (1/4") inch screen.

If at any time during the progress of the work the sizes of the stone furnished prove unsatisfactory due to stone "carrying by", fracturing under the roller, etc., the Contractor shall vary the sizes of the screen apertures as directed by the Engineer.

All crushing plants installed on the work shall be fitted with a tailing chute so that no stone will reach the bins other than that which passes through the proper screen.

All stone, gravel or slag must be of the required size when placed in the roadway, and no breaking up of stone, gravel or slag by hammers or otherwise will be permitted after the stone, gravel or slag has been placed in the work.

Stone: The broken stone shall consist of clean, durable, sharp angled fragments of rock (including ore tailings) of uniform quality throughout, free from thin or elongated pieces, soft or disintegrated stone, dirt or other objectionable features. Samples shall be tested for abrasion in accordance Standard Test Methods for "Resistance to Degradation of Small-Size and Large-Size

Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine" of ASTM Designations C131 and C535

When subjected to ten (10) cycles of sodium sulphate solution and soundness test, as hereinafter specified, it shall lose not more than five (5) percent by weight.

Stone for coarse aggregate for concrete, for all top coarse macadam, and for all mixed bituminous pavements, shall have a percentage of wear of not more than five and seven tenths (5-7/10%).

Gravel hardheads retained on a four (4") inch square scalping screen and crushed will be accepted as stone coarse aggregate for all concrete items provided such hardheads shall meet the stone abrasion requirement and provided that the finished product shall meet the gradation requirements for broken stone.

Crushed gravel of No.1A, No.1B, No.1 and No. 2 sizes produced from No.4 and larger size acceptable gravel will be considered as crushed stone for use in all retread, mixed in place and mixing method bituminous pavements.

Crushed Gravel: Acceptable screened gravel which has 75 percent of particles fractured shall be considered as crushed gravel for coarse aggregate for concrete and shall meet the gradation requirements for broken stone.

Gravel: Gravel shall consist of clean, sound, tough, hard stone, free from dirt, foreign matter, organic matter, coating or other deleterious matter and shall be washed if so directed.

Crushed gravel which contains more than 25 percent of unfractured particles shall be considered as screened gravel and shall meet all the requirements therefor. In making the abrasion determination only uncrushed particles shall be used.

Gravel for use in concrete work shall have a percent of wear of not more than 10 as determined by the Deval abrasion test for gravel in accordance with the Standard Specifications of the American Association of State Highway Officials, latest Method.

When subjected to 10 cycles of sodium sulphate solution and soundness test, as described under

Materials of Construction, it shall lose not more than 5 percent by weight.

Slag: Broken slag, if specified for use, shall be hard and durable, composed of angular fragments reasonably uniform in density and quality, reasonably free from thin, elongated or glassy pieces, dirt or other objectionable matter.

Broken slag shall weigh not less than 70 pounds per cubic foot as determined by the Standard Test Method for "Unit Weight and Voids in Aggregate" for Concrete of the American Society for Testing Materials, Serial Designation C 29.

Slag for coarse aggregate for concrete and for all top coarse macadam shall have a percentage of wear of not more than 12 as determined by the Standard Method of Tests for "Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact". American Society for Testing Materials, Serial Designation C 535 using, however, a weight of 4000 gms. of slag, measured loose, broken in pieces as nearly uniform in size as possible, and containing as nearly 50 pieces as possible.

ARTICLE 9. SODIUM TESTS: Soundness of aggregate shall be determined by using American Society of Testing Materials, Serial Designation C-88 latest revision tests for Soundness of aggregate by use of Sodium Sulphate or Magnesium Sulphate.

ARTICLE 10. MAGNESIUM SULPHATE TESTS: The above test A.S.T.M. C-88 shall apply to these tests.

ARTICLE 11. WATER: Water for concrete shall be free from oil, acid, alkali, vegetable matter, organic matter or other deleterious substances.

ARTICLE 12. EXPANSION JOINT MATERIAL:

Premoulded Cork Expansion Joint: General: The premoulded cork joint shall be of the dimensions shown on the plans or in the Specifications. A tolerance of 1/8 of an inch in thickness will be permitted. All joints shall be cleanly cut and plainly stamped with the manufacturer's name.

Composition: Cork expansion joints shall be formed from clean cork particles compressed and bound together by a cementing material insoluble on water. The cork particles comprising the joint shall be present in their original state and shall not have been exposed in the process of

manufacture to a high temperature.

Weight: The weight of the room dry cork expansion joint, computed on a cubic foot basis, shall not be more than 20 pounds.

Boiling Test: The expansion joint shall withstand boiling for one-half hour in distilled water without showing any indication of disintegration.

Compression Test: A sample of the room dry expansion joint, without encasement and not exceeding 1 inch in thickness, shall be compressed at room temperature at the rate of 0.1 inch per minute to one-half of its original thickness. Upon being reduced to 50 percent of its original thickness the pressure shall be released, following which the sample shall return to not less than 85 percent of its original thickness within one hour. The pressure necessary for compression shall not exceed 350 pounds per square inch. The expansion joint shall show no indication of disintegration after the compression test.

Bituminous Premoulded Fibre Joint:General: The bituminous premoulded joint shall be of the dimensions shown on the plans or in the Specifications and shall be of fibre and bituminous composition of approved quality. A tolerance of 1/16 of an inch thickness will be permitted. The joint shall be of such character that it will not be deformed by ordinary handling during the hot summer months or become hard and brittle in cold weather. Thin strips of stiffener will be allowed. All joints shall be plainly stamped with the name of the manufacturer.

Physical Properties: The joint shall consist of cane or other suitable long fibers of a cellular nature and asphalt. The asphalt in the joint shall have penetration of not more than 120 (770F.--100g.--5 sec.)

(a) Asphalt content: The asphalt content of the joint shall be between 35 and 50 percent by weight.

(b) Weight: The weight of the joint shall not exceed 40 lbs. per cubic foot.

(c) Absorption: When a specimen 2" x 6" cut from the joint material is immersed in water for 24 hours, it shall absorb not more than 15 per cent for 1 inch thick material, 20 per cent for 3/4 inch thick material, and 25 per cent for 1/2 inch and less thick material. All percentages are by weight.

(d) Brittleness: The bituminous premoulded joint shall not crack or shatter when subjected to the following tests: The sample to be tested, 2" x 6", is clamped between two boards so that the expansion joint cantilevers 3-1/2", same being held in any suitable support. A cast iron ball weighing 0.95 pound and having a diameter of 1.875 inches suspended by a cord which is tied to an eyelet soldered to the ball. For samples having a thickness of 1/2" and less, the ball is suspended one foot above the center of the projected portion of the specimen. For samples over 1/2" in thickness the ball is suspended 2 feet above the specimen. (The ball is released by burning the string above the eyelet.) The test is made on the sample after it has been maintained at a temperature of from 40 to 60 C. for at least 2 hours prior to testing.

(e) Distortion: The sample shall not show a deflection from horizontal of more than 1 inch subjected to the following test: The sample 2"x6" absolutely flat and straight is clamped between two blocks so that the expansion joint cantilevers 3.5 inches. The clamp, with the expansion joint, is then placed in an oven 1250 F and left therein for 2 hours.

(f) Deflection: A section of the joint (full size) cantilevered 3 feet shall not deflect more than 3 inches in 30 minutes at a temperature of 770 F.

(g) Extrusion: A section of the joint 6"x 6" confined on three sides when compressed to one-half original thickness by a lead so applied as to produce a compression of 0.10" per minute shall not extrude more than one quarter (1/4") after being compressed for one (1) hour. When compressed as above the material shall not lose more than 2% by weight of the original weight of the sample tested.

The Engineer reserves the right to require samples of any or all materials used in the manufacture of the joint.

Sealing Expansion Joints: Where called for on the plans or directed by the Engineer, expansion joints shall be sealed with expansion joint compound in accordance with the State Department of Transportation Specifications.

Elastic Cement: Elastic cement shall conform to the requirements of Federal Specification SS-C-153.

Caulking Compound for Structures: (a) Material: Caulking compound shall be an approved gray

elastic compound complying with the following tests:

(b) Strain Test: The joint to be tested shall be made between two slabs of limestone eight (8) inches by ten (10) inches by one (1) inch, one of which shall have a hole in the center about (1) inch in diameter. The slabs shall be spaced one-quarter ($1/4$) inch apart by a strip of metal one-quarter ($1/4$) inch by one-eighth ($1/8$) inch in cross section, bent to form a square of six and one-half ($6\frac{1}{2}$) inches on each side. This spacer is laid concentrically on one slab and the other slab is then placed on top so that the long side of one slab is then placed on top so that the long side of one slab is parallel to the short side of the other. The slabs to be caulked are clamped on the spacer and the caulking compound is forced in at the four edges, giving a joint one-quarter ($1/4$) inch thick, three-quarters ($3/4$) inch deep and a perimeter of thirty-two (32) inches around the outer edge of the joint. The specimen shall be cured at room temperature for thirty (30) days, after which the space between the slabs shall be filled with water through the hole in the center of the upper slab. The slabs shall be pulled apart by increments of approximately one-hundredth (.01) inch at ten (10) second intervals. The caulking compound shall stand a strain of at least five-hundredth (.05) inch before water starts to leak through the joint.

(c) Slump Test: A metal groove three-eighths ($3/8$) inch wide, three quarters ($3/4$) inch deep and four (4) inches long, shall be filled with caulking compound and placed in a vertical position for twenty-four (24) hours at room temperature and then transferred to an oven at fifty (50) degrees C. where it shall remain in a vertical position for twenty-four (24) hours. There shall be no appreciable slumping of the material under these conditions.

(d) Straining Test: A pat of caulking compound on limestone at room temperature shall show no objectionable stain within a period of twenty (20) days.

(e) Application: Caulking Compound shall be applied with either a pneumatic or ratchet hand gun. All surfaces in contact with caulking compound shall be primed with clear lacquer or shellac.

Poured Joints: Poured joints shall be formed by placing a temporary joint, shaped to the section, of a type and material approved by the Engineer, which shall afterward be removed and the joint immediately filled with acceptable sealant or filler material. Temporary metal wedge shaped joints may be used having $1/16$ inches less thickness than specified on the plans. Temporary

wood joints will not be permitted.

The pouring shall be done by means of a device acceptable to the Engineer and the pouring shall be manipulated in such a manner that the acceptable sealant or filler material shall not be spread over the surface for a width of more than One (1) inch on either side of the joint and care shall be taken in order that the acceptable sealant or filler material shall not be spilled on the exposed surface of adjacent curbs and structures.

