NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

PROJECT ID: PV467IRT1

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

AUDIT ENGINEER

VOLUME 1 OF 3

BID BOOKLET

FOR FURNISHING ALL LABOR AND MATERIALS
NECESSARY AND REQUIRED FOR:

Renovation of the Irish Repertory Theater

LOCATION:	132 West 22nd Street
BOROUGH:	New York, NY 10011
CITY OF NEW YORK	
CONTRACT NO. 1	GENERAL CONSTRUCTION WORK
CONTRACT NO. 2	PLUMBING WORK
CONTRACT NO. 3	HVAC + FIRE PROTECTION WORK
CONTRACT NO. 4	ELECTRICAL WORK

DCA

Garrison Architects

Date: April 29, 2013

13-052

NEW YORK CITY DEPARTMENT OF
DESIGN + CONSTRUCTION

DR. FENIOSKY PEÑA-MORA
Commissioner

DAVID RESNICK, AIA
Deputy Commissioner
Public Buildings

NOTICE TO PROCEED

August 18, 2014

CHINATOWN PL & HEATING
153 CENTRE STREET RM108
NEW YORK, NY 10013

CONTRACT #: **20141428068**
LEAD FMS ID: **PV467IRT1**
PROJECT NAME: **Irish Repertory Theatre - Phase I Renovations**

Dear Contractor:

You are hereby directed to commence work on the above-referenced project as of August 20, 2014. The date to complete all of the work is February 18, 2015, a total of 183 consecutive calendar days in accordance with the terms of the contract.

This contract was awarded to you on June 4, 2014 and was registered by the Comptroller of The City of New York on July 14, 2014 in the amount of $115,000.00.

At least ten (10) business days prior to the work commencement date indicated above, you must submit the original certificates of insurance and/or policies for all types and amounts of coverage required by the Insurance Provision of the contract. If you have not already done so, please submit the original certificates to:

Insurance and Risk Management Unit
Office of the Agency Chief Contracting Officer
30-30 Thomson Avenue, 4th Floor
Long Island City, NY 11101

ORDER TO COMMENCE WORK
PIN: 8502013PV0015C, CONTRACT NUMBER: 20141428068
CHINATOWN PL & HEATING

Please be advised that all permits must be in place prior to the commencement of work.

Also, if subcontractor participation goals have been established for this contract, you must, within 30 days of the date of this letter, submit all subcontractors/subconsultants on the enclosed form ("Initial List of Subcontractors/Subconsultants"). You should also include the following:

a) MWBE Contractor Participation Letter (attached)
b) Copy of the MWBE Certification Letter (attached)
c) Copy of the Subcontractor Agreement and/or Purchase Order
d) Request for Approval of Subcontractors (copy only)

Please return completed forms to:

NYC Department of Design + Construction
Office of Contract Opportunity
30-30 Thomson Avenue- 4th Floor
Long Island City, NY 11101
Attn: Norma Negron

You are strongly advised to submit these documents as early as possible so as not to delay the subcontractor approval review process. A list of certified M/WBE firms may be obtained from the Department of Small Business Services (SBS) website at www.nyc.gov/buycertified or by emailing SBS at MWBE@sbs.nyc.gov, or by calling the SBS certification hotline at (212) 513-6311 or by visiting or writing SBS at 110 William Street, New York, New York 10038, 7th Floor. Eligible firms that have not yet been certified may contact SBS in order to seek certification. **FAILURE to submit the LOS within 30 days of the date of this letter will be reflected in the contractor's overall performance evaluation.**

Very truly yours,

Konstantinos Kritharis

Program Director

cc:

Alyssa S. Gerber
Michael Nastasi
Ramon Rodriguez
Danielle Deshore
Yolanda Perez
Donna Pope
Lorraine Holley
John Devito

NEW YORK CITY DEPARTMENT OF
DESIGN + CONSTRUCTION

DR. FENIOSKY PEÑA-MORA
Commissioner

RAMON RODRIGUEZ
Acting Agency Chief
Contracting Officer

June 04, 2014

CERTIFIED MAIL - RETURN RECEIPT REQUEST
CHINATOWN PL & HEATING
153 Centre Street Rm108
New York, NY 10013

RE: FMS ID: PV467IRT1
E-PIN: 85013B0109001
DDC PIN: 8502013PV0015C
PLUMBING WORK - RENOVATION OF THE IRISH REPERTORY THEATER - BOROUGH OF MANHATTAN
NOTICE OF AWARD

Dear Contractor:

You are hereby awarded the above referenced contract based upon your bid in the amount of $115,000.00 submitted at the bid opening on August 05, 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,

Lorraine Holley for R. K.

Acting Agency Chief
Contracting Officer

30-30 Thomson Ave. L.I.C., NY 11101 Telephone: 718 391 1505 Facsimile: 718 391 1885 www.nyc.gov/buildnyc

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: PV467IRT1

Renovation of the Irish Repertory Theater
132 West 22nd Street
New York, NY 10011

Name of Bidder: Chinatown Plumbing & Heating

Date of Bid Opening: July 24, 2013

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

Place of Business of Bidder: 153 Centre St. Ste 108, New York, NY 10013

Bidder's Telephone Number: (212) 966-9735 Bidder's Fax Number: (212) 226-9571

Bidder's Email Address: chinatownpl@yahoo.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 _____

Name and Home Address of President: 22-11 21 St., Astoria, NY 11105

Name and Home Address of Secretary: N/A

Name and Home Address of Treasurer: N/A

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 New York ss:

Jimmy Yu being duly sworn says:

I am the president of the above named corporation whose name is subscribed to and which executed the foregoing bid. I reside at 22-11 21 St, Astoria, NY 11105.

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

23rd day of July, 2013

_____

Notary Public

NELSON WAN
Notary Public, State of New York
No. 01WA6258697
Qualified in Kings County
Commission Expires April 2, 2016

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: Chinatown Plumbing & Heating
Address: 153 Centre St, Ste 108
City: New York State: NY Zip Code: 10013

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

13-3540353

By: [signature]
Signature:

Title: President

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.

BID FORM

PROJECT ID: PV467IRT1
Contract #2 - Plumbing Work

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

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

Total Price For Labor		Total Price for Material Sold and Delivered		
$ 80,000	+	$ 30,000	Total Price for Item A	$ 110,000

B. ALLOWANCE for Incidental Asbestos Abatement (Section 220013 of the Specifications) **$5,000.00**

TOTAL BID PRICE (Add A + B) (a/k/a BID PROPOSAL) $ 115,000

8/5/13

P.8

BIDDER'S SIGNATURE AND AFFIDAVIT

* **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 ("Section 6-129"), and the rules promulgated thereunder; 2) affirm that the information supplied in support of the M/WBE Utilization Plan is true and correct; 3) agree, if awarded this Contract, to comply with the M/WBE participation requirements of this Contract, the pertinent provisions of Section 6-129, and the rules promulgated thereunder, all of which shall be deemed to be 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: Chinatown Plumbing & Heating Inc.

By: _____
(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

NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 2 - PLUMBING WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: Chinatown Plumbing & Heating

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	CONTRACT 2 - PLUMBING WORK							
22 0000	**PLUMBING**							
22 0503	**PIPES AND TUBES FOR PLUMBING PIPING AND EQUIPMENT**							
	Plumbing Demolition:							
	Hot water heater	1	EA	35	35	900	3000	3035
	Lavatories	4	EA	25	100	900	1500	1600
	Water closets	4	EA	20	100	900	1500	1580
	Piping, fixtures, all types, uon		LF					
	Cut, remove and cap for rerouting (Riser)		LF					
	Cut, remove and cap for rerouting (Distribution)	30	LF	20	600	900	2000	2600
	Drain and Cap	10	EA	20	200	900	2000	2700
	Gas Meter	1	EA	20	20	900	900	920
	Gas Piping	25	LF	20	500	900	3000	3500
	Personnel Fixtures (cw/hw, vent, sanitary)	950	LF	6.9	6595	900	12,000	18595
	House Fixtures (cw, vent, storm)		LF					
	Joints- Personnel Fixtures (cw/hw, vent, sanitary):							
	Couplings	40	EA	15	600	900	969	1569
	Elbows	25	EA	10	250	900	969	1219
	Tees	35	EA	20	700	900	961	1661
	Joints- House Fixtures (cw, vent, storm):							
	Couplings		EA					
	Elbows		EA					
	Tees		EA					
	Subtotal				12700		25785	38485
22 0523	**GENERAL-DUTY VALVES FOR PLUMBING PIPING**							
	General-Duty Valves for Plumbing Piping		LS					23,000
	Subtotal							23,000
22 0529	**HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT (Included w/ 220503)**							

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 2 - PLUMBING WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: Chinatown Plumbing & Heating

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
22 0700	**PLUMBING INSULATION**							
	Personnel fixtures (cw/hw, vent, sanitary)	500	LF	5	2500	500	4500	7000
	Subtotal				2500		4500	7000
22 0800	**COMMISSIONING OF PLUMBING**							
	LEED Commissioning		LS					3500
	System sterilization and purity test		LS					3000
	Pumps, gages, meters, thermometers		LS					3500
	Rigging, Hoisting, and Scaffolding		LS					
	Subtotal							10,000
22 1100	**FACILITY WATER DISTRIBUTION**							
	Sitework: connect to existing system		LS					10,000
	HW heaters, gallon storage, gph recovery:							
	Direct vent gas		LS					
	Expansion tanks		LS					2500
	Circulating Pumps		LS					2000
	Piping including fittings		LS					9500
	Subtotal							24,000
22 4000	**PLUMBING FIXTURES**							
	Lavatories, including faucets and waste fittings at Walls	4	EA	750	3000	500	3000	6000
	Kitchenette sink		EA					
	Drinking fountain, bi level ADA	1	EA	5000	5000	500	1500	6500
	Water closets, floor mounted, in wall carrier, actuator flush:							
	ADA	2	EA	800	1600	900	2500	4100
	Standard	2	EA	800	1600	500	2500	4100
	3" Floor Drains	2	EA	900	1800	500	2500	4300
	Core drilling	2	EA	500	1600	500	1415	3215
	Subtotal				14800		13415	28,215
	TOTAL CONTRACT 2 - PLUMBING WORK				30,000		80,000	110,000

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
NYC Board of Education Various public schools	Plumbing (subcontractor)	$1,386,676	11/30/11	Meerza Mohamed (718) 610-0272	
65-15 164 St Flushing, NY 11365	Plumbing / Sprinkler	$157,000	04/26/10	Stanley Kwong (718) 463-8462	
99 Hudson St New York, NY 10013	Sprinkler	$110,800	12/30/09	Morton Olshan (212) 935-1330	
30 W 18 St New York, NY 10011	Plumbing	$100,000	10/26/09	Ben Hakimian (212) 683-9292	
13 Mott St New York, NY 10013	Plumbing / Boiler	$42,000	10/12/11	Paul Young (718) 461-2083	
139 Centre St, 501-507 New York, NY 10013	Plumbing/ Sprinkler	$35,000	02/14/11	Franky Chan (917) 337-5103	
38-19 Main St Flushing, NY 11354	Sprinkler	$22,250	04/07/11	Eduard Miller (718) 888-0600	

Chinatown Plg.

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
NYC Board of Education Various public schools	Plumbing	$3,724,610	$685,220		11/30/16	Meerza Mohamed (718) 610-0272	
NYCHA 572 Warren St Brooklyn, NY 11217	Plumbing	$166,303	$21,900	$8315	09/30/13	Melvin Ndiangang (212) 306-2974	
139 Centre St, 102-103 New York, NY 10013	Plumbing / Sprinkler	$48,000	$0	$	09/30/13	Desmond Fong (718) 729-4736	
2367 E 14 St Brooklyn, NY 11229	Plumbing/ Boiler	$7,400	$0	$370	10/31/13	Wong Eugenio Fu	

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
N/A					

Chinatown Plumbing & Heating Inc.

153 Centre Street, Rm# 108
New York, NY 10013
Tel: (212)966-9735 Fax: (212)226-9571
Lic Plumber #1135, Lic Fire Suppression Contractor #545-B

Project Specific Information

1) Our company has been in business for over 23 year installing, repairing and maintaining plumbing, sprinkler and heating systems in the New York City area. The licensed master plumber has over 30 years experience.

2) See attached resume for resume of key personnel.

3) We plan to use reciprocating saws, breaking hammers, threading machines, drill guns, grinders, concrete saws and cutoff saws. All these equipment are owned and not leased.

4) We do not anticipate to subcontract any of the work for this project.

5) The following are our two key material suppliers:

a) Davis & Warshow – 57-22 49th St, Maspeth, NY 11378 – (718) 937-9500

b) Decorama – 1233 Metropolitan Ave, Brooklyn, NY 11237 – (718) 651-1800

6) See attached bar chart for our preliminary time schedule for this project.

7) In terms of financing this project, we plan to use our current funds in the bank and revenue from our ongoing projects with other private and public clients such as the NYC Board of Education.

8) We do not foresee any issues that may impact our ability to complete this project according to the contract.

Chinatown Plumbing & Heating Inc.