Temporary joints shall be held securely in place by means of pins driven two (2) feet apart.

ARTICLE 13. REINFORCEMENT FOR CEMENT CONCRETE: Steel Bars: Reinforcing steel shall be of a quality and character meeting the requirements of the "Standard Specifications for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement" of the American Society for Testing Materials, Serial Designation A 615, except that stirrups shall be Structural Grade. Each and every bar shall be rolled with a letter denoting the mill of origin, which shall be acceptable to the Engineer. All steel shall be subjected to such tests as prescribed in the A.S.T.M. Specifications. In addition, the Contractor shall furnish additional proof, such as mill records, that the steel meets the requirements stated herein.

All bar reinforcement for concrete shall be of open-hearth steel, rolled from new billets. No rerolled material or cold twisted bars will be accepted.

All bars shall be "deformed" bars unless otherwise specified. The term "deformed bar" shall mean a reinforcing bar conforming to "Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement" of A.S.T.M. Designation A615, Grade 60 and Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement of A.S.T.M. Designation A767.

Table Showing Weights and Sizes of Steel Bars

Bar No. or Size Specified	Standard Weight (Lbs. Per Foot)	Bar No. or Size Specified	Standard Weight (Lbs. Per Foot)
2	0.167	7	2.044
3	0.376	8	2.670
4	0.668	1" Square	3.400
1/2" Square	0.850	1-1/8" Square	4.303
5	1.043	10	4.303
6	1.502	1-1/4 Square	5.313

Steel Fabric: Steel Fabric reinforcement shall consist of longitudinal main members with transverse members at right angles thereto. All points of intersection of the members shall be firmly connected in an approved manner.

Steel fabric shall meet the requirements given for cold drawn steel wire for concrete reinforcement in the Standard Specification for "Steel Wire, Plain, for Concrete Reinforcement" of A.S.T.M. Designation: A 82-90a, except that samples shall be taken as directed by the Engineer.

All welded steel fabric shall meet the Standard Specification for "Steel Welded Wire Fabric, Plain, for Concrete Reinforcement" of the A.S.T.M. Designation A 185-90a.

ARTICLE 14. STRUCTURAL STEEL: All structural carbon steel, bolts, and steel billets shall conform to Standard Specification for "Structural Steel" of A.S.T.M. Designation: A 36-90, supplemented by the following paragraphs:

Test specimens of structural steel shall show a fracture having a silky or fine granular structure throughout with a bluish gray or dove color, and shall be entirely free from granular, black and brilliant specks.

Finished rolled material shall be free from cracks, flaws, injurious seams, laps, blisters, ragged and imperfect edges, and other defects. It shall have a smooth, uniform finish and shall be straightened in the mill before shipment.

Material shall be free from loose mill scale, rust, pits, or other defects affecting its strength and durability.

Physical tests shall be required for billets bearing against, or functioning as, expansion rollers or rockers.

Rivet steel shall conform to the requirements of the Standard Specification for "Steel Structural Rivets" A.S.T.M. Designation: A502-91.

ARTICLE 15. STEEL CASTINGS: Steel castings shall conform to the requirements of the Standard Specification for "Steel Castings, Carbon, for General Application" of the A.S.T.M. Designation: A27, with the following additions:

Unless otherwise specified, all steel castings shall be Grade 65-35, fully annealed.

Test specimens shall show a fracture having a silky or fine granular structure throughout, easily machined and meet all chemical and physical requirements of this specification.

Castings shall be true to pattern, free from cracks, gas holes, flaws and excessive shrinkage.

Large castings, if required by the Engineer, shall be suspended and hammered all over. No cracks, flaws or other defects shall appear after such treatment.

No sharp unfilleted angles or corners will be allowed.

One tension test and one bend test shall be made from each melt in each heat treatment charge and from each casting weighing five hundred (500) pounds or over.

ARTICLE 16. IRON CASTINGS: Iron castings shall conform to the requirements of the Standard Specification for "Gray Iron Castings" of A.S.T.M. Designation: A-48 latest issue, Class 30, with the following additions:

Iron castings shall be true to pattern in form and dimensions, close and even grained, free from pouring faults, sponginess, cracks, gas holes and other defects in positions affecting their strength and value for the service intended.

Castings having blow holes plugged or filled with putty or cement of any kind will be rejected.

ARTICLE 17. STEEL FORGINGS: All carbon and alloy steel forgings from which pins, rollers, and other forged parts are to be made shall conform to the requirements of the Standard Specification for "Steel Forgings, Carbon and Alloy, for General Industrial Use" of A.S.T.M. Designation:A 668, with the following additions:

Structural forgings shall be Class C carbon steel, unless otherwise, called for. Machinery forgings shall be Class C carbon steel, Class E carbon steel, or Class H nickel steel, as specified. All forgings shall be thoroughly annealed.

The yield point of Class C forgings shall be not less than 33,000 pounds per square inch.

The tensile requirements for forgings from 20 to 30 inches in diameter shall conform to the requirements for forgings 12 to 20 inches in diameter.

All forgings shall meet the bend test requirements of paragraph S3., supplementary requirements of Specification A 668.

ARTICLE 18. DUCTILE IRON: Ductile iron castings shall conform to the requirements of the Standard Specification for Ductile Iron Castings of A.S.T.M. Designation:A536. Foundry certificate, when required, will provide chemical and mechanical properties of test specimens.. Tensile requirements shall be a minimum Grade 60-40-18 unless otherwise specified.

ARTICLE 19. CAST AND DUCTILE IRON PIPE: Cast iron pipe shall conform to the requirements of the Standard Specification for "Cast Iron Soil Pipe and Fittings" of A.S.T.M. Designation:A74. Ductile iron pipe shall conform to the requirements of the Standard Specification for "Ductile Iron Gravity Sewer Pipe" of A.S.T.M. Designation:A746 and shall be centrifugally cast. All cast iron pipe shall be marked in clear lettering with trade name of manufacturer, weight, class or nominal thickness.

ARTICLE 20. MALLEABLE CASTINGS: Malleable castings conform to the requirements of the Standard Specification for "Ferritic Malleable Iron Castings" of A.S.T.M. Designation: A47, Grade 32510.

Malleable castings shall be true to pattern in form and dimensions, close and even grained and

free from pouring faults, sponginess, cracks, gas holes and other defects in locations affecting their strength and value for the service intended.

The castings shall be boldly filleted at angles, and the arises shall be sharp and perfect. The surfaces shall have a workmanlike finish.

Particular care shall be exercised so as not to embrittle malleable castings when galvanizing. All galvanized malleable castings shall meet specification requirements after galvanizing.

ARTICLE 21. ROLLED PHOSPHOR BRONZE: Rolled Phosphor-Bronze shall conform to the Standard Specification for "Rolled Copper-Alloy Bearing and Expansion Plates and Sheets for Bridge and Other Structural Uses" of A.S.T.M. Designation: B-100.

ARTICLE 22. BRONZE CASTINGS: Bronze for machinery parts shall conform to the requirements of the Standard Specification for "Bronze Castings for Bridges and Turntables" of A.S.T.M. Designation: B-22, with the following modifications:

Bronze shall not contain sulphur. The phosphorous shall be introduced in the form of phosphorin or in phosphor-copper. The alloy shall be cast into ingots and allowed to cool, and the castings shall be poured from the re-melted ingots. The chemical analysis of each heat shall be furnished.

Cracks or other evidence of excessive brittleness in compression test specimens after test may be cause for rejection. The hardness of the finished castings shall be tested by the Brinell ball method and a record of the test furnished. The ball shall be of hardened steel, 10 millimeters in diameter, and the load shall be 500 kilograms. The load shall be applied for 30 seconds to a finished plane surface. At least two Hardness tests shall be made upon each heat. A test shall be made on each trunnion bearing.

Test specimens shall be made from coupons which are a part of the casting and which have been fed and cooled under the same conditions as the casting.

At least one compression test shall be made from each melt from grades A, B, and C; and one compression and one tension test for grade D. For castings weighing over 100 pounds, finished, the prescribed tests shall be made for each casting. The permanent set in inches under 50,000

pounds per square inch shall be recorded for grades A,B,C, and D.

Bronze castings shall be free from inclusions of foreign material, casting faults, injurious blow holes or other defects rendering them unsuitable for the service intended.

Certain small bearings, where called for on the Plans, shall be equipped with self-lubricating bronze bushings. The bronze shall conform to the requirements given above and shall be equal to Grade "C". Holes shall be drilled into the bearing surfaces of these bushings in a regular pattern to cover the entire surface of the rotating parts. After the bushings have been machined to the proper tolerances, the holes shall be filled with metal and graphite lubricating inserts applied under a pressure of 20,000 lbs.per square inch. These bushings shall be equal to the Lubrite bearings manufactured by Merriman Brothers, Boston, Mass.

ARTICLE 23. WELDING: All welding shall be done by the electric arc method or other approved method and the welding operators shall be experienced in this particular class of work.

Preparation: Surfaces to be welded shall be reasonably cleaned by wire brushing, chipping or hammering of loose scale, rust, paint or other foreign matter; except that a thin coating of linseed oil need not be removed before welding.

During welding, the parts to be welded shall be held by sufficient clamps or other adequate means to keep them straight and in close contact.

Electrodes: Wires used for electrodes or welding rods shall be an approved covered commercial steel wire made for this purpose, of uniform homogeneous physical structure, free from irregularities in surface, from hardness, segregation, foreign matter, oxides, pipes, seams, or other defects.

Either the recommendations of the electrode manufacturer, or information based on the tests of the same kind of electrodes with the same kind of current shall be used in determining the range of current values for each electrode size.

Welding: In any respect not covered by the above provisions the work shall conform to the specifications for Design Construction Alteration and Repair of Highway and Railway Bridge Fusion Welding of the American Welding Society, 1941.

Welds: All slag shall be removed from finished welds and they shall show uniform section, smoothness of weld metal, feather edges without overlaps and freedom from porosity and clinkers. Visual inspection at edges and ends of fillets and butt joint welds shall indicate good fusion with, and penetration into, base metals.

ARTICLE 24. GALVANIZED METAL: Where called for in the itemized specifications, iron such as screw bolts, nuts, washers and bolts or equal, spikes, pipes, etc., shall be galvanized . All screw bolts and nuts must be threaded before galvanizing.

Before galvanizing all iron shall be thoroughly cleaned of all scale, rust, dirt, grease, etc., by first bathing it in a solution of sulfuric acid, then dipping it in turn in lukewarm water and in a strong solution of muriatic acid.

All galvanized articles must stand the following test. After eight one-minute immersions in a standard solution of copper sulphate, the article being thoroughly wiped after each immersion, there shall be no copper deposit observed. Lots, the samples of which do not stand this test, may be rejected. This test shall be performed in accordance with Standard Test Method for "Weight of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles" of A.S.T.M. Designation A-90. Certificates of Tests may be accepted.

ARTICLE 25. COPPER: Sheet copper shall be either hot or cold rolled and shall be free from bad edges and corners and all surface defects. It shall be clean, of uniform and quality, true to gauge and patent leveled. It shall be free from sulphur and other detrimental impurities and contain a minimum of ninety-nine and one-half (99 ½) per cent pure copper and shall conform to the requirements of the Standard Specification for "Copper Sheet, Strip, Plate, and Rolled Bar" of A.S.T.M. Designation: B152.

ARTICLE 26. WATERPROOFING MATERIAL: Asphalt and coal tar pitch shall be chemically inert, impervious to or unaffected by water or by alkalies in acids or cinders. They shall form, without the use of primer, a permanent, tenacious, mechanical bond, not only to the fabric and concrete to which it is applied but also the concrete poured against it.

Coal tar pitch shall be homogeneous, high carbon coal tar pitch and shall conform to the requirements of the Standard Specification for "Coal-Tar Pitch Used in Roofing, Dampproofing,

and Waterproofing" of A S.T.M. Designation: D450.

Asphalt shall be a tough asphaltic bitumen derived from an asphaltic petroleum by careful refining. It shall not be a fluxed or cut-back product, and shall be free from coal tar and any of its derivatives.

Asphalt shall be homogeneous, free from water and shall conform to the requirements of Standard Specification for "Asphalt Used in Dampproofing and Waterproofing" of A.S.T.M. Designation: D449.

Asphalt and pitch shall be delivered on the work in packages that are plainly marked with the manufacturer's brand and indicating the grade and quality of the material.

Waterproofing felt shall be a roofing felt produced by "felting" vegetable and animal fibers. The surface of the felt shall be uniformly smooth and upon splitting or tearing on the bias, shall appear reasonably free from lumps and unbeaten stock (i.e., stock which has not been beaten or shredded into fiber in the process of manufacture) and particles of foreign substances (i.e., fragments of stone, metal, leather, rubber, straw, wood, etc.).

The desaturated felt shall conform to the following requirements:

Weight of Moisture-Free Desaturated Felt-Minimum five and two-tenths (5.2) lbs. per hundred (100) sq. ft. ("Number" 25).

Ash in Moisture -Free Desaturated Felt-Maximum Ten (10%) per cent.

The saturant for the felt shall be composed of coal tar from which the highly volatile constituents have been removed.

In the process of manufacture, a single thickness of dry roofing felt shall be saturated with the saturant.

The felt shall be thoroughly and uniformly saturated and shall show no unsaturated spots at any point upon cutting two (2) inch strips at random across the entire sheet and splitting them open for their full length.

The fabricated bituminized felt shall conform to the Standard Specification for "Coal-Tar-Saturated Organic Felt Used in Roofing and Waterproofing" of A.S.T.M. Designation: D227.

ARTICLE 27. CONCRETE AND MASONRY:

Material: Concrete shall consist of Portland cement, fine aggregate, and a coarse aggregate mixed in the proportions specified for the various classes given. The same brand of cement, and the same kind of aggregate shall be used throughout the whole of any showing face.

Proportions: All concrete shall be made of Portland cement, fine and coarse aggregate proportioned as indicated under its respective item.

The proportions of aggregate to cement for any concrete shall be such as to produce a mixture which will work readily into the corners and angles of the forms and around reinforcement with the method of placing employed on the work, but without permitting the materials to segregate or excess free water to collect on the surface. The combined aggregates shall be of such composition of sizes that when separated on the No.4 standard sieve, the weight passing the sieve (fine aggregate) shall not be less than thirty percent nor greater than fifty percent of the total, unless otherwise approved by the Engineer.

The methods of measuring concrete materials shall be such that the proportions can be accurately controlled and easily checked at any time during the work.

a. Plain Concrete: Plain concrete shall have a minimum cement factor of five bags per cubic yard of concrete, and a maximum of eight and one-half U.S. gallons of water per bag of cement including water contained in the aggregate. Such concrete shall develop a strength of at least two thousand pounds per square inch when tested in accordance with the Standard Test Method for "Compressive Strength of Cylindrical Concrete Specimens" of A.S.T.M. Designation: C39.

b. Average Concrete: Proportions and Twenty-Eight Day Strengths

The producer of average concrete shall use mix proportions and water cement ratios which have been shown by previous use to produce satisfactory concrete of the required strength at a suitable slump with a maximum of four inches for heavy slabs and five inches for walls and footings. Average concrete shall be limited to the concrete strengths shown in Table "A" below, and the

cement factor used shall not be less than the value given in the table for the corresponding concrete strengths.

TABLE A		
Minimum compressive strength in 28 days (f'c) pounds per square inch	Minimum bags of cement per cubic yard of concrete	Maximum permissible water cement ratio, U.S. Gallons per 94-pound sack of cement for air-entrained concrete
3200	6.0	6-1/4

Each load of concrete shall be certified by the producer, whether produced at ready mix plant or site mixed, as to the concrete strength and actual quantities per cubic yard of each material, including water, contained therein.

c. Controlled Concrete: Proportions and Twenty-Eight Day Strengths

The strength of all controlled concrete shall be established in accordance with the following provisions:

1. Preliminary tests of controlled concrete. (a) Job site, weighed, batched and mixed concrete. Preliminary tests of controlled concrete shall be made by an approved testing laboratory, in advance of the beginning of operations, using the materials proposed and consistencies as hereinafter specified, and tested wet in accordance with the standard method of test for compressive strength of molded concrete cylinders, Standard Test Method for "Compressive Strength of Cylindrical Concrete Specimens" of A.S.T.M. Designation: C39, including tests of fine and coarse aggregated and the provisions therein for curing in a moist room of seventy (700) degrees Fahrenheit. A curve representing the relation between the average strength of the concrete at twenty-eight days, or at earlier periods, and the water cement ratio shall be established for a range of values including all of the strengths and ages called for the plans. The tests shall include at least four different water cement ratios, and at least four specimens for each water cement ratio. The mixes used in the tests shall have a slump of five inches, with a tolerance of plus or minus one inch. The water cement ratio to be used in the structure shall be the

corresponding to a point on the curve established by these tests, representing a strength of concrete fifteen per cent higher than the minimum ultimate strength called for on the plans. The cement factor used in the work shall have at least the value established by the tests, but shall not be less than the factor given in Table "B" below for the corresponding concrete strength.

TABLE B	
Minimum compressive strength in twenty-eight days (f'c) pounds per square inch	Minimum bags of cement per cubic yard of freshly mixed concrete
2000	5.00
2500	5.25
3000	5.75
3200	6.00
3500	6.50
3750	6.75
4000	7.00
5000	7.50

Sampling: During the progress of the work, samples of concrete shall be taken directly from the mixer in accordance with Standard Method of "Sampling Freshly Mixed Concrete" of A.S.T.M. C172. Each sample shall be tested for slump, air content, temperature and weight per cubic foot in accordance with Standard Test Method for "Unit Weight, Yield, and Air Content (Gravimetric) of Concrete" of A.S.T.M. C138 and Standard Test Method for "Slump of Hydraulic Cement Concrete" of A.S.T.M. C143. If the measured slump or air content falls outside the limits specified, a check sampling shall be made immediately on another portion of the same sample. In the event of a second failure, the concrete shall be considered to have failed to meet the requirements.

If the time required to discharge the load being sampled is greater than 15 minutes, a separate set of test cylinders shall be made from each one-third portion of the load taken at a greater interval

than 15 minutes.

Molding standard test acceptance cylinders: For each class of concrete placed on any one day, three standard acceptance cylinders shall be made from the sampling described above for each fifty cubic yards or fraction thereof placed. These specimens shall be molded, stored for 24 hours, carefully transported to an approved testing laboratory and cured for 27 days in accordance with Standard Practice for "Making and Curing Concrete Test Specimens in the Field" of A.S.T.M. Designation: C31.

Additional specimens for determining when forms may be stripped or a structure may be put to use may also be required. These field cylinders shall be removed from their molds after 24 hours, stored and cured on the work site as near to the sampled concrete in the structure as possible, and subject to the same exposures as the job concrete of which it is representative. These field cylinders shall be kept unmolested on the structure for at least three-fourths of the test period before being taken to the laboratory for testing.

The specimens shall be marked and identified with tags on which shall be noted the class of concrete, date and time of day when molded, the delivery receipt and truck number if readymixed, the results of the tests of slump, air content and temperature, and a clear description of where the concrete was placed in the structure. The date of arrival at the testing laboratory also shall be noted thereon.

Compression tests: Twenty-eight days after the specimens were molded the three acceptance cylinders shall be tested in compression in accordance with Standard Test Method for "Compressive Strength of Cylindrical Concrete Specimens" of A.S.T.M. Designation: C39. by a testing laboratory designated by the Engineer. The test strength shall be the average of the breaking strengths of the three acceptance cylinders. If one of the molded specimens shall show manifest evidence of improper sample, molding, handling or testing, it shall be discarded and the remaining two averaged. If more than one cylinder must be discarded, the entire test shall be discarded. In no case shall a given class of concrete be represented by less than three separate samplings and three compression test strengths.

When the average strength of the test cylinders falls consistently below the minimum ultimate strength required by the design, a change in the proportions or water content of the concrete shall be made, to obtain the required strength for the remaining portion of the structure.

When the average strength of the test cylinders for any portion of the structure is less than that required by the design, the concrete represented by such cylinders may be considered to be of adequate strength if: (1) the designer of the structure submits a correct analysis of stresses to show that the stresses in the portion of the structure affected will not exceed the allowable stresses, with the value of f_c equal to the compressive strength of the concrete as determined by the tests; or (2) if the tests are performed in accordance with the specifications for the Standard Test Method for "Obtaining and Testing Drilled Cores and Sawed Beams of Concrete" of A.S.T.M. C42 using hardened concrete for compressive and flexural strengths, and the tests show that the strength of the concrete equals or exceeds the design strength, and provided test specimens are obtained from the structure in such manner that the strength of the structure is not impaired; or (3) the structure may be considered to meet the designated requirement if load tests are performed as specified in Section 27-607 "Inspections" of the New York City Local Law 65-1990, Article 5, for that portion of the structure where the concrete of questionable strength has been placed and the results and interpretation of such tests and the resulting safe capacity of the structure are approved by the Engineer.