153 Centre Street, Room 108
New York, NY 10013
Tel: (212)966-9735 Fax: (212)226-9571

Curriculum Vitale

Name: Jimmy Yu
Home Address: 22-11 21st Street, Astoria, NY 11105
Date of Birth: January 12, 1940
Nationality: Asian
Marital Status: Married

Licenses Held: Licensed Master Plumber, 1135
Licensed Fire Suppression Contractor, 545-B

Education: Graduated from high school and college in China

Languages: English and Chinese (Cantonese and Mandarin)

Work Experience:

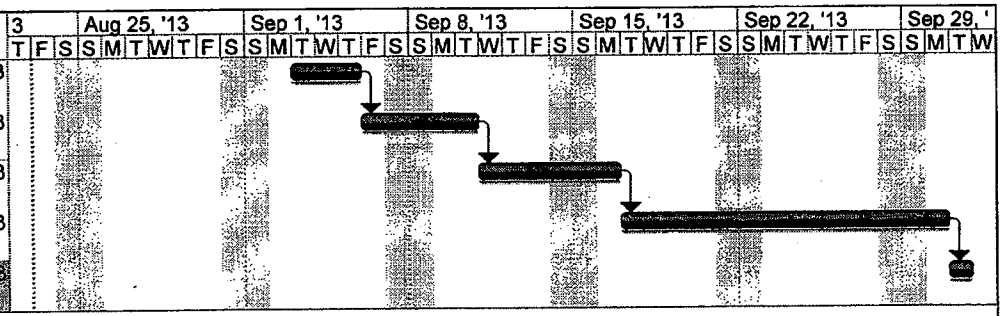
Chinatown Plumbing and Heating Inc. **New York, NY**
1989-Present
President

- Employ 15 employees with various projects throughout the New York City area
- Provide installation, repair and maintenance of plumbing, heating and sprinkler systems with both private and public clients
- Ongoing and recently completed projects:
  - New York City Division of School Facilities; Scope of work: Plumbing; Project Value: $1,724,610.00
  - New York City Housing Authority; Scope of Work: Plumbing; Project Value: $166,303.00
  - Desmond Fong; Scope of Work: Plumbing and Sprinkler: Project Value: $48,000.00

Chinatown Heating Co. **New York, NY**
1981-1989
Manager

- Worked on boiler and heating systems

ID	Task Name	Duration	Start	Finish
1	Demo Work	3 days	Tue 9/3/13	Thu 9/5/13
2	Gas/Meter Installation	3 days	Fri 9/6/13	Tue 9/10/13
3	HWH Installation	4 days	Wed 9/11/13	Mon 9/16/13
4	Fixtures Installation	10 days	Tue 9/17/13	Mon 9/30/13
5	Inspection	1 day?	Tue 10/1/13	Tue 10/1/13



Project: Project1
Date: Fri 8/23/13

Task
Split
Progress
Milestone
Summary
Project Summary
External Tasks
External Milestone
Deadline

Tax ID #: 123540051

APT E-
PIN#: 85013B0109

Contract # 2 - Plumbing 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 #	85013B0109	**FMS Project ID#:**	PV467IRT1
Project Title/Agency	Renovation of the Irish Repertory Theater		
PIN #	8502013PV0014C		
Bid/Proposal Response Date:	July 24, 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	Norma Negrón **Title** MWBE Liaison & Compliance Analyst		
Telephone #	(718) 391-1502 **Email** negronn@ddc.nyc.gov		

Project Description *(attach additional pages if necessary)*

Plumbing work for the interior alteration of the Irish Repertory Theater including the modification of the auditorium to include a double height space, balcony seating and stair and the reorganization of second floor office spaces. Related HVAC systems and structural modifications are also included.

M/WBE Participation Goals for Services

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

Prime Contract Industry: **Construction**

Group	Percentage	
Unspecified	**5**	**%**
or		
Black American	**Unspecified**	**%**
Hispanic American	**Unspecified**	**%**
Asian American	**Unspecified**	**%**
Women	**Unspecified**	**%**
Total Participation Goals	**5**	**%** Line 1

Tax ID #: 13-3540353

APT E-
PIN#: 85013B0109
Contract #2 - Plumbing Work

...IEDULE B - Part II: M/WBE Participation Plan

Part II to be completed by the bidder/proposer:

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

Section I: Prime Contractor Contact Information

Tax ID #	13-3540353	**FMS Vendor ID #**	
Business Name	Chinatown Plumbing & Heating	**Contact Person**	Nelson Wan
Address	153 Centre St. Ste 108 NY NY 10013		
Telephone #	212-966-5735	**Email**	chinatownpl@gmail.com

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

PRIME CONTRACTOR ADOPTING AGENCY M/WBE PARTICIPATION GOALS

☑ **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 1)**		**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 allied Joint Venture. Please review the Notice to Prospective Contractors for more information on how to obtain credit for M/WBE participation.	$ 175000	x	.0	=	$ Line 2 0

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

☐ **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

Tax ID #: 13-3840353

APT E-PIN#: 85013B0109

Section III: M/WBE Utilization Plan: How Proposer/Bidder Will Fulfill M/WBE Participation Goals. Please review Notice to Prospective Contractors for more information on how to obtain credit for M/WBE participation. ...ck 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? % 0

✓ Scopes of Subcontract Work

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. Purchase plumbing supplies $6,000
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.

Section V: Vendor Certification and Required Affirmations

I hereby:

1) acknowedge 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 Yo9rk (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 maerial 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 modfied 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.

...nature [signature] Date

...int Name William Yu Title Project Manager

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

Contract Overview

Tax ID # 13-3540353 FMS Vendor ID # _____

Business Name Chinatown Plumbing & Heating

Contact Name Jimmy Yu Telephone # (212) 966-9735 Email chinatowepl@yahoo.com

Type of Procurement ☐ Competitive Sealed Bids ☑ Other Bid/Response Due Date 8/5/13

[illegible] 8501380109 Contracting Agency DDC

Project ID # PV467IRT1

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

5 % Agency M/WBE Participation Goal

[illegible] by vendor seeking waiver

0 % 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 to performance of such contracts. Add more pages if necessary.

CONTRACT NO.	20129272696	AGENCY	Board of Education	DATE COMPLETED	Ongoing
Total Contract Amount	$1,724,610 (original)	Total Amount Subcontracted	$ 496,859		
Item of Work Subcontracted and Value of subcontract	$3,724,610 (new) Ductwork: 49685.90	Item of Work Subcontracted and Value of subcontract	Electrical: 49685.90 Fire Alarm: 24842.95	Item of Work Subcontracted and Value of subcontract	Water Main: 248421.50 Water Pump: 124214.75
CONTRACT NO.	PL1125089	AGENCY	NYCHA	DATE COMPLETED	Ongoing
Total Contract Amount	$166,303.20	Total Amount Subcontracted	$ 21,900		
Item of Work Subcontracted and Value of subcontract	Electrical $21,900	Item of Work Subcontracted and Value of subcontract		Item of Work Subcontracted and Value of subcontract	
CONTRACT NO.	00010404	AGENCY	Board of Education	DATE COMPLETED	12/31/11
Total Contract Amount	$ 836,343	Total Amount Subcontracted	$ 0		
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, including information for each subcontractor awarded in connection with contract. 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 certify that the information provided herein is true and complete to the best of my knowledge.

Signature: _____ Date: 7/24/13

Print Name: Jimmy Yu Title: President

AGENCY CHIEF CONTRACTING OFFICER APPROVAL

Signature: _____ Date: 8/1/13

OFFICE OF PROCUREMENT APPROVAL

Signature: _____ Date: 8/1/13

Waiver Determination

Full Waiver Approved

Waiver Denied

Partial Waiver Approved

Partial Publication Only

NEW YORK CITY DEPARTMENT OF
DESIGN + CONSTRUCTION

DAVID J. BURNEY, AIA
Commissioner

CAROL DIAGOSTINO
Agency Chief
Contracting Officer

August 2, 2013

Re: PRE-AWARD WAIVER – Chinatown Plumbing & Heating
FMS ID: PV467IRT1
PIN: 8502013PV0014C

Dear Mr. Yu:

We have received your company's request for a full pre-award waiver of the MWBE Participation Goal for the above-referenced project.

Upon review of your company's subcontracting history and in consultation with the Mayor's Office of Contract Services (MOCS), the Department of Design & Construction (DDC) approves granting your request for a full waiver. Therefore, the **5%** MWBE Participation Goal is hereby reduced to **0%** of the contract value.

Your waiver approval is attached. **The waiver approval along with the Subcontractor Utilization Plan referencing the new MWBE Participation Goal must be submitted with your bid.**

If you have any questions, please contact me at 718-391-1549 or via e-mail at cerasoli@ddc.nyc.gov .

Please reply to this email to confirm receipt.

Sincerely,

James Cerasoli
Deputy Director, Office of Contract Opportunity

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: Chinatown Plumbing & Heating Inc.

DDC Project Number: PV467IRT1

Company Size: _____ Ten (10) employees or less

_✓_ Greater than ten (10) employees

_NO_ 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	INTRASTATE RATE	INTERSTATE RATE
2013-2014	N/A	0.90
2012-2013	N/A	0.91
2011-2012	N/A	0.91

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.

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

YEAR	TOTAL NUMBERS OF HOURS WORKED BY EMPLOYEES	INCIDENT RATE
2010	17,904	0
2011	18,350	10.9
2012	24,689	0

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

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

5. Safety Performance on Previous DDC Project(s)

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

DDC Project Number(s): _____

NO 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: 7/22/13 By: _____
(Signature of Owner, Partner, Corporate Officer)

Title: President

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THE CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF STRUCTURES

July 11, 2013

ADDENDUM No. # 1

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

PV467IRT1
Irish Repertory Theater Renovation

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. **Revisions to Volume 2:**
   Delete existing Prevailing Wage Schedule and replace with latest Prevailing Wage Schedule, published July 1, 2013, included with this Addendum.

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

Chinatown Plumbing & Heating
Name of Bidder

By: William Yu

THE CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF STRUCTURES

July 19, 2013

ADDENDUM No. # 2

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

PV467IRT1
Irish Repertory Theater Renovation

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. **The Bid Opening for the contract described below scheduled for July 24, 2013, at 2:00 pm is rescheduled to August 5, 2013, at 2:00 pm.**

   Contract #1 – General Construction Work
   Contract #2 – Plumbing Work
   Contract #3 – Heating, Ventilating and Air Conditioning and Fire Safety Work
   Contract #4 – Electrical Work

2. **Questions from Bidders and Responses to Questions:**
   See Attachment A.
3. **Revisions to the Bid Booklet:**
   See Attachment B.
4. **Revisions to Volume 2:**
   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

Chinatown Plumbing & Heating
Name of Bidder

By: Gillian Yu

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

July 31, 2013

ADDENDUM No. # 3

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

PV467IRT1
Irish Repertory Theater Renovation

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

Chinatown Plumbing & Heating
Name of Bidder

By: William Yu

BIDDER'S CERTIFICATION OF COMPLIANCE WITH IRAN DIVESTMENT ACT

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

[*Please Check One*]

BIDDER'S CERTIFICATION

☑ By submission of this bid or proposal, each bidder/proposer and each person signing on behalf of any bidder/proposer certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief, that each bidder/proposer is not on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the State Finance Law.

☐ I am unable to certify that my name and the name of the bidder/proposer does not appear on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the State Finance Law. I have attached a signed statement setting forth in detail why I cannot so certify.

Dated: New York, New York
7/22, 20 13

SIGNATURE

Jimmy Yu
PRINTED NAME

President
TITLE

Sworn to before me this
22nd day of July, 20 13

Notary Public

Dated: 7/22/13

NELSON WAN
Notary Public, State of New York
No. 01WA6258697
Qualified in Kings County
Commission Expires April 2, 2016

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.

BID BOOKLET
PART A

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PROJECT ID: PV467IRT1

CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF STRUCTURES

BID BOOKLET

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CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF STRUCTURES

SPECIAL NOTICE TO BIDDERS

BID SUBMISSION REQUIREMENTS

THE FOLLOWING DOCUMENTS ARE TO BE COMPLETED AND SUBMITTED WITH THE BID:

- Bid Form, including Affirmation
- Bid Security (if required, see page 22)
- MWBE Subcontractor Utilization Plan (if participation goals have been established)

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

- 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
- Special Experience Requirements Qualification Form (if required, see pages 3, 4)
- Apprenticeship Program Requirements (if required, see pages 10, 11)

FAILURE TO SUBMIT THE SEVEN 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 additional information is required, please contact DDC at 718-391-2601.

(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 forh on pages 3 and 4 of this Bid Booklet.

(5) SPECIAL EXPERIENCE REQUIREMENTS FOR ASBESTOS: The Bidder is advised that this contract contains strict requirements regarding the prior experience and licensing of the subcontractor who will perform any required asbestos abatement work. These special experience requirements are set forth in the section of the specifications which describes any required asbestos abatement work.

SPECIAL EXPERIENCE REQUIREMENTS

Special Experience Requirements apply as indicated below.

Bidder(s):	**General Construction**	**__X__ YES**	**_____ NO**
	Plumbing Work	**_____ YES**	**__X__ NO**
	HVAC Work	**_____ YES**	**__X__ NO**
	Electrical Work	**_____ YES**	**__X__ NO**
Specific Areas of Work:	**General Construction**	**__X__ YES**	**_____ NO**
	Plumbing Work	**_____ YES**	**__X__ NO**
	HVAC Work	**_____ YES**	**__X__ NO**
	Electrical Work	**_____ YES**	**__X__ NO**
Manufacturer(s):	**General Construction**	**__X__ YES**	**_____ NO**
	Plumbing Work	**_____ YES**	**__X__ NO**
	HVAC Work	**_____ YES**	**__X__ NO**
	Electrical Work	**_____ YES**	**__X__ NO**

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

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

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

(C) **CONDITIONS**: The City may, in determining compliance with the Special Experience Requirements applicable to the bidder, consider prior projects completed by any principal or other employees of the bidder while affiliated with another entity, subject to the conditions set forth below.

- Any principal or other employee on whose prior experience the bidder is relying to demonstrate compliance with the Special Experience Requirements must have held the following: (a) a significant management role in the prior entity with which he/she was affiliated, and (b) a significant management role in the entity submitting the bid for a period of six months or from the inception of the bidding entity. If the bidder is relying on the prior experience of a principal or employee, it must submit documentation confirming the position held by such principal or employee in the prior entity, as well as in the bidding entity.
- The bidder may not rely on the experience of any principal or other employee 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 Special Experience Requirements set forth above.

(E) **EXPERIENCE REQUIREMENTS FOR SPECIFIC AREAS OF WORK**: The special experience requirements set forth below apply to the contractor or subcontractor that will perform specific areas of work. Compliance with such experience requirements will be evaluated after an award of contract. Within two (2) weeks of such award, the contractor will be required to submit the qualifications of the contractor

or subcontractor that will perform these specific areas of work. If the bidder intends to perform these specific areas of work with its own forces, it must demonstrate compliance with the special experience requirements. If the bidder intends to subcontract these specific areas of work, its proposed subcontractor(s) must demonstrate compliance with the special experience requirements. Once approved, no substitution will be permitted, unless the qualifications of the proposed replacement have been approved in writing in advance by the City. The bidder is advised to carefully review these special experience requirements prior to submitting its bid, as such experience requirements will be strictly enforced.

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

General Construction

- Section 057300: Decorative Metal Railings
- Section 078123: Interior Intumescent Fireproofing

(2) Special experience requirements applicable to the contractor or subcontractor who will perform specific areas of work are summarized below. Such experience requirements are set forth in full in the Addendum to the General Conditions.

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

(3) For each project submitted to demonstrate compliance with the special experience requirements for specific areas of work, the contractor or proposed subcontractor will be required to complete the Qualification Form included in the Bid Booklet. The City will only evaluate a project if the following criteria are met: (1) the project is described on the Qualification Form, and (2) all information on the Qualification Form is provided. The City will not evaluate any project which does not comply with the criteria set forth herein, including any project which is referred to only on the resume of an individual.

(F) **EXPERIENCE REQUIREMENTS FOR MANUFACTURER(S)**: The special experience requirements set forth below apply to the manufacturer(s) that will supply or fabricate specific material or equipment. Compliance with such experience requirements will be evaluated after an award of contract. Within two (2) weeks of award, the contractor will be required to submit the qualifications of the proposed manufacturer(s). Once approved, no substitution will be permitted, unless the qualifications of the proposed replacement have been approved in writing in advance by the City.

(1) Special experience requirements apply to the manufacturer(s) of material and/or equipment specified in the section(s) set forth below.

General Construction

- Section 057300: Decorative Metal Railings
- Section 066000: Resin Panels

(2) Special experience requirements applicable to the manufacturer(s) of specified material or equipment are summarized below. Such experience requirements are set forth in full in the Addendum to the General Conditions.

- The manufacturer providing the material or equipment specified in this section must, for the past five (5) years, have been regularly engaged in the manufacture of material or equipment similar in type to that required for this Project. Such similar material or equipment provided by the manufacturer must have been in satisfactory service for not less than five (5) years.

Qualification Form

Project ID: PV467IRT1

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

SUBCONTRACTOR UTILIZATION PLAN

Schedule B: Subcontractor Utilization Plan: Schedule B: Subcontractor Utilization Plan for this Contract is set forth on the following pages of this Bid Booklet. Schedule B: Subcontractor 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 Schedule B: Subcontractor Utilization Plan (Part II) with its bid.

Contract Provisions: Contract provisions regarding the participation of the MWBE firms are set forth in Article 77 of the Contract. The bidder is advised to review these contract provisions.

Waiver: The bidder may seek a full or partial pre-award waiver of the Target Subcontracting Percentage in accordance with Article 77 of the Contract (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 Target Subcontracting Percentage is set forth in Schedule B: Subcontractor Utilization Plan (Part III).

Rejection of the Bid: The bidder must complete Schedule B: Subcontractor Utilization Plan (Part II) set forth on the following pages. Subcontractor Utilization Plans which do not include the required affirmations (on Page 2) will be deemed to be non-responsive, unless a full waiver of the Target Subcontracting Percentage is granted (Schedule B: Subcontractor Utilization Plan, Part III). In the event that the City determines that the bidder has submitted a Schedule B: 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 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 plan 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 goals have been established for the participation of M/WBE's, 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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Tax ID #: _____ PIN#: 8502013PV0014C

Contract # 1 - General Construction Work

The City of New York

SCHEDULE B: Subcontractor Utilization Plan -Part I: Agency's Target

This page to be completed by contracting agency

Contract Overview

Pin #	8502013PV0014C	**FMS Project ID#:**	PV467IRT1
Project Title	Renovation of the Irish Repertory Theater		
Contracting Agency	Department of Design and Construction		
Agency Address	30-30 Thomson Avenue	**City** Long Island City **State** NY	**Zip Code** 11101
Contact Person	Norma Negrón	**Title** MWBE Liaison & Compliance Analyst	
Telephone #	(718) 391-1502	**Email** negronn@ddc.nyc.gov	

Project Description (attach additional pages if needed)

General Construction work for the interior alteration of the Irish Repertory Theater including the modification of the auditorium to include a double height space, balcony seating and stair and the reorganization of second floor office spaces. Related HVAC systems and structural modifications are also included.

(1) √ **Target Subcontracting Percentage**

Percentage of total contract dollar value that agency estimates will be awarded to subcontractors in amounts under $1 million for construction and professional services. **20** %

Subcontractor Participation Goals

Complete and enter total for each Construction or Professional Services, or both (if applicable)

Group	Construction	Professional Services
Black American	**Unspecified** %	%
Hispanic American	**Unspecified** %	%
Asian American	**Unspecified** %	No Goal
Caucasian Female	No Goal	%
Total Participation Goals	(2) **50** %	(3) %

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

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Tax ID #: _____ PIN#: 8502013PV0015C

Contract # 2 - Plumbing Work

The City of New York

SCHEDULE B: Subcontractor Utilization Plan -Part I: Agency's Target

This page to be completed by contracting agency

Contract Overview

Pin #	8502013PV0015C	**FMS Project ID#:**	PV467IRT1
Project Title	Renovation of the Irish Repertory Theater		
Contracting Agency	Department of Design and Construction		
Agency Address	30-30 Thomson Avenue **City** Long Island City **State** NY **Zip Code** 11101		
Contact Person	Norma Negrón	**Title**	MWBE Liaison & Compliance Analyst
Telephone #	(718) 391-1502	**Email**	negronn@ddc.nyc.gov

Project Description *(attach additional pages if necessary)*

Plumbing work for the interior alteration of the Irish Repertory Theater including the modification of the auditorium to include a double height space, balcony seating and stair and the reorganization of second floor office spaces. Related HVAC systems and structural modifications are also included.

(1) √ Target Subcontracting Percentage

Percentage of total contract dollar value that agency estimates will be awarded to subcontractors in amounts under $1 million for construction and professional services. **5** %

Subcontractor Participation Goals

Complete and enter total for each Construction or Professional Services Group (if applicable)

Group	Construction	Professional Services
Black American	**Unspecified** %	%
Hispanic American	**Unspecified** %	%
Asian American	**Unspecified** %	No Goal
Caucasian Female	No Goal	%
Total Participation Goals	**(2) 100** %	**(3)** %

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

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Tax ID #: _____ PIN#: 8502013PV0016C

Contract # 3 - HVAC + Fire Protection Work

The City of New York

SCHEDULE B: Subcontractor Utilization Plan -Part I: Agency's Target

This page to be completed by contracting agency

Contract Overview

Pin #	8502013PV0016C	**FMS Project ID#:**	PV467IRT1
Project Title	Renovation of the Irish Repertory Theater		
Contracting Agency	Department of Design and Construction		
Agency Address	30-30 Thomson Avenue **City** Long Island City **State** NY **Zip Code** 11101		
Contact Person	Norma Negrón	**Title**	MWBE Liaison & Compliance Analyst
Telephone #	(718) 391-1502	**Email**	negronn@ddc.nyc.gov

Project Description (limit to available space)

HVAC work for the interior alteration of the Irish Repertory Theater including the modification of the auditorium to include a double height space, balcony seating and stair and the reorganization of second floor office spaces. Related HVAC systems and structural modifications are also included.

(1) √ **Target Subcontracting Percentage**

Percentage of total contract dollar value that agency estimates will be awarded to subcontractors in amounts under $1 million for construction and professional services. **10** %

Subcontractor Participation Goals

Complete and enter total in each Construction or Professional Services or both (if applicable)

Group	Construction	Professional Services
Black American	**Unspecified** %	%
Hispanic American	**Unspecified** %	%
Asian American	**Unspecified** %	No Goal
Caucasian Female	No Goal	%
Total Participation Goals	**(2) 100** %	**(3)** %

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

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Tax ID #: _____ PIN#: **8502013PV0017C**

Contract # 4 - Electrical Work

The City of New York

SCHEDULE B: Subcontractor Utilization Plan -Part I: Agency's Target

This page to be completed by contracting agency

Contract Overview

Pin #	**8502013PV0017C**	**FMS Project ID#:**	**PV467IRT1**
Project Title	Renovation of the Irish Repertory Theater		
Contracting Agency	Department of Design and Construction		
Agency Address	30-30 Thomson Avenue **City** Long Island City **State** NY **Zip Code** 11101		
Contact Person	Norma Negrón	**Title**	MWBE Liaison & Compliance Analyst
Telephone #	(718) 391-1502	**Email**	negronn@ddc.nyc.gov

Project Description (attach additional sheets if necessary)

Electrical work for the interior alteration of the Irish Repertory Theater including the modification of the auditorium to include a double height space, balcony seating and stair and the reorganization of second floor office spaces. Related HVAC systems and structural modifications are also included.

(1) √ **Target Subcontracting Percentage**

Percentage of total contract dollar value that agency estimates will be awarded to subcontractors in amounts under $1 million for construction and professional services. **10** %

Subcontractor Participation Goals

Complete and enter total for each Construction or Professional Services group (if applicable)

Group	Construction		Professional Services	
Black American	**Unspecified**	%		%
Hispanic American	**Unspecified**	%		%
Asian American	**Unspecified**	%	No Goal	
Caucasian Female	No Goal			%
Total Participation Goals	(2) **60**	%	(3)	%

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

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Tax ID #: _____ PIN#: _____

SCHEDULE B - Subcontractor Utilization Plan – Part II: Bidder/Proposer Subcontracting Plan

This page and the next (Part II herein) are to be completed by the bidder/proposer. AFFIRMATIONS; Bidder/proposer must check the applicable boxes below, affirming compliance with M/WBE requirements.

Bidder/proposer ☐ **AFFIRMS or** ☐ **DOES NOT AFFIRM [statement below]**

It is a material term of the contract to be awarded that, with respect to the total amount of the contract to be awarded, bidder/proposer will award one or more subcontracts for amounts under one million dollars, sufficient to meet or exceed the Target Subcontracting Percentage (as set forth in Part I) unless it obtains a full or partial waiver thereof, and it will award subcontracts sufficient to meet or exceed the Total Participation Goals (as set forth in Part I) unless such goals are modified by the Agency.

Bidder/proposer

☐ **AFFIRMS that it intends to meet or exceed the Target Subcontracting Percentage (as set forth in Part 1); or**

☐ **AFFIRMS that it has obtained a full/partial pre-award waiver of the Target Subcontracting Percentage (as set forth in Part I) and intends to award the modified Target Subcontracting Percentage, if any; or**

☐ **DOES NOT AFFIRM**

Section I: Prime Contractor Contact Information

Tax ID # _____ **FMS Vendor ID #** _____

Business Name _____ **Contact Person** _____

Address _____

Telephone # _____ **Email** _____

Section II: General Contract Information

1. **Define the industry in which work is to be performed.**
   - **Construction** includes all contracts for the construction, rehabilitation, and/or renovation of physical structures. This category does include CM Build as well as other construction related services such as: demolition, asbestos and lead abatement, and painting services, carpentry services, carpet installation and removal, where related to new construction and not maintenance.
   - **Professional Services** are a class of services that typically require the provider to have some specialized field or advanced degree. Services of this type include: legal, management consulting, information technology, accounting, auditing, actuarial, advertising, health services, pure construction management, environmental analysis, scientific testing, architecture and engineering, and traffic studies, and similar services.

a. Type of work on Prime Contract *(Check one):*

☐ **Construction** ☐ **Professional Services**

b. Type of work on Subcontract *(Check all that apply):*

☐ **Construction** ☐ **Professional Services** ☐ **Other**

2. **What is the expected percentage of the total contract dollar value that you expect to award to all subcontracts?** _____ %

3. **Will you award subcontract(s) in amounts below $ 1 million for construction and/or professional services contracts within the first 12 months of the notice to proceed on the contract?** ☐ **Yes** ☐ **No**

Section III: Subcontractor Utilization Summary

IMPORTANT: *If you do not anticipate that you will subcontract at the target level the agency has specified, because you will perform more of the work yourself, you must seek a waiver of the Target Subcontracting Percentage by completing p. 9).*

Step 1: Calculate the percentage (of your total bid) that will go towards subcontracts under $1M for construction and/or professional services	**Subcontracts under $1M (4)** (construction/professional services)		**Total Bid/Proposal Value**		**Calculated Target Subcontracting Percentage**
	$ [redacted]	÷	$ _____	x 100 =	_____ %

- **Subcontracts under $1M (construction/professional services):** Enter the value you expect to award to subcontractors in dollars for amounts under $1 million for construction and/or professional services. This value defines the amount that participation goals apply to, and will be entered into the first line of Step 2.
- **Total Bid/Proposal Value:** Provide the dollar amount of the bid/proposal.
- **Calculated Target Subcontracting Percentage:** The percentage of the total contract dollar value that will be awarded to one or more subcontractors for amounts under $1 million for construction and/or professional services. **This percentage must equal or exceed the percentage listed by the agency on page 1, at line (1).**

NOTE: The "Calculated Target Subcontracting Percentage" MUST equal or exceed the Target Subcontracting Percentage listed by the agency on Page 6, Line (1).

Tax ID #: _____ PIN#: _____

SCHEDULE B - cont.

Step 2:
Calculate value of subcontractor participation goals

Subcontracts under $1M
(construction/professional services)

a. Copy value from Step 1, line (4) – the total value of all expected subcontracts under $1M for construction and/or professional services

$ _____

b. * From line a. above, allocate the dollar value of "Subcontracts under $1M" by Construction and Professional Services,

* If all subcontracts under $1M are in one industry, enter '0' for the industry with no subcontracts.

* Amounts listed on these lines should add up to the value from line a.

	Construction	Professional Services
Subcontracts under $1M by Industry	$ _____	$ _____

* For Construction enter percentage from line (2) from Page 6.

* For Professional Services enter percentage from line (3) from Page 6.

c. * **Total Participation Goals Percentages must be copied from Part I, lines (2) and (3).**

Total Participation Goals	x _____ %	x _____ %

d. **Value of Total Participation Goals** $ _____ $ _____

Step 3:

☑ **Subcontracts in Amounts Under $1 M Scope of Work – Construction**

Enter brief description of type(s) of subcontracts in amounts under $1M anticipated, by type of work, not by name of subcontractor

☑ **Subcontracts in Amounts Under $1 M Scope of Work – Professional Services**

Enter brief description of type(s) of subcontracts in amounts under $1M anticipated, by type of work, not by name of subcontractor

Section IV: Vendor Certification and Required Affirmations

I hereby 1) acknowledge my understanding of the M/WBE requirements as set forth herein and the pertinent provisions of Local Law 129 of 2005, and the rules promulgated thereunder; 2) affirm that the information supplied in support of this subcontractor utilization plan is true and correct; 3) agree, if awarded this Contract, to comply with the M/WBE requirements of this Contract and the pertinent provisions of Local Law 129 of 2005, 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 subcontract(s) sufficient to meet the Target Subcontracting Percentage, unless a waiver is obtained, and the Vendor will award subcontract(s) sufficient to meet the Total Participation Goals unless such goals are modified by the Agency; and 5) agree and affirm, if awarded this contract the Vendor intends to make all reasonable, good faith efforts to meet the Target Subcontracting Percentage, or If the Vendor has obtained a waiver, the Vendor intends to meet the modified Target Subcontracting Percentage, if any , and the Vendor intends to to solicit and obtain the participation of M/WBEs so as to meet the Total Participation Goals unless modified by the Agency.