Arrangements for tests of concrete, concrete materials and reinforced concrete structures where required by the provisions of this article or ordered by the Engineer shall be made by the Contractor. All such tests shall be made without additional expense to the City.

d. Mixing and Placing Concrete: Preparation of equipment and place of deposit: Before concrete is placed, all equipment for mixing and transporting the concrete shall be cleaned, all debris and ice shall be removed from the spaces to be occupied by the concrete, forms shall be thoroughly wetted or oiled masonry filler units that will be in contact with concrete shall be well drenched and the reinforcement shall be thoroughly cleaned of ice or other coatings. Water shall be removed from place of deposit before concrete is placed unless otherwise permitted by the Engineer.

Mixing of concrete: All concrete shall be mixed until there is a uniform distribution of the materials and shall be discharged completely before the mixer is recharged.

e. Machine Mixing: Batch mixers of an approved type and of not less than 7S-AGC rating shall be used. No continuous mixer shall be used. Mixing shall be continued for at least one and onequarter (1 1/4) minutes after all the materials and water are in the mixer drum, at a speed of not

less than 14 or more than 20 revolutions per minute.

When cement is delivered in bags for use in any item, the batch shall be so proportioned as to use only full batches (i.e.) no fraction of a bag will be permitted.

Mixing shall be continued for at least one and one-half (1 ½) minutes after all the solid materials and water are in the mixer drum.

In all machine mixing the batches of concrete shall be proportioned to the size of the mixer to produce the best results.

For batches larger than one (1) cubic yard, mixing time shall be increased fifteen (15) seconds for each additional cubic yard or fraction thereof.

f. Hand mixing: Hand mixing will not be permitted in any structure.

g. Retempering: All mortar and concrete shall be used while fresh and before it has begun to harden. Any mortar or concrete which has begun to harden shall be removed and not used in the work. No retempering of mortar or concrete shall be allowed.

h. Central mixing: Concrete may be mixed in an approved central plant provided it is hauled to the work in an approved rotating container under the following provisions:

Mixing time shall not be less than three (3) minutes.

Not more than thirty (30) minutes shall elapse between batching and placing.

Not more than ten (10) minutes shall elapse between placing of consecutive batches.

The rotating container shall be thoroughly cleaned after each batch.

The concrete will be rejected if there is any evidence of "setting up" in the mixture.

i. Transit mixing: Concrete may be mixed in approved transit mixers under the following provisions:

The water shall be added to the mix not more than 10 minutes previous to its discharge from the mixer. Water shall not be added while trucks are in transit.

Mixing time shall not be less than five (5) minutes, nor less than one and a half (1 ½) minutes for each cubic yard contained .

Not more than ten (10) minutes shall elapse between placing of consecutive batches.

Concrete is to be mixed in accordance with the Standard Specification for "Ready-Mixed Concrete" of A.S.T.M. Designation: C94.

Conveying: Concrete shall be conveyed from the mixer to the place of final deposit by methods which will prevent the separation or loss of materials.

Equipment for chuting, pumping and pneumatically conveying concrete shall be of such size and design as to insure a practically continuous flow of concrete at the delivery end without separation of materials.

Consistency: As a guide to the consistency required, the range in slump shall be as shown in the following table:

SLUMP		
Type of Construction	Slump in Inches - Minimum	Slump in Inches - Maximum
Pavements	1-1/2	3
Floors, Massive Section, Heavy Slabs	1	4
Pavement Bases, Sidewalks	1-1/2	4
Walls, Beams, Columns	2	5

In general, the consistency of concrete mixture shall be such that:

1. The mortar clings to the coarse aggregate.
2. The concrete is not sufficiently fluid to segregate when transported to the place of deposit.
3. The concrete, when dropped directly from the discharge chute of the mixer, shall flatten out at the center of the pile but shall stand up and flow at the edges.
4. The mortar shall show no free water when removed from the mixer.
5. The concrete shall settle into place when deposited in the forms and, when transported in metal chutes at an angle of 30 degrees with the horizontal, it shall slide and not flow into place.
6. The upper layer of the set concrete shall show a cement film upon the surface but shall be free from laitance.

j. Depositing: Concrete shall be deposited as nearly as practicable in its final position to avoid segregation due to rehandling or flowing. The concreting shall be carried on at such a rate that the concrete is at all times plastic and flows readily into the spaces between the bars. No concrete that has partially hardened or been contaminated by foreign materials shall be deposited on the work, nor shall retempered concrete be used.

When concreting is once started, it shall be carried on as a continuous operation until the placing of the panel or section is completed. The top surface shall be generally level.

All concrete shall be thoroughly compacted by suitable means during the operation of placing and shall be thoroughly worked around the reinforcement and embedded fixtures and into the corners of the forms.

Where conditions make compacting difficult, or where the reinforcement is congested, batches of mortar containing the same proportions of cement to sand as used in the concrete, shall first be deposited in the forms to a depth of at least one inch.

k. Construction joints: Construction joints other than those shown on the plans will not be

permitted without the written permission of the Engineer. The operation of placing concrete shall be continuous between construction joints.

The use of long chutes for conveying concrete from the mixing plant to the forms will be permitted only on written authority from the Engineer. If chutes are allowed and the quality of concrete as it reaches the forms or the methods of placing or working it therein are not satisfactory, the Contractor shall, upon orders from the Engineer, discontinue the use of chutes and reequip his plant for placing the concrete in a satisfactory manner. Under no conditions shall this system be used on work exposed to the effects of salt or brackish water.

Troughs, pipes or short chutes used as aids in placing concrete shall be arranged and used in such a manner that the ingredients of the concrete are not separated. Where steep slopes are required the chutes shall be equipped with baffle boards or be in short lengths that reverse the direction of movement. When pipes are used they shall be kept full of concrete and have their lower ends kept buried in fresh concrete in the same manner that a tremie is used. All chutes, troughs and pipes shall be kept clean and free from coatings of hardened concrete by thoroughly flushing with water after each run. Water used for flushing shall be discharged clear of concrete in place. Open troughs and chutes shall be of either of metal or metal lined and shall extend as nearly as possible to the point of deposit. When the discharge must be intermittent, a hopper or other device for regulating the discharge shall be provided.

Dropping the concrete a distance of more than 5 feet or depositing a large quantity at any point and running or working it along the forms will not be permitted.

Special care shall be taken to fill each part of the forms by depositing concrete directly as near final position as possible, to work the coarser aggregates back from the face and to force the concrete under and around the reinforcement bars without displacing them. After the concrete has taken its initial set, care shall be exercised to avoid jarring the forms or placing any strain on the ends of projecting reinforcement.

Concrete shall be compacted by continuous working with a suitable tool in a manner acceptable to the Engineer. Slab and girder work, arch ribs and all thin section work shall be thoroughly worked with a steel slicing rod.

In order to secure a smooth, even surface on the exposed surfaces of concrete structures, fine

stone forks or spades shall be used to work the coarser aggregate back into the mass and allow the mortar and fine particles to occupy the space adjacent to the forms.

Unless otherwise directed in the itemized specifications, concrete shall be thoroughly compacted during and immediately after depositing by vibrating the concrete internally by means of mechanical vibrating equipment.

Internal mechanical vibrators shall be of a type to be approved by the Engineer. They shall be of sturdy construction, adequately powered, capable of transmitting vibration to the concrete in frequencies of not less than 5000 impulses per minute and shall produce a vibration of sufficient intensity to cause flow or settlement of the concrete into place without a separation of the ingredients.

The vibratory element shall be inserted into the concrete at the points of deposit and in the areas of freshly placed concrete. The time of vibration shall be of sufficient duration to accomplish through consolidation, complete embedment of the reinforcement, the production of smooth surfaces free from honeycombing and air bubbles, and to work the concrete into all angles and corners of the form. However, over vibration shall be avoided and vibration shall continue in a spot only until the concrete has become uniformly plastic and shall not continue to the extent that pools of grout are formed.

The length of time of vibration depends upon the frequency of the vibration (impulses per minute), size of the vibrators and the slump of the concrete; and this length of time be determined in the field.

The internal vibrators shall be applied at points uniformly spaced not further apart than the radius over which the vibration is visibly effective and shall be applied close enough to the forms to effectively vibrate the surface concrete. The vibration shall not be dissipated in lateral motion but shall be concentrated in vertical settlement in consolidation of the concrete.

The vibrator shall not be used to push or distribute the concrete laterally. The vibrating element shall be inserted in the concrete mass sufficient depth to vibrate the bottom of each layer effectively, in as nearly vertical position as practicable. It shall be withdrawn completely from the concrete before being advanced to the next point of application.

To secure even and dense surfaces, free from aggregate pockets or honeycomb, vibration shall be supplemented by working or spading by hand in the corners and angles of forms and along form surfaces while the concrete is plastic under the vibratory action.

A sufficient number of vibrators shall be employed so that at the required rate of placement, thorough consolidation is secured throughout the entire volume of each layer of concrete. Extra vibrators shall be on hand for emergency use, and for use when other vibrators are being serviced.

The use of surface vibrators to supplement internal vibration will be permitted when satisfactory surfaces cannot be obtained by the internal vibration alone and when the Contractor has obtained the approval of the Engineer of the equipment to be used. Surface vibrators shall be applied only long enough to embed the coarse aggregate and to bring enough mortar to the surface for satisfactory finishing.

The use of approved form vibrators will only be permitted when it is impossible to use internal or external vibrators. When permitted, they shall be attached to or held on the forms in such a manner as to effectively transmit the vibration to the concrete and so that the principle path of motion of the vibration is in a horizontal plane.

All exposed edges of concrete and exposed joints shall be chamfered one inch, unless otherwise shown or noted.

Concrete shall be placed in continuous horizontal layers, the thickness of which generally shall not exceed 10 to 12 inches. When it is necessary by reason of an emergency to place less than a complete horizontal layer at one operation, such layer shall terminate in a vertical bulkhead. In any given layer the separate batches shall follow each other so closely that each one shall not be injured and that there shall be no line of separation between the batches. Each layer of concrete shall generally be left somewhat rough to secure efficient bonding with the next layer above. A succeeding layer placed before the underlying layer has become set shall be compacted in a manner that will entirely break up and obliterate that tendency to produce a construction joint between the layers.