Signature _____ Date _____

Print Name _____ Title _____

Tax ID #: _____ PIN#: _____

SCHEDULE B

PART III – REQUEST FOR WAIVER OF TARGET SUBCONTRACTING PERCENTAGE

Contract Overview

Tax ID # _____ **FMS Vendor ID #** _____

Business Name _____

Contact Name _____ **Telephone #** _____ **Email** _____

Type of Procurement ☐ Competitive Sealed Bids ☐ Other **Bid/Response Due Date** _____

PIN # (for this procurement)	Type of work on Prime Contract (Check one):	Type of work on Subcontract (Check all that apply):	
_____	☐ Construction ☐ Professional Services	☐ Construction ☐ Professional Services	☐ Other

SUBCONTRACTING *as described in bid/solicitation documents (Copy this % figure from Subcontractor Utilization Plan, Part I, lin*

_____ % of the total contract value anticipated by the agency to be subcontracted for construction/professional services subcontracts valued below $1 million (each)

ACTUAL SUBCONTRACTING *as anticipated by vendor seeking waiver*

_____ % of the total contract value anticipated in good faith by the bidder/proposer to be subcontracted for construction/ professional services subcontracts valued below $1 million (each)

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

☐ Vendor does not subcontract construction/professional services, and has the capacity and good faith intention to perform all such work itself.

☐ Vendor subcontracts *some* of this type of work but at *lower* % than bid/solicitation describes, and has the capacity and good faith intention to do so on this contract.

☐ Other _____

References

List 3 most recent contracts/subcontracts performed for NYC agencies (if any)

CONTRACT NO. _____ AGENCY _____ DATE COMPLETED _____

CONTRACT NO. _____ AGENCY _____ DATE COMPLETED _____

CONTRACT NO. _____ AGENCY _____ DATE COMPLETED _____

List 3 most recent contracts/subcontracts performed for other agencies/entities
(complete ONLY if vendor has performed fewer than 3 NYC contracts)

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

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

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

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:** _____

ITY CHIEF PROCUREMENT OFFICER APPROVAL

Signature: _____ **Date:** _____

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APPRENTICESHIP PROGRAM REQUIREMENTS

Bidders are advised that the Apprenticeship Program Requirements set forth below apply to each contract for which a check mark is indicated before the word "Yes". Compliance with these requirements will be determined solely by the City.

General Construction	____	YES	__x__	NO
	* Note: Even if Yes is marked, the Exemption set forth below may apply.			
Plumbing Work	____	YES	__x__	NO
HVAC + Fire Protection Work	____	YES	__x__	NO
Electrical Work	____	YES	__x__	NO

1) Apprenticeship Program Requirements

NOTICE TO BIDDERS: Please be advised that, pursuant to the authority granted to the City under Labor Law Section 816-b, the Department of Design and Construction hereby requires that the contractor awarded a contract as a result of this Invitation for Bids, and any of its subcontractors with subcontracts worth one million dollars or over, have, prior to entering into such contract or subcontract, apprenticeship agreements appropriate for the type and scope of work to be performed that have been registered with, and approved by, the New York State Commissioner of Labor. In addition, the contractor and its subcontractors will be required to show that such apprenticeship programs have three years of current, successful experience in providing career opportunities.

The failure to prove, upon request, that these requirements have been met shall result in the contract not being awarded to the contractor or the subcontract not being approved.

Please be further advised that, pursuant to Labor Law Section 220, the allowable ratio of apprentices to journeypersons in any craft classification shall not be greater than the ratio permitted to the contractor as to its workforce on any job under the registered apprenticeship program.

2) Apprenticeship Program Questionnaire

The bidder must submit a completed and signed Apprenticeship Program Questionnaire, unless it qualifies for the exemption set forth below. The Questionnaire is set forth on the following page of the Bid Booklet.

3) Exemption

Bidders for the General Construction Contract are advised that the exemption set forth below applies if an "X" is indicated before the word "Yes".

	____	YES	____	NO

Exemption: If the bidder intends to subcontract 100% of the construction work, it is not required to demonstrate that it has an Apprenticeship Agreement(s), nor is it required to submit an Apprenticeship Program Questionnaire. If the bidder qualifies for this exemption, it shall submit a letter stating that it intends to subcontract 100% of the construction work. As indicated above, the Apprenticeship Program Requirements apply to subcontracts worth one million dollars or more.

APPRENTICESHIP PROGRAM QUESTIONNAIRE

PROJECT ID: PV467IRT1

The bidder must submit a completed and signed Apprenticeship Program Questionnaire unless it qualifies for the exemption set forth on the previous page.

Name of Bidder: _____

1) Does the bidder have an Apprenticeship Program appropriate for the type and scope of work to be performed? [Note: Participation may be by either direct sponsorship or through collective bargaining agreement(s).]

_____ YES _____ NO

2) Has the bidder's Apprenticeship Program been registered with, and approved by, the New York State Commissioner of Labor?

_____ YES _____ NO

3) Has the bidder's Apprenticeship Program had three years of successful experience in providing career opportunites?

_____ YES _____ NO

If the answer to Question #3 is "Yes", the bidder shall, in the space below, provide information regarding the experience the Apprenticeship Program has had in providing career opportunities. The bidder may attach additional pages if necessary.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Bidder: _____

By: _____ Title: _____
(Signature of Partner or Corporate Officer)

Date: _____

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: PV467IRT1

Renovation of the Irish Repertory Theater
132 West 22nd Street
New York, NY 10011

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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e 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 the responsibility or qualification of the bidder to receive public contracts except as set forth on the Affirmation included as page 17 of this Bid Booklet.

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

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

6. Compliance Report

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

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

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

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

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

Alternate Bids

Bidder is advised that the City is requesting the submission of two (2) alternate bids for **Contract #1 – General Construction Work** (Bid Alternate 1 and Bid Alternate 2). Each of these Bid Alternates addresses a different specific Scope of Work, as described below. Bid prices for these two (2) different Scopes of Work for General Construction Work shall be submitted on BID FORM - Bid Alternate 1 and BID FORM - Bid Alternate 2 in this Bid Booklet.

Bid Alternate 1 (Project Base Bid): Requires a Total Lump Sum Price for all labor and material necessary to perform all required work described in the Contract Documents, **excluding** the scope of work for Alternate #2, as described below. Bid Alternate #1 work is the Project Base Bid.

Bid Alternate 2: (Project Base Bid + Alternate #2 work): Requires a Total Lump Sum Price for the following: (1) all required work for Bid Alternate #1 (Project Base Bid), and (2) all required work for the scope of work for Alternate #2. The scope of work for Alternate #2 is to provide metal fabrications for auditorium catwalk, selective demolition to remove existing wood flooring in Lobby to substrate and new wood (WD3) flooring, and provide auditorium roll down curtains as described in the following Contract Documents: Drawings DM-101, DM-103, A-101, A-102, A-112, A-200, A-201, A-202, A-203, A-304, A-400, A-402, A-404, A-600, S-103, S-401, E-301, E-302, TS-101, TS-102; and Specification Sections 024119, 096400, 055000 and 122200.

Bidders are requested to submit prices on the Bid Forms for alternate Bids described above. Following the receipt of Bids, the Department of Design and Construction will determine, in the best interest of the City, whether to award a contract based upon the Total Bid Price for Bid Alternate 1 or Bid Alternate 2.

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BID FORM - BID ALTERNATE #1

PROJECT ID: PV467IRT1
Contract #1 - General Construction Work

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

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

Total Price For Labor		Total Price for Material Sold and Delivered			
$_____	+	$_____	Total Price for Item A	$_____

B. ALLOWANCE for Incidental Asbestos Abatement (Section 028013 of the Specifications) **$15,000.00**

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

BIDDER'S SIGNATURE AND AFFIDAVIT

WARNING! If M/WBE goals have been established for this Contract, you MUST complete and submit the Affirmations on the 2nd page of the Subcontractor Utilization Plan (or a pre-approved waiver) at the time you submit your bid. Failure to comply will result in the rejection of your bid.

Bidder: _____

By: _____
(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

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BID FORM - BID ALTERNATE #2

PROJECT ID: PV467IRT1
Contract #1 - General Construction Work

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

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

Total Price For Labor		Total Price for Material Sold and Delivered			
$_____	+	$_____	Total Price for Item A	$_____

B. ALLOWANCE for Incidental Asbestos Abatement (Section 028013 of the Specifications) **$15,000.00**

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

BIDDER'S SIGNATURE AND AFFIDAVIT

WARNING! If M/WBE goals have been established for this Contract, you MUST complete and submit the Affirmations on the 2nd page of the Subcontractor Utilization Plan (or a pre-approved waiver) at the time you submit your bid. Failure to comply will result in the rejection of your bid.

Bidder: _____

By: _____
(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

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BID FORM

PROJECT ID: PV467IRT1
Contract #2 - Plumbing Work

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

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

Total Price For Labor		Total Price for Material Sold and Delivered			
$_____	+	$_____	Total Price for Item A		$_____

B. ALLOWANCE for Incidental Asbestos Abatement (Section 220013 of the Specifications) **$5,000.00**

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

BIDDER'S SIGNATURE AND AFFIDAVIT

WARNING! If M/WBE goals have been established for this Contract, you MUST complete and submit the Affirmations on the 2nd page of the Subcontractor Utilization Plan (or a pre-approved waiver) at the time you submit your bid. Failure to comply will result in the rejection of your bid.

Bidder: _____

By: _____
(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

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BID FORM

PROJECT ID: PV467IRT1
Contract #3 - HVAC + Fire Protection Work

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

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

Total Price For Labor		Total Price for Material Sold and Delivered			
$_____	+	$_____	Total Price for Item A	$_____

B. ALLOWANCE for Incidental Asbestos Abatement (Section 230013 of the Specifications) **$5,000.00**

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

BIDDER'S SIGNATURE AND AFFIDAVIT

WARNING! If M/WBE goals have been established for this Contract, you MUST complete and submit the Affirmations on the 2nd page of the Subcontractor Utilization Plan (or a pre-approved waiver) at the time you submit your bid. Failure to comply will result in the rejection of your bid.

Bidder: _____

By: _____
(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

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Alternate Bids

Bidder is advised that the City is requesting the submission of two (2) alternate bids for **Contract #4 – Electrical Work** (Bid Alternate 1 and Bid Alternate 2). Each of these Bid Alternates addresses a different specific Scope of Work, as described below. Bid prices for these two (2) different Scopes of Work for General Construction Work shall be submitted on BID FORM - Bid Alternate 1 and BID FORM - Bid Alternate 2 in this Bid Booklet.

Bid Alternate 1 (Project Base Bid):	Requires a Total Lump Sum Price for all labor and material necessary to perform all required work described in the Contract Documents, **excluding** the scope of work for Alternate #2, as described below. Bid Alternate #1 work is the Project Base Bid.
Bid Alternate 2: (Project Base Bid + Alternate #2 work):	Requires a Total Lump Sum Price for the following: (1) all required work for Bid Alternate #1 (Project Base Bid), and (2) all required work for the scope of work for Alternate #2. The scope of work for Alternate #2 is to provide additional stage lighting distribution and sound system infrastructure as described in the following Contract Documents: Drawings E101, E102, E-202, E-402, E-501, TS-101, TS-102; and Specification Sections 265561 and 274100.

Bidders are requested to submit prices on the Bid Forms for alternate Bids described above. Following the receipt of Bids, the Department of Design and Construction will determine, in the best interest of the City, whether to award a contract based upon the Total Bid Price for Bid Alternate 1 or Bid Alternate 2.

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BID FORM - BID ALTERNATE #1

PROJECT ID: PV467IRT1
Contract #4 - Electrical Work

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

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

Total Price For Labor		Total Price for Material Sold and Delivered			
$_____	+	$_____	Total Price for Item A	$_____

B. ALLOWANCE for Incidental Asbestos Abatement (Section 260013 of the Specifications) **$5,000.00**

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

BIDDER'S SIGNATURE AND AFFIDAVIT

WARNING! If M/WBE goals have been established for this Contract, you MUST complete and submit the Affirmations on the 2nd page of the Subcontractor Utilization Plan (or a pre-approved waiver) at the time you submit your bid. Failure to comply will result in the rejection of your bid.

Bidder: _____

By: _____
(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

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BID FORM - BID ALTERNATE #2

PROJECT ID: PV467IRT1
Contract #4 - Electrical Work

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

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

Total Price For Labor		Total Price for Material Sold and Delivered			
$_____	+	$_____	Total Price for Item A	$_____

B. ALLOWANCE for Incidental Asbestos Abatement (Section 260013 of the Specifications) **$5,000.00**

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

BIDDER'S SIGNATURE AND AFFIDAVIT

WARNING! If M/WBE goals have been established for this Contract, you MUST complete and submit the Affirmations on the 2nd page of the Subcontractor Utilization Plan (or a pre-approved waiver) at the time you submit your bid. Failure to comply will result in the rejection of your bid.

Bidder: _____

By: _____
(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

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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.

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 fulfullment 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.

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) _____ (L.S.)
Principaal

By: _____

(Seal) _____
Surety

By: _____

ACKNOWLEDGEMENT OF PRINCIPAL, IF A CORPORATION

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

_____
Notary Public

ACKNOWLEDGEMENT OF PRINCIPAL, IF A PARTNERSHIP

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

_____
Notary Public

ACKNOWLEDGEMENT OF PRINCIPAL, IF AN INDIVIDUAL

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

_____
Notary Public

AFFIX ACKNOWLEDGEMENTS AND JUSTIFICATION OF SURETIES

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BID BREAKDOWN

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

General Construction	**X**	**YES**	_____	**NO**
Plumbing Work	**X**	**YES**	_____	**NO**
HVAC + Fire Protection Work	**X**	**YES**	_____	**NO**
Electrical Work	**X**	**YES**	_____	**NO**

Limitations on Use of Bid Breakdown:

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

Instructions for Preparing Bid Breakdown:

(A) The Bid Breakdown is set forth on the following pages of this Bid Booklet and is in accordance with the Construction Specification Institute (CSI) format. For all items of work listed in the Bid Breakdown, the bidder must indicate the price for labor and the price for material, as well as the estimated quantities required.

(B) In preparing its Bid Breakdown, the bidder shall submit prices that include all costs for overhead and profit. Overhead shall include, without limitation, all costs in connection with the following: administration, management, superintendence, small tools, insurance, bonds, and provision of services or items required by the General Conditions [except for Security/Fire Guard Services and Temporary Heat]. If the Project requires Security/Fire Guard Services and/or Temporary Heat, such service(s) will be included as separate line items in the Bid Breakdown.

(C) If an item is set forth in the Bid Breakdown, but is not included in the Contract Documents (Drawings, Specifications, General Conditions, and/or Addenda), the bidder is advised to leave the item blank and exclude the cost of the item from its grand total. In an attachment to its Bid Breakdown, the bidder shall provide a list of all items left blank.

(D) If an item is not set forth in the Bid Breakdown, but is included in the Contract Documents (Drawings, Specifications, General Conditions, and/or Addenda), the bidder is advised to add the item to its Bid Breakdown and include the cost of the item in its grand total. In an attachment to its Bid Breakdown, the bidder shall provide a list of all items added.

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - GENERAL CONSTRUCTION WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	CONTRACT 1 - GENERAL CONSTRUCTION WORK							
01 0000	**GENERAL REQUIREMENTS**							
01 0000	**MOBILIZATION**							
	Mobilization (including Site Survey of Material Delivery and Work Conditions, Delivery of On-Site Equipment and Tools, Set-up of Material Storage areas and Security of Materials, and Plan for security of materials)		LS					
	Demobilization (including Removal of On-Site Equipment and Tools, Removal of Storage Areas, Subcontractor Cleanup of Storage Areas		LS					
	Temporary Facilities		EA					
	Fire Watch		LS					
	Subtotal							
01 0150	**VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES, SEALANTS, PAINTS AND COATINGS (LEED BUILDING) (included w/ 019100)**							
01 3520	**SUSTAINABLE DESIGN REQUIREMENTS (LEED BUILDING) (included w/ 019100)**							
01 5050	**CONSTRUCTION WASTE REQUIREMENTS (included w/ 019100)**							
01 5150	**CONSTRUCTION IAQ REQUIREMENTS**							
	IAQ Plan		LS					
	Subtotal							
01 9100	**GENERAL COMMISSIONING REQUIREMENTS**							
	LEED Commissioning		LS					
	Subtotal							

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - GENERAL CONSTRUCTION WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
02 0000	EXISTING CONDITIONS							
02 4119	SELECTIVE DEMOLITION							
	Exterior:							
	General Demo		LS					
	Remove exhaust fan and window framing		EA					
	Remove glazing with decorative metal panel & prepare frame for new louver		EA					
	Remove steel panel from storefront & prepare frame for new louver		EA					
	Remove glazing prepare frame for new louvers and spandrel glass		EA					
	Interior:							
	General Demo., including finishes and disconnected P, FP, HVAC & Elec. systems, uon		SF					
	Walls and partitions including base, uon		SF					
	Wood flooring		SF					
	Floor below bench		SF					
	Steps		LF					
	Platforms		SF					
	Stage		SF					
	Trim stage		LF					
	Sand in-fill raised floor		SF					
	Stair treads and risers		LF					
	Doors		EA					
	Seats		EA					
	Vanities		EA					
	Temporarily remove box office for new flooring		EA					
	Steps to exterior		LF					
	Gyp board enclosure for fan coil unit		EA					
	Control booth window		EA					

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - GENERAL CONSTRUCTION WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	Structural:							
	Saw cut slab edge with electric saw		LF					
	Breakup slab with chipping hammer		LF					
	Temporary Supports at Floor		SF					
	Concrete Encasement, Chip		EA					
	Plumbing:							
	Hot water heater		EA					
	Lavatories		EA					
	Water closets		EA					
	Piping, fixtures, all types, uon		LF					
	Cut, remove and cap for rerouting (Riser)		LF					
	Cut, remove and cap for rerouting (Distribution)		LF					
	Drain and Cap		EA					
	Gas Meter		EA					
	Gas Piping		LF					
	Fire Protection:							
	Maintain existing system		EA					
	Piping (Remove Riser)		LF					
	Piping (Remove Distribution including heads)		LF					
	Vavle and Cap		EA					
	HVAC:							
	Exhaust fan		EA					
	Condensing units		EA					
	Terminal units		EA					
	Radiators, cap		EA					
	Remove accessible heating and chilled water piping		LF					
	Ductwork		LF					
	Disconnect and drain for removal		EA					
	Electrical:							
	Maintain alarm and reporting systems		LS					
	Disconnect and remove lights		EA					

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - GENERAL CONSTRUCTION WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	Cut feeders, remove and make safe for rerouting (Distribution)		LF					
	Cap feeders and make safe for demolition		EA					
	Miscellaneous (including Regulatory Agency Requirements, General Protection and Dust Control)		LS					
	Disposal (including handling, loading, hauling and dump charge)		LS					
	Construction Waste Management Diversion		LS					
	Subtotal							
03 0000	**CONCRETE**							
03 3000	**CAST-IN-PLACE CONCRETE**							
	Trench and repair slab for piping		LF					
	Subtotal							
03 5300	**CONCRETE TOPPING**							
	2" topping slab		SF					
	Slab above grade:							
	2"		SF					
	3 1/4"		SF					
	4 1/2"		SF					
	Reinforced slab at stair base and post bases		SF					
	Raised slab at staff office		SF					
	Stairs at staff office		LF					
	Curbs, slab elevations and depressions		LS					
	Subtotal							
04 0000	**MASONRY**							
04 2000	**UNIT MASONRY**							
	Infill Windows		EA					
	Subtotal							

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - GENERAL CONSTRUCTION WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
05 0000	METALS							
05 1200	STRUCTURAL STEEL							
	Columns		LBS					
	Beams		LBS					
	Bracing (including angles, connections and plates)		LBS					
	Moment connections		EA					
	Dunnage (including angles, connections and plates)		LBS					
	Dunnage Stub Posts		EA					
	Special handling		LS					
	Crane, hoisting		LS					
	Reinforce columns		EA					
	Reinstall exterior steel panel at louver with 8 x 60 opening		EA					
	Subtotal							
05 3100	STEEL DECKING							
	2" Metal Deck		SF					
	Channels		LF					
	Angles		LF					
	Posts		LF					
	Lintels		LF					
	Subtotal							
05 5000	METAL FABRICATIONS							
	Light gage steel framing at ramp:							
	Floor		SF					
	Wall		SF					
	Subtotal							
05 5100	METAL STAIRS							
	Egress Stair:							
	Riser/tread		LFR					

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - GENERAL CONSTRUCTION WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	Mesh guard rail		LF					
	Solid walnut handrail		LF					
	Intumescent paint		SF					
	Framing		SF					
	Steel Pan Steps:							
	Riser/tread, steel with WD2 finish		LFR					
	Guard rail		LF					
	Handrail		LF					
	Egress Door Stair:							
	Riser/tread		LFR					
	Mesh guard rail		LF					
	Solid walnut handrail		LF					
	Platform		SF					
	Framing		SF					
	Seating:							
	Mesh guard rail		LF					
	Solid walnut handrail		LF					
	Framing		SF					
	Seating riser and floor		SF					
	Handrails:							
	Stage ramp, painted mental pipe		LF					
	Back stair		LF					
	Guardrails at Back Stair		LF					
	Mechanical Ladders:							
	Existing tank		EA					
	HVAC unit		EA					
	Modify ladder to water tank		EA					
	SS Grille Covers		EA					
	Bearing plates and connectors, loose lintels and miscellaneous anchorage devices		LS					

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - GENERAL CONSTRUCTION WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	Miscellaneous metals including partition and ceiling supports, door lintels (uon), shelf angles, motor supports, door supports		LS					
	Subtotal							
05 7300	**DECORATIVE METAL RAILINGS (included w/ 055100)**							
05 7500	**DECORATIVE FORMED METAL (included w/ 055100)**							
06 0000	**WOOD, PLASTICS, AND COMPOSITES**							
06 1000	**ROUGH CARPENTRY**							
	Rough Carpentry		LS					
	Electrical, data and telephone backboards		SF					
	Steps		LF					
	Subtotal							
06 4023	**INTERIOR ARCHITECTURAL WOODWORK**							
	Reinstall box office, restore		LS					
	Work surface		LF					
	Laminated shelving (3)		LF					
	Storage unit		LF					
	Visual display Tack boards		EA					
	Wardrobe & closet specialties:							
	Clothes hooks		EA					
	Door hooks		EA					
	Subtotal							
06 6000	**RESIN PANELS (also included w/ 099000)**							
	Blocking		LF					
	Subtotal							

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

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CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
07 0000	THERMAL AND MOISTURE PROTECTION							
07 6200	SHEET METAL FLASHING AND TRIM (included with Division 5 sections)							
07 8123	INTERIOR INTUMESCENT FIREPROOFING							
	Intumescent fireproofing @ storage underneath seating tiers		SF					
	Fireproof paint, structural steel		SF					
	Spray on fireproofing at steel tube support		EA					
	Subtotal							
07 8413	PENETRATION FIREPROOFING							
	Penetration Firestopping		LS					
	Subtotal							
07 9200	JOINT SEALANTS							
	Horizontal Dampproofing		SF					
	Subtotal							
08 0000	OPENINGS							
08 1113	HOLLOW METAL DOORS AND FRAMES (see Door Schedule)							
	A (3 x 7.5 hm)		EA					
	B (4.85 x 8 hm uneven)		PAIR					
	C (3 x 7 hm)		EA					
	D (3 x 7.5 hm)		EA					
	E (3.85 x 7.15 hm uneven)		PAIR					
	F (4.85 x 7.5 hm uneven)		PAIR					
	G (5.15 x 7.5 hm even)		PAIR					
	H (4.5 x 7.5 hm even)		PAIR					
	I (2.85 x 6.67 hm)		EA					
	J (2.67 x 5.34)		EA					
	WD5 (6 x 8 wood sliding panels)		PAIR					

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CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	New hardware at existing entrance doors		EA					
	Subtotal							
08 3113	**ACCESS DOORS AND FRAMES**							
	24x18 Valve Access		EA					
	20x14, Main Ducts, Typical		EA					
	12x6, Branch Ducts, FD & Duct accessories, Typical		EA					
	Subtotal							
08 3473	**SOUND CONTROL HOLLOW METAL DOOR ASSEMBLIES (included w/ 081113)**							
08 7100	**DOOR HARDWARE (included w/ 081113)**							
08 8000	**GLAZING**							
	Spandrel with frames for louvers		SF					
	Fixed		SF					
	Tempered		SF					
	Control booth window		SF					
	Subtotal							
08 8330	**Mirrors (included with 102800)**							
08 9000	**LOUVERS**							
	Door Louvers		EA					
	Exterior Louvers		EA					
	Subtotal							

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Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
09 0000	FINISHES							
09 2900	GYPSUM BOARD ASSEMBLIES							
	Acoustical Barrier:							
	2 HR		SF					
	1 HR		SF					
	NR		SF					
	Furred:							
	6"		SF					
	3 5/8"		SF					
	7/8"		SF					
	Steam Pipe Enclosure (1 1/2")		SF					
	Shaft		SF					
	Shaft with acoustical dampening compound		SF					
	Partitions:							
	3 5/8" rated		SF					
	6"		SF					
	3 5/8"		SF					
	Fire Rated		SF					
	Masonite at stage ramp wall		SF					
	Patch fire rated wall to maintain 2 hour separation		SF					
	Accessories (including beads, etc.)		LS					
	Gypsum Board Ceiling		SF					
	Soffits		SF					
	Subtotal							
09 3100	TILING							
	Porcelain, floor		SF					
	Ceramic, base		LF					
	Ceramic, glazed, wall		SF					
	Subtotal							

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

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Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
09 6400	**WOOD FLOORING**							
	Wide plank		SF					
	Stage:							
	Extend, masonite		SF					
	Refinish		SF					
	Fire Resistant Plywood at ramp:							
	Floor, 2 layers		SF					
	Wall, 1 layer		SF					
	Masonite at ramp		SF					
	Galvanized steel grating with anti-skid surface		SF					
	Patch/ repair/ clean existing floor		SF					
	Subtotal							
09 6513	**RESILIENT WALL BASE**							
	Resilient, 4" typical, straight profile at carpet, coved profile at resilient floor:							
	Vinyl		LF					
	Replacement Stock		LF					
	Wood Base		LF					
	Subtotal							
09 6516	**LINOLEUM FLOORING**							
	Tile		SF					
	Subtotal							
09 6816	**SHEET CARPETING**							
	Area		SF					
	Replacement Stock		SF					
	Subtotal							

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

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09 8436	**SOUND-ABSORBING CEILING UNITS**							
	ACT		SF					
	Sound barrier ceiling		SF					
	Wall:							
	Acoustical fabric panel (AFP)		SF					
	Fiber board (TB)		SF					
	Removeable wood panel (WD4)		SF					
	Wood panel (WD4)		SF					
	Acoustical wood panel (WD5)		SF					
	Ceiling grid at stage		SF					
	Underside of landing, transluscent panels (see electrical for lights)		SF					
	Unistrut system		SF					
	Subtotal							
09 9100	**PAINTING**							
	New walls/ partitions		SF					
	Existing walls partitions		SF					
	Paint gypsum board, ceiling		SF					
	Paint soffits		SF					
	Paint underside of slab		SF					
	Patch and repair ceiling		SF					
	Strip and paint doors		EA					
	Attic stock		LS					
	Subtotal							
10 0000	**SPECIALTIES**							
10 1400	**IDENTIFYING DEVICES**							
	Interior (including Directional, Directory, Door, Exit and Room Signs)		LS					

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

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Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	Signage (S1-S14 per schedule)		EA					
	Subtotal							
10 2800	**TOILET ACCESSORIES**							
	Miscellaneous		LS					
	Subtotal							
10 4400	**FIRE PROTECTION SPECIALTIES**							
	Fire extinguishers, stainless steel in stainless steel cabinet, typical (Type A water)		EA					
	Subtotal							
11 0000	**EQUIPMENT**							
11 2600	**UNIT KITCHENS**							
	Basic Kitchenette, ss, lower cabinet, counter, upper cabinet, sink, appliances		LS					
	Subtotal							
11 5580	**PIPE GRID**							
	Stage lighting support bars		LF					
	Subtotal							
12 0000	**FURNISHINGS**							
12 2200	**ROLL DOWN CURTAINS (included w/ Bid Alternate #2)**							
12 6100	**FIXED AUDIENCE SEATING**							
	Fixed Seating		EA					
	Demountable		EA					
	Subtotal							
	TOTAL BID ALTERNATE #1 (BASE BID) CONTRACT 1 - GENERAL CONSTRUCTION WORK							