Layers completing a day's work or placed just prior to temporarily discontinuing operations shall generally be cleaned of all objectionable material as soon as the surface has become sufficiently firm to retain its form. To avoid visible joints as far as possible upon exposed faces, the top

surface of the concrete adjacent to the forms shall be finished by being smoothed with a plaster mason's trowel.

Horizontal layers so located as to produce a construction joint at a location wherein a "feather edge" might be produced in the succeeding layer, shall be so formed by inset form work that the succeeding layer will end in a body of concrete having a thickness of not less than six (6") inches.

After the concrete has begun to harden, it shall not be walked upon in less than twelve hours.

The operation of compacting the concrete shall be conducted so as to form a compact, dense, impervious artificial stone which shall show a smooth face on an exposed surface. The weight of rammers, if used, shall be satisfactory to the Engineer. Porous, plastered or defective concrete shall be removed and replaced, as directed by the Engineer, entirely at the Contractor's expense.

Concrete shall not be exposed to the action of water before setting, or deposited in water, except with the approval of the Engineer and under his immediate supervision.

The method and manner of placing shall be as hereinafter designated.

Concrete deposited under water shall be carefully placed in a compacted mass in its final position by means of a tremie, a closed bottom dump bucket or other approved method and shall not be disturbed after being deposited. Special care must be exercised to maintain still water at the point of deposit. No concrete shall be placed in running water and all form work designed to retain concrete under water shall be water-tight. The consistency of the concrete shall be carefully regulated and special care shall be exercised to prevent segregation of the materials. The method of depositing concrete shall be so regulated as to produce approximately horizontal surfaces.

When a tremie is used, it shall consist of a tube having a diameter of not less than 10 inches, constructed in sections having flange couplings fitted with gaskets. The means of supporting the tremie shall be such as to permit the free movement of the discharge and over the entire top surface of the work and shall be such as to permit it to be rapidly lowered when necessary to choke off or retard the flow. The discharge end shall be entirely sealed at all times and the tremie tube kept full to the bottom of the hopper. When a batch is dumped into the hopper the tremie shall be slightly raised, but not out of the concrete at the bottom, until the batch discharges the bottom of the hopper. The flow is then stopped by lowering the tremie. The flow shall be

continuous and in no case shall be interrupted until the work is complete.

When concrete is placed by means of a bottom dump bucket, the bucket shall have a capacity of not less than $\frac{1}{2}$ cubic yard. The bucket shall be lowered gradually and carefully until it rests upon the concrete already placed. It shall then be raised very slowly during the discharge travel, the intent being to maintain as nearly as possible, still water at the point of the discharge and to avoid agitating the mixture.

1. **Bonding Construction Joints:** In joining fresh concrete to concrete that has already set, the work already in place shall have its surface raked out over thoroughly with a suitable tool to remove all loose and foreign material. This surface shall then be washed and scrubbed with wire brooms and thoroughly drenched.

It shall remain moist until the new concrete is placed. Immediately prior to the placing of the new concrete, all forms shall be drawn tight against the concrete already in place and the old surface shall be thoroughly coated with a very thin coating of neat cement.

In order to bond successive courses, suitable keys shall be formed at the top of the upper layer of each day's work and at other levels where work is interrupted. These keys shall occupy about one-third of the area of the joint unless otherwise noted on the plans and be formed with beveled wood forms which shall be thoroughly saturated with water prior to placing. Rough stone or steel dowels may be used in lieu of keys if so permitted by the Engineer in writing. The size and spacing of keys and dowels shall be as determined by the Engineer.

In construction joints exposed to view or in other construction joints where seepage of water is particularly objectionable, a metal baffle strip of 16- ounce copper, shall be inserted. This strip shall be placed not less than three (3) inches from the unexposed face of the concrete a distance of not less than two (2) inches.

1. Forms and Detail of Construction: Design and construction of forms: The design and construction of forms shall conform to the following requirements: Forms shall conform to the shape, lines and dimensions of the member as called for on the plans. Forms shall be substantial and sufficiently tight to prevent leakage of mortar; and shall be properly braced or tied together so as to maintain position and shape and insure safety to workmen and passerby. Temporary

openings shall be provided where necessary, to facilitate cleaning and inspection immediately before depositing concrete.

Where the height of the shores exceeds ten feet, adequate diagonal bracing shall be provided in both longitudinal and transverse directions. In addition, adequate diagonal braces shall be provided at the ends of the framework. Diagonal bracing shall extend from the top of the bottom of shores.

The unbraced length of wood shores supporting forms shall not exceed fifty times the least dimension. Metal shores or frames shall be types approved by the Engineer and shall be installed in accordance with his approval. Shores shall be adequately secured at the top and shall be properly wedged at top or bottom, if required.

Where shores rest upon the ground, adequate mud sills, or other bases, shall be provided to support the shores adequately.

Qualified workmen shall be detailed constantly during the placing of concrete to insure that there is no movement of shores, braces or other supports. The name of the foreman in charge of the form work shall be posted in the field office of the contractor.

The individual firm or corporation who does the concrete work shall be responsible for the adequate design and construction of all forms used in the construction of the building. Wherever the shore height exceeds fourteen feet, or the load on the forms exceeds one hundred fifty pounds per square foot, or power buggies are used, or two stage shores are used, the contractor shall certify that the form design has been checked and approved as adequate by a licensed professional engineer who has had at least five years of experience as a structural engineer, and that the forms have been constructed in conformance with the design which was checked and approved by the said engineer.

Detailed plans for false work or centering shall be supplied to the Engineer on request, but his approval of them, or acquiescence in the work constructed according to them, will not relieve the Contractor of responsibility for satisfactory results. For calculating the strength of false work or centering, a weight of 150 pounds per cubic foot shall be assumed for green concrete.

In general, false work which cannot be founded upon a solid footing, shall be supported by false

work piling. False work piling shall be spaced and driven as ordered by the Engineer. No extra compensation for false work or false work piling will be allowed, such work being considered as part of the form work.

The Engineer may require the contractor to employ screw jacks or hardwood wedges in connection with the centering or false work in order to take up any slight settlement in the form work either before or during the placing of concrete.

Falsework shall be set to give the structural camber indicated on the plans or as specified, plus allowance for shrinkage and settlement.

Any metal ties or anchorages which are required within the forms to hold them to correct alignment and location shall be so constructed that the metal work can be removed to a depth of at least 2 inches from the face surface by spalling or otherwise. Wire ties will not be permitted without written permission of the Engineer. In case wire ties are permitted, all wires upon removal of the forms, shall be cut back at least 1/4 inch from the face of the concrete with sharp chisels or nippers. Nippers are necessary for green concrete.

All cavities produced by the removal of metal ties shall be carefully filled with a mortar of fine aggregate and cement in the proportion that has been employed for the particular class of concrete treated and the surface left smooth and even and uniform in color. The surface film of all such pointed surfaces shall be carefully removed before setting occurs.

All forms shall be set and maintained true to the line designated until the concrete is sufficiently hardened. In general, form work shall remain in place, after placing of concrete, for the approximate periods hereinafter specified under "Removal of Forms."

For narrow walls where access to the bottom of the forms is not readily attainable otherwise, the lower form boards shall be left loose so that they may be removed for cleaning out all chips, dirt, sawdust or other extraneous material immediately prior to placing concrete.

Forms reused shall be maintained at all times in good conditions as to accuracy of shape, strength, rigidity, water tightness and smoothness of surface. Any warped or bulged lumber must be carefully resized before being reused. Forms unsatisfactory in any respect shall not be used, and, if condemned, it shall be removed immediately from the work.

For parapets or balustrades and the exposed faces of girders, arch ribs, copings, etc., forms shall be treated with an approved oil. All other forms shall be treated with approved oil; or thoroughly drenched and saturated with water on both faces immediately before concrete is placed therein. Any material that will stick to or discolor the concrete shall not be used.

The foregoing specifications as regards design, mortar, water tightness, filleted corners, beveled projections, bracing, alignment, removal, reuse and oiling, shall apply with equal force to Metal Forms. The metal used for forms shall be of such thickness that the forms remain true to shape. All bolt and rivet heads shall be counter-sunk. Clamps, pins or other connecting devices shall be designed to hold the forms rigidly together and to allow removal without injury to the concrete. Metal forms which do not present a smooth surface or line up properly shall not be used. Special care shall be exercised to keep metal forms free from rust, grease or other foreign matter such as will tend to discolor the concrete.

The time of removal of forms shall be subject to the approval of the Engineer.

Except on side faces to be surface finished, the following table may be used as a guide for the minimum time required before the removal forms, not counting the days in which the temperature is below 40 degrees Fahrenheit.

**MINIMUM PERIODS (IN DAYS) FOR REMOVING FORMS FOR DIFFERENT
CEMENT ITEMS**

CEMENT ITEM	NO. DAYS
Arch Centers*.....	15 - 20
Centering under beams.....	10 - 15
Floor slabs.....	7 - 13
Columns.....	5
Walls, sides of beams and all other parts.....	3

* Arch centering shall not be removed in such a manner as to insure the complete safety of the structure.

Forms shall be removed in such a manner as to insure the complete safety of the structure.

Where the structure as a whole is supported on shores, beam and girder sides, column and similar vertical forms may be removed after twenty-four hours or when the concrete is sufficiently hard not to be injured thereby. In no case shall the supporting forms or shoring be removed until the members have acquired sufficient strength to support safely their weight and the load thereon.

m. Reinforcement: Cleaning and Bending reinforcement: Metal reinforcement, at the time concrete is placed, shall be free from loose rust scale or other coatings that will destroy or reduce the bond. All bars shall be bent cold. Reinforcement shall be formed to the dimensions indicated on the plans before it is embedded in the concrete.

Placing Reinforcement: Metal reinforcement shall be accurately placed, spaced and adequately secured in position by concrete or metal chairs or spacers. The clear distance between parallel bars, except in columns, shall be not less than the nominal diameter of the bars, one and one-third times the maximum size of the coarse aggregate, nor one inch. Where reinforcement in beams or girders is placed in two or more layers, the clear distance between layers shall not be less than one in., and the bars in the upper layers shall be placed directly above those in the bottom layer.

Splices in reinforcement of slabs, beams and girders: In slabs, beams and girders, splices of reinforcement at points of maximum stress shall be avoided wherever possible. Such splices where used shall be welded, lapped or otherwise fully developed, but in any case, shall transfer the entire stress from bar to bar without exceeding the allowable bond and shear stresses. The minimum overlap for a lapped splice shall be twenty-four bar diameters, but not less than twelve inches for bars. The clear distance between bars shall also apply to the clear distance between a contact splice and adjacent splice or bars.