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - GENERAL CONSTRUCTION WORK

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DDC ID: PV467IRT1
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CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	BID ALTERNATE #2							
02 0000	**EXISTING CONDITIONS**							
02 4119	**SELECTIVE DEMOLITION**							
	Wood Flooring Demo		SF					
	Miscellaneous (including Regulatory Agency Requirements, General Protection and Dust Control)		LS					
	Disposal (including handling, loading, hauling and dump charge)		LS					
	Construction Waste Management Diversion		LS					
	Subtotal							
05 0000	**METALS**							
05 5000	**METAL FABRICATIONS**							
	Auditorium Catwalk, ladder and associated structural work:							
	Carpet, 1/2" plywood substrate, 1 1/4" painted steel decking		SF					
	Guardrail		LF					
	Ladder		EA					
	Stringer		LF					
	Hangers		EA					
	Subtotal							
09 0000	**FINISHES**							
09 6400	**WOOD FLOORING**							
	Wide Plank at Lobby		SF					
	Subtotal							
12 0000	**FURNISHINGS**							
12 2200	**ROLL DOWN CURTAINS**							
	Auditorium Dividers (Manually operated roller shades)		LF					
	Subtotal							
	TOTAL ALTERNATE #2 WORK							
	TOTAL BID ALTERNATE #2 (BASE BID + ALTERNATE #2 WORK) CONTRACT 1 - GENERAL CONSTRUCTION WORK							

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 2 - PLUMBING WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	CONTRACT 2 - PLUMBING WORK							
22 0000	**PLUMBING**							
22 0503	**PIPES AND TUBES FOR PLUMBING PIPING AND EQUIPMENT**							
	Personnel Fixtures (cw/hw, vent, sanitary)		LF					
	House Fixtures (cw, vent, storm)		LF					
	Joints- Personnel Fixtures (cw/hw, vent, sanitary):							
	Couplings		EA					
	Elbows		EA					
	Tees		EA					
	Joints- House Fixtures (cw, vent, storm):							
	Couplings		EA					
	Elbows		EA					
	Tees		EA					
	Subtotal							
22 0523	**GENERAL-DUTY VALVES FOR PLUMBING PIPING**							
	General-Duty Valves for Plumbing Piping		LS					
	Subtotal							
22 0529	**HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT (included w/ 220503)**							
22 0700	**PLUMBING INSULATION**							
	Personnel fixtures (cw/hw, vent, sanitary)		LF					
	Subtotal							
22 0800	**COMMISSIONING OF PLUMBING**							
	LEED Commissioning		LS					
	System sterilization and purity test		LS					

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 2 - PLUMBING WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
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DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	Pumps, gages, meters, thermometers		LS					
	Rigging, Hoisting, and Scaffolding		LS					
	Subtotal							
22 1100	**FACILITY WATER DISTRIBUTION**							
	Sitework: connect to existing system		LS					
	HW heaters, gallon storage, gph recovery:							
	Direct vent gas		LS					
	Expansion tanks		LS					
	Circulating Pumps		LS					
	Piping including fittings		LS					
	Subtotal							
22 4000	**PLUMBING FIXTURES**							
	Lavatories, including faucets and waste fittings at Walls		EA					
	Kitchenette sink		EA					
	Drinking fountain, bi level ADA		EA					
	Water closets, floor mounted, in wall carrier, actuator flush:							
	ADA		EA					
	Standard		EA					
	3" Floor Drains		EA					
	Core drilling		EA					
	Subtotal							
	TOTAL CONTRACT 2 - PLUMBING WORK							

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 3 - HEATING, VENTILATION AND AIR CONDITIONING WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	CONTRACT 3 - HEATING, VENTILATION AND AIR CONDITIONING WORK							
21 0000	**FIRE SUPRESSION**							
21 0500	**COMMON WORK RESULTS FOR FIRE SUPPRESSION**							
	Temporary Main		LF					
	Taps		EA					
	OS & Y Valves		EA					
	Subtotal							
21 1313	**WET-PIPE SPRINKLER SYSTEMS**							
	Sprinkler Heads		EA					
	Piping schedule 40 black steel, typical:							
	2" and less, schedule 40, uon		LF					
	4"		LF					
	Fittings (clamps, ells, wyes, tees & couplings) and valves		LS					
	Testing		LS					
	Subtotal							
23 0000	**HEATING, VENTILATING AND AIR CONDITIONING**							
23 0503	**PIPES AND TUBES FOR HVAC PIPING AND EQUIPMENT (included w/ other Division 23 sections)**							
23 0513	**COMMON MOTOR REQUIREMENTS FOR HVAC EQUIPMENT (included w/ other Division 23 sections)**							
23 0516	**EXPANSION FITTINGS AND LOOPS FOR HVAC PIPING (included w/ other Division 23 sections)**							
23 0523	**GENERAL-DUTY VALVES FOR HVAC PIPING (included w/ other Division 23 sections)**							

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

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CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
23 0529	**HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT**							
	Hangers and Supports		LS					
	Subtotal							
23 0548	**VIBRATION AND SEISMIC CONTROLS FOR HVAC PIPING AND EQUIPMENT**							
	Vibration isolation and Seismic Controls		LS					
	Subtotal							
23 0553	**IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT (included w/ other Division 23 sections)**							
23 0593	**TESTING, ADJUSTING AND BALANCING FOR HVAC**							
	Code compliance test		LS					
	Balancing:							
	Indoor units		EA					
	Hydronic piping		EA					
	Water system		EA					
	Fans		EA					
	Registers & grilles		EA					
	Subtotal							
23 0700	**HVAC INSULATION**							
	Duct insulation, blanket type, typical		SF					
	Subtotal							
23 0800	**COMMISSIONING OF HVAC**							
	LEED Commissioning		LS					
	Subtotal							

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CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
23 0900	**INSTRUMENTATION AND CONTROL FOR HVAC**							
	Building Management System:							
	Direct digital display panel		EA					
	Programming of BMS		EA					
	Central System Control:							
	I/O points for fans		EA					
	Temperature Sensors		EA					
	Humidity Sensors		EA					
	Alarm Sensors		EA					
	Conduit		LF					
	Wire, plenum grade		LF					
	Terminal Equipment Control:							
	Conduit		LF					
	Wire, plenum grade		LF					
	Stand alone controls:							
	Thermostats to indoor units		EA					
	Carbon monoxide detection & monitor		LS					
	System testing		LS					
	Subtotal							
23 0993	**SEQUENCE OF OPERATIONS FOR HVAC CONTROLS (included w/ 23 0900)**							
23 2213	**STEAM AND CONDENSATE HEATING PIPING**							
	Condensate drain piping:							
	3/4"		LF					
	1"		LF					
	1 1/4"		LF					
	2"		LF					
	Funnel Drains		EA					
	Condensate Drains		EA					

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CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	CIR (per schedule):							
	A		EA					
	B		EA					
	Miscellaneous Piping		LF					
	Subtotal							
23 2216	**STEAM AND CONDENSATE PIPING SPECIALTIES (included w/ 23 2213)**							
23 3100	**HVAC DUCTS AND CASINGS**							
	Supply and return:							
	Ductwork rectangular, galvanized, uon		LBS					
	Fittings		LBS					
	Subtotal							
23 3300	**AIR DUCT ACCESSORIES**							
	Dampers:							
	Volume 160 si, typical		EA					
	FSD, FD/AD, MD		EA					
	Subtotal							
23 3400	**HVAC FANS**							
	SF-1		EA					
	TX		EA					
	TX-1-1		EA					
	TX-1-2		EA					
	TX-2-1		EA					
	TX-2-2		EA					
	Subtotal							

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

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DDC ID: PV467IRT1
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CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
23 3700	**AIR OUTLETS AND INLETS**							
	Supply:							
	24x24		EA					
	12x12		EA					
	Return/exhaust, square (24x24)		EA					
	Grilles:							
	BR/TR		EA					
	Stage		EA					
	LBR:							
	14x8		EA					
	36x4		EA					
	36x6		EA					
	60x8		EA					
	RG:							
	48x14		EA					
	Nozzle Tr.		EA					
	WMS:							
	24x24		EA					
	32x12		EA					
	OAI:							
	12x6		EA					
	14x10		EA					
	16x8		EA					
	Subtotal							
23 5100	**BREECHINGS, CHIMNEYS AND STACKS**							
	Water Heater Vent		EA					
	Subtotal							
23 6313	**AIR-COOLED REFRIGERANT CONDENSERS**							
	VRV:							
	CU-1		EA					
	CU-2		EA					

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

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CONTRACT 3 - HEATING, VENTILATION AND AIR CONDITIONING WORK

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Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	Haul and place (crane not required)		LS					
	Electric connections		LS					
	Piping connections		LS					
	Catwalk		SF					
	Catwalk rail		LF					
	Subtotal							
23 8126	**SPLIT-SYSTEM AIR CONDITIONERS**							
	Indoor units, VRV (per schedule):							
	AC-C-1A		EA					
	AC-C-1B		EA					
	AC-C-2		EA					
	AC-1-1		EA					
	AC-1-2		EA					
	AC-1-3		EA					
	AC-2-1		EA					
	AC-2-2		EA					
	AC-2-3		EA					
	AC-2-4		EA					
	AC-2-5		EA					
	Refrigerant Piping, 1" and less		LF					
	Radiator, complete:							
	Reinstall		EA					
	New		EA					
	Rigging, hoisting and scaffolding		LS					
	Subtotal							
	TOTAL CONTRACT 3 - HEATING, VENTILATION AND AIR CONDITIONING WORK							

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 4 - ELECTRIC WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	CONTRACT 4 - ELECTRIC WORK							
26 0000	**ELECTRICAL**							
26 0405	**SPECIAL REQUIREMENTS FOR ELECTRICAL WORK (included w/ other Division 26 sections)**							
26 0410	**BASIC ELECTRICAL REQUIREMENTS**							
	Temporary lighting		LS					
	Subtotal							
26 0415	**BASIC ELECTRICAL MATERIALS AND METHODS**							
	Data/ Telephone System:							
	Combination telephone/data wall outlets		EA					
	3/4" conduit with pull line		LF					
	Cat 6		LF					
	CTV Distribution System:							
	Combination telephone/data wall outlets		EA					
	3/4" conduit with pull line		LF					
	Subtotal							
26 0503	**EQUIPMENT WIRING CONNECTIONS (included w/ other Division 26 sections)**							
26 0519	**LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES**							
	Assorted wiring for branch circuit		LF					
	Assorted wiring for lighting		LF					
	Subtotal							
26 0526	**GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS**							
	Grounding for branch circuit		LS					

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 4 - ELECTRIC WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	Grounding for lighting		LS					
	Subtotal							
26 0529	**HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS (included w/ other Division 26 sections)**							
26 0533	**RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS**							
	Branch circuit:							
	Backboxes		EA					
	Conduit assorted, including elbows, connectors, couplings and straps		LF					
	Junction boxes		EA					
	Lighting:							
	Lighting outlets		EA					
	Fixture tails		EA					
	Conduit assorted, including elbows, connectors, couplings and straps		LF					
	4" empty conduit for stage lighting		LF					
	Junction boxes		EA					
	Feeders		LS					
	Motor connections		EA					
	Subtotal							
26 0534	**FLOOR BOXES FOR ELECTRICAL SYSTEMS (included w/ other Division 26 sections)**							
26 0553	**IDENTIFICATION FOR ELECTRICAL SYSTEMS (included w/ other Division 26 sections)**							
26 0800	**COMMISSIONING OF ELECTRICAL**							
	LEED Commissioning		LS					
	Subtotal							

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 4 - ELECTRIC WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
26 0923	**LIGHTING CONTROL DEVICES**							
	Switch single way		EA					
	Dimmer switch		EA					
	Occupancy sensors:							
	Wall mounted		EA					
	Ceiling mounted		EA					
	Subtotal							
26 0933	**ARCHITECTURAL DIMMING CONTROLS**							
	Lighting control switches at relay panels		EA					
	Lighting control relay panels, 40amp		EA					
	Subtotal							
26 2413	**SWITCHBOARDS**							
	Meter		LS					
	Transformer, 800amp		LS					
	Distribution, 800amp		LS					
	Subtotal							
26 2416	**PANELBOARDS**							
	Lighting/power:							
	400amp wp enclosure		EA					
	100amp		EA					
	Update panel directories		EA					
	Fire alarm control panel		EA					
	Fire alarm annunciator panel		EA					
	Subtotal							
26 2716	**ELECTRICAL CABINETS AND ENCLOSURES (included w/ other Division 26 sections)**							

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 4 - ELECTRIC WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
26 2726	**WIRING DEVICES**							
	Wall Receptacles:							
	Duplex		EA					
	Duplex GFI		EA					
	Duplex GFI weatherproof		EA					
	Quad		EA					
	Quad GFI		EA					
	Ceiling Receptacles, Duplex		EA					
	Stage lighting Receptacles:							
	Duplex on pipe		EA					
	Duplex at catwalk		EA					
	Subtotal							
26 2813	**FUSES (included w/ other Division 26 sections)**							
26 2819	**ENCLOSED SWITCHES**							
	Service switch		EA					
	Combination starter and fused disconnect switch, waterproof		EA					
	Subtotal							
26 2913	**ENCLOSED CONTROLLERS (included w/ other Division 26 sections)**							
26 5100	**INTERIOR LIGHITNG**							
	Wall mounted 2 head battery powered emergency light		EA					
	Black 6 x 10 cylinder downlight		EA					
	Black 6 x 10 cylinder downlight, sloped ceiling		EA					
	Black 6" cylinder downlight		EA					
	Puck triple decorative blown glass		EA					
	LED strip light		EA					
	Theater restroom vestibule		EA					

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 4 - ELECTRIC WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	2 lamp surface mounted fluorescent		EA					
	2 lamp surface mounted fluorescent with emergency battery		EA					
	2 lamp pendant mounted fluorescent		EA					
	Black LED track fixture		EA					
	Linear LED wall grazing system		EA					
	Pickle jar fixture at catwalk		EA					
	LED track		EA					
	Dimmeable LED track		EA					
	3' long linear		EA					
	Track, surface		EA					
	Track, recessed:							
	Linear		EA					
	Rectangle		EA					
	Makeup mirror light		EA					
	Wall sconce		EA					
	Miscellaneous		EA					
	Chandelier outlet		EA					
	Seat mounted dimmeable LED aisle light		EA					
	Flush mounted LED step light		EA					
	Wall mounted blue LED step light		EA					
	Extra materials:							
	Lamps		EA					
	Ballasts, fluorescent, hid		EA					
	Miscellaneous (including diffusers, lenses, globes, guards, louvers and cones)		EA					
	Existing lights, clean and relamp		EA					
	Temporary lighting, tails including stringers		EA					
	Subtotal							