Concrete protection for reinforcement: The reinforcement of footings and other principal structural members in which the concrete is deposited against the ground shall have no less than three inches of concrete between it and the ground contact surface. If concrete surfaces after removal of the forms are to be exposed to the weather or be in contact with the ground, the reinforcement shall be protected with not less than two-inches of concrete for bars larger than No. 5 and one and one-half inches for No. 5 bars or smaller.

The concrete protective covering for reinforcement at surfaces not exposed directly to the ground

or weather shall be not less than three-quarters of an inch for slabs and walls; and not less than one and one-half inches for beams and girders, and two inches for columns. In concrete joist floors in which the clear distance between joists is not more than thirty inches, the protection of reinforcement shall be at least three-quarters of an inch.

Concrete protection for reinforcement shall in all cases be at least equal to the diameter of the bars.

Exposed reinforcing bars intended for bonding with future extension shall be protected by an anticorrosive coating or other adequate covering.

n. Provision for Concreting in Cold Weather: No concrete shall be placed when the atmospheric temperature is below 40 degrees Fahrenheit unless permission to do so is granted in writing by the Engineer. When directed by the Engineer the Contractor shall furnish sufficient canvas and framework, or other type of housing, to enclose and protect the structure in such a way that the air surrounding the fresh concrete can be kept at a temperature above 50 degrees Fahrenheit for a period of 5 days after the concrete is placed.

Sufficient heating apparatus, such as stoves, salamanders, or steam equipment, and fuel to furnish all required heat shall be supplied. All water used for mixing concrete shall be heated to a temperature of at least seventy (70) degrees, but not over one hundred fifty (150) degrees Fahrenheit. Aggregates shall be heated either by steam or by dry heat to a temperature of at least seventy (70) degrees, but not over one hundred fifty (150) degrees Fahrenheit. The heating apparatus shall be such as to heat the mass uniformly and preclude the possibility of the occurrence of hot spots which will burn the material.

Where salamanders or other heating equipment are used, escape hatches and protection against fire shall be provided.

The temperature of the mixed concrete shall not be less than sixty (60) degrees Fahrenheit at the time of placing in the forms.

In cases of extreme weather condition, the Engineer may, at his discretion, raise and lower limiting temperatures for water, aggregate and mixed concrete.

o. Waterproofing: Unless otherwise noted on the plans or directed by the Engineer the surfaces of all reinforced concrete bridge abutments and retaining walls, arch and culvert bridges, which will come in contact with fill, shall be waterproofed above the foundations by coating with approved Bituminous Waterproofing Material. Bituminous material shall be a two coat system consisting of primer and asphalt coats. Primer shall conform to the Standard Specification for "Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing" of A.S.T.M. Designation: D 41. Topcoat shall conform to Standard Specification for "Asphalt Used in Dampproofing and Waterproofing" of A.S.T.M. Designation : D 449 Types I, II or III.

p. Curing Concrete: Careful attention shall be given to the proper curing of all concrete parapets, balustrades, floors, sidewalks and finished surfaces.

Such surfaces shall be covered and remain wet as indicated below or be sprinkled each morning and evening or more frequently if deemed necessary by the Engineer.

For all concrete structures, concrete made with normal Portland cement shall be maintained above fifty (50) degrees Fahrenheit in a moist condition for at least the first seven days after placing and high-early strength concrete shall be so maintained for at least the first three days.

Parapets, balustrades, pavements, floor and sidewalk slabs and all exposed surfaces shall be cured by the following methods:

1. Quilted Covers: Approved quilted covers shall consist of outer covering materials of burlap, cotton or other approved fabric, the bottom and top cover of which shall each weigh at least six (6) ounces per square yard of fabric, and an inner layer of cotton batting or other approved material weighing at least eight (8) ounces per square yard. These mats shall be quilted, to securely hold the inner cotton batting lining in place and shall be two (2) feet greater in width, after shrinking, than the pavement slabs being cured, and shall be securely held in place and weighted down to completely cover the edges, as well as the top of the pavement. Adjoining quilts shall be lapped at least twelve (12) inches. Quilted covers shall be kept wet and left in place for a period of not less than five (5) days. These quilted covers shall be laid directly on the pavement as soon as the brooming is completed.

2. Waterproof Sheet Materials: Approved blankets and covers shall have edges lapped at least

twelve (12) inches and all edges shall be sealed with pressure sensitive tape. Sheet materials shall be capable of withstanding normal job use without puncturing or tearing. Waterproof Paper Blankets and Polyethylene Coated-White Burlap Blankets shall conform to the material requirements of the Standard Specifications for "Sheet Materials for Curing Concrete" of A.S.T.M. Designation: C 171.

3. Membrane Curing Compounds: Approved liquid membrane-forming compounds shall be Type 1, clear or translucent; Type 1-D, clear or translucent with fugitive dye; or Type 2, white pigmented in accordance with the Standard Specification for "Liquid Membrane-Forming Compounds for Curing Concrete" of A.S.T.M. Designation: C 309. Curing compound shall be uniformly applied by spray or roller over freshly placed damp concrete at a rate of one gallon per 150 square feet. Curing compound shall remain intact for at least 7 days before becoming powdery and non-adherent due to weathering.

The entire surface of the pavement, including the edges and sides shall be kept wet by the above methods or sprinkling with water for the period shown on the following table. The water shall be applied by means of tank trunk sprinkler with a fan spray, unless otherwise ordered by the Engineer, calcium chloride mixed integrally may be used for curing, if shown on the plans.

The interval of laying adjacent slabs, the period to opening to traffic, and the curing period shall be in accordance with the following table depending upon the type of cement used and the season of the year placed; except in cases where a pavement is placed upon a bridge floor, when the Contractor shall proceed as directed by the Engineer.

<u>Minimum</u> period of laying adjacent slabs	<u>Minimum</u> period of opening to traffic	<u>Minimum Curing Period</u>
		Misting with Quilts Water

Pavement laid from June 1st to September 15

5 days

10 days

8 days

5days

Pavement laid from September 15th to June 1st when the average temperature is above 45o F., unless otherwise authorized by the Engineer.

7days

15 days

12 days

7days

The periods of the curing of concrete floors, in the area where waterproofing is to be applied, may be further reduced when approved by the Engineer, provided the waterproofing is placed over this surface of the floor immediately after the quilted covers or waterproof curing sheets, have been removed and the concrete pavement placed as soon as possible thereafter. For this case, in transporting and placing waterproofing and concrete on the bridge floor, individual transporting units in excess of 1,000 pounds including material will not be permitted and hand finishing will be required.

q. Joints: Sliding surfaces of expansion plates shall be planed true and smooth, the marks of the plane paralleling the movement of the joint. Expansion plates shall be well anchored as shown on the plans. All sliding surfaces of expansion plates shall be thoroughly coated with a mixture of graphite and grease just before being placed in position and special care taken to avoid placing concrete in such manner as to interfere with their free action.

Open joints shall be placed at locations designated on the plans and shall be formed by the insertion and subsequent removal of a template of timber, metal or other suitable material. The method of insertion and removal of joint templates shall be such as to avoid the possibility of chipping or breaking down at the edges and the templates shall be so constructed that their removal may be readily accomplished without injury to the work.

Unless otherwise shown on the plans, the expansion joints in the exposed faces of masonry shall be filled for a depth of one (1") inch from the exposed surface with an approved plastic cement which is colored to match the concrete or mortar joints, the balance of the joint shall be filled with premoulded joint material.

False joints matching those in the adjacent pavement shall be formed in structural roadway slabs as shown on the plans or directed by the Engineer.

r. Construction Joints: Joints not indicated on the plans shall be so made and located as to least impair the strength of the structure. Where a joint is to be made, the surface of the concrete shall be thoroughly cleaned and all laitance removed. In addition to the foregoing, all joints shall be thoroughly wetted and slushed with a coat of neat cement grout immediately before placing of new concrete.

At least two hours must elapse after depositing concrete in the columns or walls before depositing in beams, girders or slabs supported thereon. Beams, girders, brackets, column capitals, and haunches shall be considered part of the floor system and shall be placed monolithically therewith.

Construction joints in floors shall be located near the middle of the spans of slabs, beams, girders or unless a beam intersects a girder at such point in which case the joints in the girders shall be offset a distance equal to twice the width of the beam. In this last case provision shall be made for shear by use of inclined reinforcement.

s. Sidewalk Finish on Bridges: Sidewalk finish shall have a one inch wearing surface of mortar, composed of one part Portland cement and two parts fine aggregate, applied at the same time the concrete is placed, to insure thorough bonding. The surface shall be worked, floated and otherwise finished as directed by the Engineer, and marked off at intervals of about six feet unless otherwise shown on the plans. The one inch wearing surface will be paid for at the unit price bid for the concrete with which it is bonded.

t. Finishing Surfaces: The upper surfaces of bridge seats or other bearing surfaces under metal shall be left approximately 1/4 of an inch high and bush hammered to the exact level, unless otherwise noted on the Plans or directed by the Engineer.

Where so indicated on the drawings, surfaces shall be tooled or treated by sand blast.

Regardless of any other provisions of these specifications, and subject to the approval of the Engineer, the forms carrying no load, on side faces to be finished may be removed 24 hours to 72 hours (depending on the temperature and the kind of cement used) after the concrete is poured. Immediately after forms have been removed, surfaces that will be exposed in the finished structure shall have all projections and irregularities carefully removed and all cavities neatly

filled with mortar of the proportion used in concrete.

Plastering of surfaces will not be allowed. The surface film of all such pointed surfaces shall be carefully removed before setting occurs. The surfaces shall then be given one of the following finishes:

Surface Finish: Surfaces exposed to view shall, unless otherwise indicated on the plans, be defined as follows:

Copings, Railings and Curbs: All surfaces, except the upper horizontal surfaces not subjected to wear including Columns, Spandrel Walls, Piers, Abutments, Wingwalls and Retaining Walls. All surfaces not in contact with earth and above low water, except the bridge seats, face of back walls and the upper horizontal surfaces not subjected to wear.

Arch Ribs or Rings: All surfaces not in contact with earth and above low water except that portion of the extrados which cannot be seen.

Slabs, Beams and Girders: For structures over highways and railroads, all surfaces above the ground except sidewalk and roadway surfaces. For structures over streams, the fascias, such as the outside surface of outside beams and girders.

For all surfaces the Engineer shall be the sole judge of what surfaces may be seen and also of the elevation which is deemed to be low water.