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 4 - ELECTRIC WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
26 5200	**EMERGENCY LIGHTING**							
	Exit Fixtures (including Exit LED type and Exit edgelight type)		EA					
	Subtotal							
26 5561	**STAGE LIGHTING DISTRIBUTION**							
	Stage lighting outlet boxes, per schedule:							
	A		EA					
	B		EA					
	C		EA					
	D		EA					
	E		EA					
	Subtotal							
27 0000	**COMMUNICATIONS**							
27 4100	**SOUND SYSTEM INFRASTRUCTURE**							
	24' x 24" pull box		EA					
	4 gang junction box		EA					
	1 gang junction box:							
	Ceiling		EA					
	Rail		EA					
	Wall		EA					
	NEMA 1 enclosure		EA					
	NEMA junction box		EA					
	3 gang junction box ceiling		EA					
	1 gang junction box with bnc outlet		EA					
	2 gang junction box with bnc outlet and rj45 receptacle		EA					
	1 gang junction box in ceiling with 4 pin xlr receptacle		EA					
	Floor box		EA					
	Conduit with pull wire including fittings:							
	3/4"		LF					
	1"		LF					

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 4 - ELECTRIC WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	2"		LF					
	Subtotal							
28 0000	**ELECTRONIC SAFETY AND SECURITY**							
28 3100	**FIRE DETECTION AND ALARM SYSTEM**							
	Manual pull station		EA					
	Combination fire alarm & strobe light		EA					
	Ceiling mounted strobe light		EA					
	Shut down relay		EA					
	Smoke detectors:							
	Ceiling/wall		EA					
	Duct		EA					
	Outlets		EA					
	Conduits		LF					
	Wire, plenum grade		LF					
	Subtotal							
	TOTAL BID ALTERNATE #1 (BASE BID) CONTRACT 4 - ELECTRIC WORK							
	BID ALTERNATE #2							
26 0000	**ELECTRICAL**							
26 5561	**STAGE LIGHTING DISTRIBUTION**							
	3 gang junction box		EA					
	1 1/4" Conduit including fittings		LF					
	Wire:							
	Pair #12		LF					
	Terminations, pair		EA					
	Subtotal							

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NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 4 - ELECTRIC WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
27 0000	COMMUNICATIONS							
27 4100	SOUND SYSTEM INFRASTRUCTURE							
	Sound Rack		LS					
	Outlets:							
	Jack		EA					
	Power		EA					
	Conduit including fittings:							
	3/4"		LF					
	1 1/4"		LF					
	Wire:							
	Pair #12		LF					
	Terminations, pair		EA					
	THHN		LF					
	Breakers		EA					
	Faceplates:							
	4 gang junction box		EA					
	1 gang junction box (Ceiling)		EA					
	1 gang junction box (Rail)		EA					
	1 gang junction box (Wall)		EA					
	Rack plate at NEMA 1 enclosure		EA					
	NEMA junction box		EA					
	3 gang junction box ceiling		EA					
	1 gang junction box with bnc outlet		EA					
	2 gang junction box with bnc outlet and rj45 receptacle		EA					
	1 gang junction box in ceiling with 4 pin xlr receptacle		EA					
	Subtotal							
	TOTAL ALTERNATE #2 WORK							
	TOTAL BID ALTERNATE #2 (BASE BID + ALTERNATE #2 WORK) CONTRACT 4 - ELECTRIC WORK							

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BID BOOKLET
PART B

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NON-PLA PROJECT

ATTACHMENT 1 - BID INFORMATION
PROJECT ID: PV467IRT1

DESCRIPTION AND LOCATION OF WORK:

Renovation of the Irish Repertory Theatre
132 West 22nd Street
New York, NY 10011
E-PIN: 85013B0108 / DDC PIN: 8502013PV0014C; E-PIN: 85013B0109 / DDC PIN: 8502013PV0015C;
E-PIN: 85013B0110 / DDC PIN: 8502013PV0016C; E-PIN: 85013B0111 / DDC PIN: 8502013PV0017C

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: **WEDNESDAY, JULY 24 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:	**WEDNESDAY, JULY 24, 2013 @ 2:00 PM**
	LATE BIDS WILL NOT BE ACCEPTED

PRE-BID CONFERENCE:

PLACE	**Irish Repertory Theatre** **132 West 22nd Street** **New York, NY 10011**
DATE AND HOUR	**WEDNESDAY, JULY 10, 2013 AT 10:00AM**
MANDATORY OR OPTIONAL	**MANDATORY**

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

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	INTRASTATE RATE	INTERSTATE RATE
_____	_____	_____
_____	_____	_____
_____	_____	_____

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.

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

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

(A) Vendex Fees: Pursuant to Procurement Policy Board Rule 2-08(f)(2), the contractor will be charged a fee for the administration of the VENDEX system, including the Vendor Name Check process, if a Vendor Name Check review 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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DIRECTIONS: Please execute two originals (both with original signature).
Please forward directly to the agency (not M.O.C.S.).

Certificate of No Change Form

NYC
Mayor's Office of Contract Services

- 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.

Mayor's Office of Contract Services

	Principal Name	Date of signature on last full Principal Questionnaire	Date(s) of signature on submission of change
1			
2			
3			
4			
5			
6			

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

Certification *This section is required.*

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

Certified By:

_____

Name (Print)

_____

Title

_____

Name of Submitting Entity

_____ _____

Signature *Date*

Notarized By:

_____ _____ _____

Notary Public *County License Issued* *License Number*

Sworn to before me on: _____

Date

DIRECTIONS: Please execute two originals (both with original signature). Please forward directly to the agency (not M.O.C.S.).

Certificate of No Change Form

NYC Mayor's Office of Contract Services

- 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.

Mayor's Office of Contract Services

	Principal Name	Date of signature on last full Principal Questionnaire	Date(s) of signature on submission of change
1			
2			
3			
4			
5			
6			

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

Certification *This section is required.*

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

Certified By:

_____
Name (Print)

_____
Title

_____
Name of Submitting Entity

_____ _____
Signature *Date*

Notarized By:

_____ _____ _____
Notary Public *County License Issued* *License Number*

Sworn to before me on: _____
Date

IRAN DIVESTMENT ACT COMPLIANCE RIDER

FOR NEW YORK CITY CONTRACTORS

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

(a) The person provides goods or services of twenty million dollars or more in the energy sector of Iran, including a person that provides oil or liquefied natural gas tankers, or products used to construct or maintain pipelines used to transport oil or liquefied natural gas, for the energy sector of Iran; or

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

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

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

(1) The investment activities in Iran were made before the effective date of this section (i.e., April 12, 2012), the investment activities in Iran have not been expanded or renewed after the effective date of this section and the person has adopted, publicized and is implementing a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran: or

(2) The City makes a determination that the goods or services are necessary for the City to perform its functions and that, absent such an exemption, the City would be unable to obtain the goods or services for which the contract is offered. Such determination shall be made in writing and shall be a public document.

BIDDER'S CERTIFICATION OF COMPLIANCE WITH
IRAN DIVESTMENT ACT

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

[*Please Check One*]

BIDDER'S CERTIFICATION

☐ By submission of this bid or proposal, each bidder/proposer and each person signing on behalf of any bidder/proposer certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief, that each bidder/proposer is not on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the State Finance Law.

☐ I am unable to certify that my name and the name of the bidder/proposer does not appear on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the State Finance Law. I have attached a signed statement setting forth in detail why I cannot so certify.

Dated: _____, New York
_____, 20 __

_____
SIGNATURE

_____
PRINTED NAME

_____
TITLE

Sworn to before me this
_____ day of_____, 20____

_____
Notary Public

Dated:

CITY OF NEW YORK

DIVISION OF LABOR SERVICES

CONSTRUCTION EMPLOYMENT REPORT

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

CONSTRUCTION EMPLOYMENT REPORT

GENERAL INFORMATION

1. Your contractual relationship in this contract is: Prime contractor____ Subcontractor____

1a. Are M/WBE goals attached to this project? Yes ____ No ____

2. Please check one of the following if your firm would like information on how to certify with the City of New York as a:
___Minority Owned Business Enterprise ___Locally based Business Enterprise
___Women Owned Business Enterprise ___Emerging Business Enterprise

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: _____

FOR OFFICIAL USE ONLY: File No._____

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).

_____

_____

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/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

FMS ID: **PV467IRT1**

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**
CONTRACT NO. 2	**PLUMBING WORK**
CONTRACT NO. 3	**HVAC + FIRE PROTECTION WORK**
CONTRACT NO. 4	**ELECTRICAL WORK**

Renovation of the Irish Repertory Theater

LOCATION: **132 West 22nd Street**
BOROUGH: **New York, NY 10011**
CITY OF NEW YORK

Contractor

Dated _____ , 20____

Entered in the Comptroller's Office

First Assistant Bookkeeper

Dated _____ , 20____

NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

PROJECT ID: PV467IRT1

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

VOLUME 2 OF 3

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

Renovation of the Irish Repertory Theater

LOCATION:	**132 West 22nd Street**
BOROUGH:	**New York, NY 10011**
CITY OF NEW YORK	
CONTRACT NO. 1	**GENERAL CONSTRUCTION WORK**
CONTRACT NO. 2	**PLUMBING WORK**
CONTRACT NO. 3	**HVAC + FIRE PROTECTION WORK**
CONTRACT NO. 4	**ELECTRICAL WORK**

DCA

Garrison Architects

Date: **April 29, 2013**

13-052

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
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VOLUME 2 OF 3

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 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.

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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:

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 i[illegible] 1. 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

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 pr 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 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 its 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

September 2008

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, 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 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.

11.2 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**.

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. The **Contractor** agrees to make no claim against the **City** for any damages relating to or arising out of any directions issued by the **Engineer** pursuant to this article (including but not limited to the failure of any **Other Contractor** to comply or promptly comply with such directions), or the failure of the **Engineer** to issue any directions, or the failure of any **Other Contractor** to coordinate its work, or the default in performance of any **Other Contractor**.

12.4 The **Contractor** shall indemnify and hold the **City** harmless from any and all claims or judgments for damages and from costs and expenses to which the **City** may be subjected or which it may suffer or incur by reason of the **Contractor's** failure to comply with the **Engineer's** directions promptly; and the **Comptroller** shall have the right to exercise the powers reserved in Article 23 with respect to any claims which may be made for damages due to 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** occasioned by any act or omission to act of the **City** or any of its representatives, and agrees that all it may be entitled to on account of any such delay 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 sub-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) x (HP rating) x (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) x (HP rating) x (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 asses, 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 do 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 3.

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: One hundred fifteen thousand dollars Dollars, ($115,000.00), this said sum being the Amount at which the **Contract** was awarded to the **Contractor** at a public letting thereof, based upon the **Contractor's** bid for the **Contract**.

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 "EFT Vendor Payment Enrollment Form" (available at http://www.nyc.gov/dof) 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 SUBCONTRCTING 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.

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: Chinatown PL & Heating

By: William Yu
(Member of Firm or Officer of Corporation)

Title: Vice President

(Where Contractor is a Corporation, add):
Attest:

_____
Secretary

(Seal)

_____

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of NY County of Queens ss:

On this June day of 12, before me personally came William Yu to me known, who, being by me duly sworn did depose and say that he resides at Queens that he is the Vice President of the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation, and that he signed his name thereto by like order.

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, 20 15

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 16th day of June 2014, before me personally came David Resnick 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 DATED
BUDGET DIRECTOR'S CERTIFICATE NO. DATED

APPROPRIATION
COMMISSIONER'S CERTIFICATE

In conformity with the provisions of Section 6-101of 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

One hundred fifteen thousand dollars

Dollars ($ 115,000.00)

is chargeable to the fund of the Department of Design and Construction entitled Code

_____

_____

_____

Department of Design and Construction

I hereby certify that the specifications contained herein comply with the terms and conditions of the BUDGET.

Deputy Commissioner

COMPTROLLER'S CERTIFICATE

The City of New York_____ _____

Pursuant to the provisions of Section 6-101 of the Administrative Code of the City of New York, I hereby certify that there remains unapplied and unexpended a balance of the above mentioned fund applicable to this Contract sufficient to pay the estimated expense of executing the same viz:

$_____

_____

Comptroller

MAYOR'S CERTIFICATE OR CERTIFICATE OF THE DIRECTOR OF THE BUDGET

Client#: 1078968 CHINATOW

ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 6/06/2014

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 Amerisc/USI - Commercial Lines 333 Earle Ovington Blvd., Suite 800 Uniondale, NY 11553	CONTACT NAME: PHONE (A/C, No, Ext): 516 419-4000 FAX (A/C, No): 877 727-5171 E-MAIL ADDRESS:
INSURED Chinatown Plumbing & Heating Inc 153 Centre Street New York, NY 10013	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A : Harleysville Insurance Company — 23582 INSURER B : INSURER C : INSURER D : INSURER E : INSURER F :

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			MPA00000082586S	03/12/2014	03/12/2015	EACH OCCURRENCE	$1,000,000
	[X] COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence)	$100,000
	[ ] CLAIMS-MADE [X] OCCUR						MED EXP (Any one person)	$10,000
							PERSONAL & ADV INJURY	$1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$2,000,000
	[ ] POLICY [X] PRO-JECT [ ] LOC						PRODUCTS - COMP/OP AGG	$2,000,000
								$
A	AUTOMOBILE LIABILITY			BA00000082584S	03/12/2014	03/12/2015	COMBINED SINGLE LIMIT (Ea accident)	$1,000,000
	[X] ANY AUTO						BODILY INJURY (Per person)	$
	[ ] ALL OWNED AUTOS [ ] SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	[X] HIRED AUTOS [X] NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$
								$
A	[X] UMBRELLA LIAB [X] OCCUR			CMB00000082585S	03/12/2014	03/12/2015	EACH OCCURRENCE	$3,000,000
	[ ] EXCESS LIAB [ ] CLAIMS-MADE						AGGREGATE	$3,000,000
	[ ] DED [X] RETENTION $10,000							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N						[ ] WC STATU-TORY LIMITS [ ] OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? [ ]	N/A					E.L. EACH ACCIDENT	$
	(Mandatory in NH)						E.L. DISEASE - EA EMPLOYEE	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - POLICY LIMIT	$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Re: The Irish Repertory Theater, 132 W 22nd St, New York, NY 10011.
The General Liability policy includes an automatic Additional Insured endorsement that provides Additional Insured status to City of New York, including its officials and employees, and The Irish Repertory Theater 132 W 22nd St, New York, NY., only when there is a written contract that requires such status, and only with regard to work performed on behalf of the named insured.

CERTIFICATE HOLDER

NYC Department of Design and Construction
30-30 Thomson Ave.
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

P. Barnes

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SZSZP

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.