If in the opinion of the Engineer any exposed surfaces do not present a smooth surface of even texture and appearance, then the following finish shall be repeated as many times as the Engineer deems it necessary, to secure a satisfactory finish. The Engineer shall be the sole judge of the amount of rubbing which will be required.

Immediately after the forms are removed, and necessary patching and smoothing is done, the surface shall be wetted and rubbed with No. 16 Carborundum brick or other abrasive until it is even and smooth and of uniform appearance, without applying any cement or other coating.

The final finish shall be obtained by a thorough rubbing with a No. 30 Carborundum brick or other abrasive of equal quality. After the final rubbing, the surface shall be drenched and kept

wet for a period of 7 days, unless otherwise directed.

Railing balusters and other precast members which have been disfigured by the drip from the abrasive shall be thoroughly cleaned by means of a dilute solution of muriatic acid.

Treatment and Finish for Horizontal Surfaces Not Subjected to Wear: All upper horizontal surfaces such as the tops of handrail posts and caps and the tops of parapets, copings and bridge seats shall be formed by placing an excess of material in the forms and removing or striking off such excess with a wooden templet, forcing the coarse aggregate below the mortar surface. The use of mortar topping for concrete railing caps and other surfaces falling under this classification will in no case be permitted.

The final finish for caps and railings shall be obtained in one of the following ways as specified:

After the concrete has been struck off as above described, the surface shall be thoroughly worked and floated with a wooden, canvas or cork float. The operation shall be performed by skilled and experienced concrete finishers. Before this last finish has set, the surface shall be lightly striped with a fine brush to remove the surface cement film, leaving a fine-grained, smooth, but sanded texture.

In lieu of the above, the surface may be finished with a rough carpet float or other suitable device leaving the surface even but distinctly sandy or pebbled in texture.

u. Embedded Stone: Boulders and fragments of rock may be embedded in a large mass of second and third-class concrete. Each stone before being embedded or placed shall be thoroughly washed and scrubbed, if necessary, to free it from all dirt. Stones embedded in concrete shall be at least three inches apart at all points, and no stones shall be placed within three inches of any face of the concrete. Stones shall be laid on their largest bed and worked down into the concrete by bars so as to exclude air from any pockets in the lower surface of the stone.

v. Weep Holes: The contractor shall construct weep holes in all retaining walls and abutments at such points as are indicated on the plans or designated by the Engineer. Payment for all labor and materials required to construct and protect these weep holes will be included in the contract price for concrete.

w. Damaged Concrete: All damage to or disfigurement of concrete of any kind occurring prior to the final acceptance of the work shall be remedied by the Contractor at his own expense and to the satisfaction of the Engineer.

x. Foundation For Concrete: Where concrete is to rest on any excavated surface other than rock, special care shall be taken not to disturb the bottom of the excavation, and the final removal of material to grade shall not be made until just before the concrete is laid; except in concrete foundations for pavement.

The excavation lines and bases of structures shown on the plans shall be considered as only approximate; and when ordered in writing by the Engineer, shall be placed at such an elevation or changed to such dimensions as will give a satisfactory foundation. Any additional concrete that may be ordered by the Engineer below or beyond the lines shown on the plans will be paid for at the contract price.

No structure shall be commenced without the Engineer's approval.

All rock or hardpan foundation surfaces shall be freed from loose pieces, cut to firm surfaces and cleaned to the satisfaction of the Engineer, before laying concrete. All seams shall be cleaned out and filled with concrete or mortar; and payment for such cleaning out and filling shall be made at the contract price for the class of concrete used.

y. Concrete Parapets: In no case shall concrete parapets or balustrades be placed until the centering or false work for the span has been released and in the case of steel bridges, the riveting completed. In the case of earth filled arch bridges the parapets or balustrades shall not be poured until the fill has been placed.

z. Concrete Floors: Before concrete floors are placed on steel-spans the centering under the bridge shall be released and the span swung free on its supports and the riveting completed.

The operation of placing the concrete in any floor slab shall be continuous between construction or expansion joints.

On steel truss or open Spandrel concrete spans, the concrete in the floor system shall be placed symmetrically about the center line of the span, beginning at the center and working

simultaneously toward each end, or beginning at the ends and working simultaneously toward the center. Care shall be taken to prevent the displacement of reinforcement during the placing of concrete.

If for any reason it becomes necessary to introduce a construction joint, this shall be formed by means of a vertical bulkhead so constructed as to produce a key or dove-tailed joint, and shall be placed as shown on the plans or as directed by the Engineer.

In placing concrete around steel shapes it shall be placed only on one side of the shape until it slushes up over the bottom flange of the shape on the opposite side, after which it shall be placed on both sides to completion.

ARTICLE 28. PAINT AND PAINTING: (a) General. All paint furnished must be shipped in strong, substantial containers, plainly marked with the name, weight and volume of paint content, together with the color, formula and name and address of manufacturer.

Unless otherwise provided, the materials entering into the composition of paints shall conform to the requirements of the Federal Specifications Board on Paints issued by the U.S. Bureau of Standards, and in the examination of paints the methods specified shall be used.

All paints and coatings shall comply with VOC (volatile organic compounds) content limits in accordance with current environmental regulations.

(b) Requirements: The paints shall consist of pigments of the required fineness and composition ground to the desired consistency in pure raw linseed oil in a suitable grinding machine, to which shall be added additional oil and drier as herein-after specified.

The linseed oil, thinner and drier which are to be used in the preparation of the paints shall meet the following requirements: Raw linseed oil shall meet the requirements of the Standard Specification for "Raw Linseed Oil" of A.S.T.M. D-234 latest issue.

Boiled linseed oil shall meet the requirements of the Standard Specification for "Boiled Linseed Oil" of A.S.T.M. D-260 latest issue.

Thinner: (a) The turpentine used shall either be the distillate commonly known as "Gum Spirits of Turpentine" or "Steam-Distilled Wood Turpentine" meeting the requirements of the Standard Specification for "Spirits of Turpentine" of A.S.T.M. D-13 latest issue.

(b) Mineral Spirits. The mineral spirits shall be clear and free from suspended matter and water and shall meet the requirements of Standard Specification for "Mineral Spirits (Petroleum Spirits) (Hydrocarbon Dry Cleaning Solvent)" of A.S.T.M. D-235 latest issue.

The color shall be "Water White".

Spot Test: The mineral spirits shall evaporate completely from filter paper.

The flash point shall be not lower than 300C (860F) when tested in a closed cup tester.

Sulphur shall be absent, as determined by the white lead test.

The distillate below 1300C (2660F) shall not exceed five percent.

The distillate below 2300C (4460F) shall be not less than ninety-seven per cent.

The reaction shall be neutral.

Drier: The drier shall be composed of manganese or cobalt, or a mixture of any of these elements combined with a suitable fatty oil, with or without resins or "gums" and mineral spirits or turpentine, or a mixture of these solvents. It shall be free from sediment and suspended matter. The drier when flowed on metal and baked for two hours at 1000C (2120F) shall leave an elastic film. The flash point shall be not lower than 300C (860F) when tested in a closed cup tester.

It shall mix with pure raw linseed oil in the proportion of one volume of drier to nineteen volumes of oil without curdling, and the resulting mixture when flowed on glass shall dry in not more than eighteen hours. When mixed with pure raw linseed oil in the proportion of one volume of drier to eight of oil, the resulting mixture shall be no darker than a solution of 6 g. of potassium bichromate in 100 cc. of pure sulfuric acid of specific gravity 1.84.

Black Paint: The paint shall be well ground, shall not settle badly or cake in the container, shall be readily broken up with a paddle to a smooth, uniform paint of good brushing consistency and shall dry within eighteen hours to a full oil gloss without streaking, running or sagging. The color and hiding power shall be that which may be specified.

Pigment: The pigment shall consist of carbon black 35 to 50 percent and the balance insoluble silicates.

Liquid. The liquid in the paint shall consist of not less than eighty percent of pure linseed oil, previously specified, the balance to be combined drier and thinner.

The paint shall consist of:	Minimum Percent	Maximum Percent
Pigment	40	45
Liquid (containing at least 80% Linseed Oil)	55	60
Water	--	0.5
Coarse particles and "skins" (total residue retained on 325 sieve on pigment)	--	1.5

White Paint: The paint shall be well ground, shall not settle badly or cake in the container, shall be readily broken up with a paddle to a smooth, uniform paint of good brushing consistency, and shall dry within eighteen hours to a full oil gloss without streaking, running or sagging. The color and hiding power shall be equal to that which may be specified.

Pigment. The Pigment shall be composed of:

	Minimum Per Cent	Maximum Per Cent
Pigment color	50	70
Zinc Oxide (ZnO)	30	40
Silica, magnesium silicate, aluminum silicate, barium sulphate, or any mixture thereof.....	--	10

Liquid: The liquid in the paint shall consist of not less than ninety percent of pure raw linseed oil previously specified, the balance to be combined drier and thinner.

The paint shall consist of:	Minimum Percent	Maximum Percent
Pigment	62	66
Liquid (containing at least 90% Linseed Oil)	34	38
Water	--	0.5
Coarse particles and "skins" (total residue retained on 200 sieve on pigment)		0.5

Black Enamel Paint: The paint shall be well ground, shall not settle badly or cake in the container, shall be readily broken up with a paddle to a smooth uniform paint of good brushing consistency and shall dry to a full gloss without streaking, running or sagging.

The formulas for making twenty (20) gallons of Black Enamel Paint are as follows:

Eighty-one (81) pounds of Basic Paste of which the pigment is six (6) per cent minimum and the vehicle is ninety-four (94) per cent maximum. The vehicle shall be an alkyd resin solution of ninety-four (94) percent minimum and six (6) percent dipentene maximum.

The pigment shall be standard grade carbon black, color #26 and shall meet the requirements of the N.Y.C. Dept. of Citywide Administrative Services Specification No. 31-P-93:66.

The alkyd resin solution shall meet the requirements of the N.Y.C. Dept. of Citywide Administrative Services Specification No.31-E-10:92.

To this is to be added the following vehicle:

Seven (7) Gallons	Mineral Spirits
Two and one-half (2 ½) Gallons	Esteral #750
Two Pounds Ten Ounces (2 lbs. 10oz.)	Drier (32%)
One Pound Five Ounces (1lb. 5oz.)	Cobalt Drier (6%)
Ten Ounces (10 oz.)	Manganese Napthenate Drier (6%)

The mineral spirits shall meet the requirements of the N.Y.C. Dept. of Citywide Administrative Services Specification No. 31-M-1:91.

The liquid paint driers shall meet the requirements of the N.Y.C. Dept. of Citywide Administrative Services Specification No. 31-D-1:64.

Colored Paint: The colored paints will be ordered in the form of ready-mixed paint and they shall meet the requirements as to composition as called for under White Paint but having substituted for the extending pigments sufficient suitable pigment color in order to furnish the required color and hiding power. The paint for first coat shall be tinted lighter in color than the second coat.

Aluminum Paint: (a) Requirements--Metal Portion. The metal portion of aluminum paste shall be made from commercially pure aluminum and shall be in the form of fine flakes. It shall contain no filler or adulterant such as mica, shall be suitable for making aluminum paint and shall meet the requirements of N.Y.C. Dept. of Citywide Administrative Services Specification No. 31-P-95:94 and shall meet the following requirements:

Paste:

Coarse particles, using alcohol or mineral spirits as the wash liquid:	Minimum Percent	Maximum Percent
Total residue retained on No. 200 sieve	--	0.5
Total residue retained on No. 325 sieve	--	3.0
Fatty or oil matter (polishing lubricant)	--	3.0
Non-volatile portion	63	--

Liquid Portion: The liquid which the aluminum bronze powder is compounded to form the

paste shall be completely volatile at 1050C.

Leafing properties: The aluminum paste shall show a leafing percentage of a minimum of 60% and shall show a leafing percentage of a minimum of 60% after heating in a closed vessel for three (3) hours at a temperature of 450C.

Settling: There shall be no appreciable settling out of the metallic portion of the paste in the container, i.e., no free liquid shall be present.

Paint Film: The paint shall be made by mixing with a spar mixing varnish meeting U.S. Navy Department Specification TT-V81 in the proportion of two (2) pounds of aluminum paste to one (1) gallon of vehicle and shall give a free flowing, smooth, continuous coating, free from breaks and sags when applied to a smooth, vertical steel surface.

(b) Determination of Leafing Properties: This determination requires the use of a polished steel spatula having a blade substantially free from taper and of the following dimensions:

Length.....5-1/2 inches (minimum)
Width.....½ to 9/16 inch
Thickness.....1/16 inch (maximum)

A test tube 6 inches long by 1/4 inch diameter is also required. The leafing reagent or vehicle is made by dissolving 30 gr. of finely powdered (100 mesh) hard cumarone resin in 100 cc. of volatile mineral spirits having a specific gravity at 600F. of 0.794 and meeting the requirements of the Federal Specification No. TT-T-291. Solution of the resin may be hastened by warming the mixture. The specific gravity of the solution at 600F. is adjusted between the limits of 0.875 and 0.882 by the addition of sufficient mineral spirits. The resulting mixture is allowed to settle and the clear supernatant solution decanted for use in the test. To determine the leafing percentage a 3-1/2 gr. sample of the paste is thoroughly mixed with 25 cc. of the leafing reagent and transferred to the test tube to a depth of 11.5 cm. The tube is closed with a stopper and rotated until a uniform suspension is formed. The clean spatula is then dipped into the mixture, maintained at a temperature of 770F plus or minus 50F rotated for 20 seconds, withdrawn at a uniform rate of speed requiring a total time of 6 seconds plus or minus 1 second without

touching the sides of the test tube, and suspended vertically in free space for 2 minutes. The height of the perfectly leafed area, defined as that portion of the completely covered surface free from cracks or breaks and possessing a high luster or mirror-like reflection, is then measured. The per cent leaf is defined by the equation:

$$\frac{\text{Length of perfectly leafed area} \times 100}{\text{Total Depth of immersion}} = \text{Leafing Percentage}$$

(c) Determination of Leaf Retention after Heating. After determining the leafing properties of the sample of paste as described in Paragraph b, place 10 gr. of paste in a small, loosely closed, container and heat in an oven at 450C. for 3 hours. Again measure the leafing properties to determine the loss of leaf caused by heating.

Painting of Metal Structures: The painting of metal structures shall include, unless otherwise provided in the contract, the proper preparation of the metal surfaces, the application protection and drying of the paint coatings, the protection of pedestrian, vehicular or other traffic upon or underneath the structure and sub-structure, the protection of all portions of the structure (super-structure and sub-structure) against disfigurement by spatters, splashes and smirches of paint or of paint materials, and the supplying of all tools, tackle, scaffolding, labor, workmanship and materials necessary for the entire work.

Paint shall be applied by means of brushed only. All brushes shall be either round or oval in shape. The paint when applied shall be so manipulated under the brush as to produce a uniform even coating in close contact with the metal or with previously applied paint. In general, the primary movement of the brush shall describe a series of small circles to thoroughly fill all irregularities in the surface, after which the coating shall be smoothed and thinned by a series of parallel strokes.

To secure a maximum thickness of paint film upon the rivet heads and edges of plates, angles, or other rolled shapes, these areas shall be "striped" in advance of the general painting, and shortly afterward shall be given a second or "wash" coat when the general coat is applied. The paint shall be kept stirred while being applied. The paint shall be well worked into all joints and open spaces.

Paint shall be thoroughly stirred, preferably by means of mechanical mixers, before being removed from the containers, and to keep the pigments in suspension it shall be kept stirred while being applied.

All painting must be done in a neat and workmanlike manner.

On all surfaces which are inaccessible for paint brushes, the paint shall be applied with sheepskin daubers specially constructed for the purpose.

All metal coated with impure or unauthorized paint shall be thoroughly cleaned and repainted to the satisfaction of the Engineer, at the expense of the Contractor.

If it is necessary in cool weather to thin the paint in order that it shall spread more freely, this shall be done only by heating in hot water or on steam radiators.

Shop Painting: All dirt, rust, loose mill scale, grease, and other foreign matter shall be removed from the surfaces required to be shop painted, by means of an oxygen acetylene torch.

The torches to be used shall be of two general types: type one shall be used for flat surfaces, and type two shall be used for rivet heads, fittings, and other projections inaccessible to torch type number one. Torch type No. 1, multiple tip type, consists of multiple flame orifices arranged so as to give a wide flat series of neutral clear cone flames. Torch type No. 2, round tip type, consists of multiple orifices so as to give a circular series of neutral clear cone flames.

All surfaces of structural steel to be shop painted shall be flame cleaned with the proper type of torch traversed over the surface at a rate of speed necessary to dehydrate and remove loose mill scale, etc. Immediately after the application of the flame, surfaces shall be hand wire-brushed and swept clean of loose particles and dust. Cleaning by means of compressed air will not be permitted.

The conditions under which the flame cleaning of structural steel surfaces shall be undertaken

shall be such that the following objectives will be attained: Removal of foreign matter, dehydration of the surface, and application of paint before recondensation of moisture on steel.

Paint shall be applied to the surface promptly after cleaning, but in no case shall paint be applied more than two hours after the flame cleaning of the surface or when the metal has absorbed sufficient heat to cause the paint to blister and produce a porous paint film or when the temperature of the steel and the surrounding air is less than 400F. Erection marks shall be painted upon painted surfaces. Unless otherwise noted on the drawings, all steel work, after it has been approved by the Inspector and before leaving the shop, shall be given one coat of alkyd-linseed oil primer paint.

The paint shall be carefully and thoroughly applied and well worked into all joints and open spaces. All surfaces in contact shall be cleaned (but not painted) before assembling.

All surfaces not accessible after erection, except surfaces in contact, shall receive two shop coats the second to be of the proportions specified for the first field coat and tinted as directed.

All open spaces, where, in the opinion of the Engineer, water is apt to accumulate and corrosion occur because of the impossibility of painting, shall be filled thoroughly and carefully with litharge or approved substitute.

All surfaces embedded in concrete shall be cleaned but not painted. Tops of beams in contact with concrete slabs shall be painted. Machined surfaces shall be given a heavy coat of metal lacquer or other approved coating before leaving shop. Surfaces to be welded shall not be painted until welding is completed. Where welding is to be done in the field, the shop painting shall consist of a coat of linseed oil.

No material shall be shipped until the shop paint has dried sufficiently to preclude injury from shipping or handling.

Field Painting: After arrival at the site, all surfaces of members which will be inaccessible after erection and which are to be given the first field coat of paint in the shop shall be given two coats of paint corresponding to the second and third field coats as specified herein.

Prior to application of any coat of paint, all damage to the previous coat shall be touched up with the corresponding specified paint, each coat being allowed to dry thoroughly before the subsequent coat is applied. The Contractor shall restore any damage that may have been caused to other parts of the structure. Immediately after they have been inspected and approved, heads of field rivets shall be given a coat of paint of the proportions and quality specified for shop paint.

The underside of each fixed shoe and bed plate shall be cleaned of all foreign matter but shall not be painted.

When the erection work is complete including all riveting, straightening of bent metal, etc., all adhering rust, scale, dirt, grease or other foreign matter shall be removed from steel surfaces by means of approved power wire brush apparatus. Oil and grease shall be removed by the use of gasoline or benzine; bristle and wood fibre brushes may be used for removing loose dust; upon permission of the inspector, brushes, scrapers, chisels, hammers, and other effective means may be employed when necessary.

All painting shall be done in dry weather. The steel shall be free from moisture or frost when being painted, and the temperature of both the steel and the surrounding air shall be at least 400F and rising. Painting shall not be done when the metal has absorbed sufficient heat to cause the paint to blister and produce a porous paint film. Field painting shall not be started until so directed by the Engineer and in no case shall surfaces, which are liable to be damaged by concrete work be painted until after the concrete work is completed and the forms removed. As soon as the concrete work is done to the satisfaction of the Engineer, all surfaces except as noted on the drawings and otherwise herein specified, shall be given three field coats of paint. The second and third field coats of paint shall not be applied until the preceding coat has dried thoroughly.

Paint Packages and Thinning: All paint furnished must be shipped in strong, substantial containers, plainly marked with the name and address of manufacturer. The paint shall be delivered in sealed packages and the Inspector shall be permitted to seal the packages at any time during the progress of the Work. The seals shall be broken by the Inspector only, and no paint shall be used until accepted by the Engineer. No thinning of the paint, or the addition of any material whatsoever, will be permitted except by order of the Engineer.

FMS ID: P5SPKHORA



**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

Contract for Furnishing all Labor and Material Necessary and Required for:

CONTRACT NO. 1 GENERAL CONSTRUCTION WORK

Ocean Breeze Indoor Horse Riding Arena Construction

LOCATION: 621 Father Capodanno Boulevard
BOROUGH: Staten Island 10305
CITY OF NEW YORK

Contractor

Dated _____, 20____

Entered in the Comptroller's Office

First Assistant Bookkeeper

Dated _____, 20____