USI Insurance Services LLC

[Name of broker (typewritten)]

333 Earle Ovington Blvd #800
Uniondale, NY 11553

[Address of broker (typewritten)]

Madonna B. Questel

[Signature of authorized official or broker]

Madonna Questel/Account Executive

[Name and title of authorized official (typewritten)]

Sworn to before me this
16 day of June, 2014

NOTARY PUBLIC

MARIANTOINETTE IANNUCCI
Notary Public, State of New York
No. 30-01IA4773669
Qualified in Nassau County
Commission Expires 5/31/18

New York State Insurance Fund
Workers' Compensation & Disability Benefits Specialists Since 1914
199 CHURCH STREET, NEW YORK, N.Y. 10007-1100
Phone: (888) 997-3863

CERTIFICATE OF WORKERS' COMPENSATION INSURANCE

^^^^^^ 133540353
CHINATOWN PLUMBING & HEATING INC
153 CENTRE STREET RM 108
NEW YORK NY 10013

POLICYHOLDER	CERTIFICATE HOLDER
CHINATOWN PLUMBING & HEATING INC 153 CENTRE STREET RM 108 NEW YORK NY 10013	NYC DEPARTMENT OF DESIGN AND CONSTRUCTION 30-30 THOMSON AVE LONG ISLAND CITY NY 11101

POLICY NUMBER	CERTIFICATE NUMBER	PERIOD COVERED BY THIS CERTIFICATE	DATE
G 1183 150-0	202825	05/01/2014 TO 05/01/2015	6/9/2014

THIS IS TO CERTIFY THAT THE POLICYHOLDER NAMED ABOVE IS INSURED WITH THE NEW YORK STATE INSURANCE FUND UNDER POLICY NO. 1183 150-0 UNTIL 05/01/2015, COVERING THE ENTIRE OBLIGATION OF THIS POLICYHOLDER FOR WORKERS' COMPENSATION UNDER THE NEW YORK WORKERS' COMPENSATION LAW WITH RESPECT TO ALL OPERATIONS IN THE STATE OF NEW YORK, EXCEPT AS INDICATED BELOW, AND, WITH RESPECT TO OPERATIONS OUTSIDE OF NEW YORK, TO THE POLICYHOLDER'S REGULAR NEW YORK STATE EMPLOYEES ONLY.

IF SAID POLICY IS CANCELLED, OR CHANGED PRIOR TO 05/01/2015 IN SUCH MANNER AS TO AFFECT THIS CERTIFICATE, 10 DAYS WRITTEN NOTICE OF SUCH CANCELLATION WILL BE GIVEN TO THE CERTIFICATE HOLDER ABOVE. NOTICE BY REGULAR MAIL SO ADDRESSED SHALL BE SUFFICIENT COMPLIANCE WITH THIS PROVISION. THE NEW YORK STATE INSURANCE FUND DOES NOT ASSUME ANY LIABILITY IN THE EVENT OF FAILURE TO GIVE SUCH NOTICE.

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS NOR INSURANCE COVERAGE UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICY.

NEW YORK STATE INSURANCE FUND



DIRECTOR,INSURANCE FUND UNDERWRITING

This certificate can be validated on our web site at https://www.nysif.com/cert/certval.asp or by calling (888) 875-5790
VALIDATION NUMBER: 875708008

U-26.3

STATE OF NEW YORK
WORKER'S COMPENSATION BOARD

CERTIFICATE OF INSURANCE COVERAGE UNDER THE NYS DISABILITY BENEFITS LAW

PART 1. To be completed by Disability Benefits Carrier or Licensed Insurance Agent of that Carrier

1a. Legal Name and Address of Insured (Use street address only) CHINATOWN PLUMBING & HEATING INC. NELSON WAN 153 CENTRE STREET 108 NEW YORK, NY 10013	1b. Business Telephone Number of Insured (212) 966-9735 1c. NYS Unemployment Insurance Employer Registration Number of Insured 8591147 1d. Federal Employer Identification Number of Insured or Social Security Number 13 3540353
2. Name and Address of the Entity Requesting Proof of Coverage (Entity Being Listed as the Certificate Holder) NYC DEPARTMENT OF DESIGN AND CONTRUCTION 30-30 THOMSON AVE LONG ISLAND CITY, NY 11101	3a. Name of Insurance Carrier **The Guardian Life Insurance Company of America** 3b. Policy Number of entity listed in box "1a": 00990996-0000 3c. Policy effective period: 04/01/2014 to 03/31/2015

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: 06/06/2014 By: Stuart J. Shaw

Stuart J. Shaw, FSA, MAAA

Telephone Number: 1-888-278-4542 Title: Vice President, Group 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.***

DB-120.1 (5/06)

Performance Bond #1 (Pages 77 to 80): 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

KNOW ALL PERSONS BY THESE PRESENTS, That we, _____

_____

_____

_____

hereinafter referred to as the "Principal", and _____

_____

_____

_____

_____

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

_____

_____

_____

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

WHEREAS, the Principal is about to enter, or has entered, into a Contract in writing with the City for

_____

_____

_____

a copy of which Contract is annexed to and hereby made a part of this bond as though herein set forth in full;

Performance Bond #1 (Pages 77 to 80): 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.

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 77 to 80): 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.

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 77 to 80): 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.

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 81 to 84): Use if the total contract price is more than $5 Million.

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 81 to 84): Use if the total contract price is more than $5 Million.

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 81 to 84): Use if the total contract price is more than $5 Million.

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 81 to 84): 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 85 to 88): Use for any contract for which a Payment Bond is required.

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

_____

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 85 to 88): Use for any contract for which a Payment Bond is required.

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 85 to 88): Use for any contract for which a Payment Bond is required.

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

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 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.

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.

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 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: Wasyl 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

Preliminary

program to which the employer contractor is a participant, registered with the New York State Department of Labor, may be employed on a public work project. Workers who are not journey persons or not registered apprentices pursuant to Labor Law §220 (3-e) may not be substituted for apprentices and must be paid as journey persons.

Public Work construction, reconstruction, demolition, excavation, rehabilitation, repair, renovation, alteration, or improvement contracts awarded pursuant to a Project Labor Agreement ("PLA") in accordance with Labor Law section 222 may have different labor standards for shift, premium and overtime work. Please refer to the PLA's pre-negotiated labor agreements for wage and benefit rates applicable to work performed outside of the regular workday. More information is available at the Mayor's Office of Contract Services (MOCS) web page at http://www.nyc.gov/html/mocs/html/vendors/pla.shtml.

All the provisions of Labor Law section 220 remain applicable to PLA work including, but not limited to, the enforcement of prevailing wage requirements by the Comptroller; however, we will enforce shift, premium, overtime and other non-standard rates as they appear in a project's pre-negotiated labor agreement.

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.

Wasyl Kinach, P.E.
Director of Classifications
Bureau of Labor Law

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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: $43.20
Supplemental Benefit Rate per Hour: $37.29

Blaster (Hydraulic)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $43.95

Preliminary

Supplemental Benefit Rate per Hour: $37.29

Blaster - Trac Drill Hydraulic

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $38.96
Supplemental Benefit Rate per Hour: $37.29

Blaster - Wagon: Air Trac: Quarry Bar: Drillrunners

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $38.24
Supplemental Benefit Rate per Hour: $37.29

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: $37.29
Supplemental Benefit Rate per Hour: $37.29

Blaster - Powder Carriers

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $33.73
Supplemental Benefit Rate per Hour: $37.29

Blaster - Hydraulic Trac Drill Chuck Tender

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $32.57
Supplemental Benefit Rate per Hour: $37.29

Blaster - Chuck Tender & Nipper

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $31.88
Supplemental Benefit Rate per Hour: $37.29

Blaster - Magazine Keepers: (Watch Person)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $19.26
Supplemental Benefit Rate per Hour: $37.29

Preliminary

Overtime Description

Blaster - Magazine Keepers: (Watch Person) only - time and one half the regular rate for work after an 8 hour day, Saturday, Sunday and holidays listed below.

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

Preliminary

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.

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

Preliminary

Wage Rate per Hour: $46.44
Supplemental Benefit Rate per Hour: $27.53

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
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: $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.
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

Preliminary

Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

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 - 6/30/2014
Wage Rate per Hour: $46.74
Supplemental Benefit Rate per Hour: $42.37

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

Preliminary

Paid Holidays
ıe

Shift Rates
Off shift work, commencing between 5:00 P.M. and 10:00 P.M. shall work eight and one half hours allowing for one half hour for lunch, but will be paid for 9 hours including benefits at the straight time rate for 8 hours.

(Carpenters District Council)

CEMENT & CONCRETE WORKER

Cement & Concrete Worker

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $38.98
Supplemental Benefit Rate per Hour: $25.67
Supplemental Note: $28.42 on Saturdays; $31.17 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 rking with Dockbuilders on pile cap forms and for work below street level to the top of the foundation wall, not 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

hift Rates
n shift work extending over a twenty-four hour period, all shifts are paid at straight time.

Preliminary

(Cement Concrete Workers District Council)

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 hours per day may be worked at straight time.

(Local #780)

CORE DRILLER

Core Driller

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

Preliminary

Wage Rate per Hour: $35.44
Supplemental Benefit Rate per Hour: $19.75

Core Driller Helper

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

Preliminary

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)

DERRICKPERSON AND RIGGER

Derrick Person & Rigger

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $40.50
Supplemental Benefit Rate per Hour: $42.07
Supplemental Note: The above supplemental rate applies for work performed in Manhattan, Bronx, Brooklyn and Queens. $43.49 - 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)

Preliminary

DIVER

Diver (Marine)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $58.95
Supplemental Benefit Rate per Hour: $42.37

Diver Tender (Marine)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $42.10
Supplemental Benefit Rate per Hour: $42.37

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)

Preliminary

DOCKBUILDER - PILE DRIVER

Dockbuilder - Pile Driver

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $46.74
Supplemental Benefit Rate per Hour: $42.37

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
Off shift work, commencing between 5:00 P.M. and 10:00 P.M., shall work eight and one half hours allowing for one half hour for lunch but will be paid the straight time hourly wage for 9 hours and the straight time supplemental benefits for 8 hours.

(Carpenters District Council)

DRIVER: TRUCK (TEAMSTER)

Driver - Automobile Chauffeur (Dump Truck)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $35.84
Supplemental Benefit Rate per Hour: $36.93

Driver - Heavy Equipment Trailer Driver

Preliminary

ective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $37.34
Supplemental Benefit Rate per Hour: $36.93
Note: For time and one half overtime Wage Rate - $53.76; for double time overtime Wage Rate - $71.68

Driver - Euclid & Turnapull Operator

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $36.41
Supplemental Benefit Rate per Hour: $36.93

Driver - Six Wheeler(3 Axle) Tractors & Trailers

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $36.84
Supplemental Benefit Rate per Hour: $36.93
Note: For time and one half overtime Wage Rate - $54.62; for double time overtime Wage Rate - $72.82

Driver - Boom Truck

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $37.09
pplemental Benefit Rate per Hour: $36.93
ote: For time and one half overtime Wage Rate - $54.62; for double time overtime Wage Rate - $72.82

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).
President's Day
Columbus Day
Veteran's Day
Day after Thanksgiving

Triple time the regular rate for work on the following holiday(s).
New Year's Day
Memorial Day
Independence Day
abor Day
esidential Election Day
hanksgiving Day

Preliminary

Christmas Day

Paid Holidays

New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Election 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: $37.47
Supplemental Benefit Rate per Hour: $38.65

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

Preliminary

Labor Day
Columbus Day
Election Day
Veteran's 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: $46.00

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $53.00
Supplemental Benefit Rate per Hour: $47.40

Electrician "A" (Regular Day Overtime)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: $78.00
Supplemental Benefit Rate per Hour: $49.26

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $79.50
Supplemental Benefit Rate per Hour: $50.72

Electrician "A" (Day Shift)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: $52.00
Supplemental Benefit Rate per Hour: $46.00

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $53.00
Supplemental Benefit Rate per Hour: $47.40

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

Preliminary

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: $78.00
Supplemental Benefit Rate per Hour: $49.26

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $79.50
Supplemental Benefit Rate per Hour: $50.72

Electrician "A" (Swing Shift)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: $61.01
Supplemental Benefit Rate per Hour: $52.32

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $62.19
Supplemental Benefit Rate per Hour: $53.92

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: $56.15

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $93.29
Supplemental Benefit Rate per Hour: $57.81

Electrician "A" (Graveyard Shift)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: $68.34
Supplemental Benefit Rate per Hour: $57.66

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $69.66
Supplemental Benefit Rate per Hour: $59.42

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: $61.94

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $104.49
Supplemental Benefit Rate per Hour: $63.78

Preliminary

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: y 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.

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: $25.80
Supplemental Benefit Rate per Hour: $19.15

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $26.30
Supplemental Benefit Rate per Hour: $19.90

lectrician "M" (Overtime After First 8 hours)

Preliminary

"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: $38.70
Supplemental Benefit Rate per Hour: $20.77

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $39.45
Supplemental Benefit Rate per Hour: $21.55

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays
Time and one half the regular rate for work on the following holiday(s).
New Year's Day
Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Labor Day
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

Preliminary

Supplemental Benefit Rate per Hour: $13.90
Supplemental Note: $12.40 only after 8 hours worked in a day

Overtime Description

Time and one half the regular rate for work on the following holidays: Columbus Day, Veterans Day, Day after Thanksgiving.
Double time the regular rate for work on the following holidays: New Year's day, Martin Luther King Jr. Day, President's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day.

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Paid Holidays

New Year's Day
Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

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 - 6/30/2014
Wage Rate per Hour: $52.00
Supplemental Benefit Rate per Hour: $47.77

Preliminary

Electrician - Electro Pole Foundation Installer

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $39.42
Supplemental Benefit Rate per Hour: $36.36

Electrician - Electro Pole Maintainer

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $33.75
Supplemental Benefit Rate per Hour: $32.75

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)

Preliminary

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.

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.

Preliminary

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

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

Cherrypickers 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: $58.75
Supplemental Benefit Rate per Hour: $31.07
Supplemental Note: $55.74 on overtime
Shift Wage Rate: $94.00

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, Cherrypickers. 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

Preliminary

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: $57.00
Supplemental Benefit Rate per Hour: $31.07
Supplemental Note: $55.74 on overtime
Shift Wage Rate: $91.20

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: $56.74
Supplemental Benefit Rate per Hour: $31.07
Supplemental Note: $55.74 on overtime
Shift Wage Rate: $90.78

Engineer - Heavy Construction Maintenance Engineer II

On Base Mounted Tower Cranes

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $74.44
Supplemental Benefit Rate per Hour: $31.07
Supplemental Note: $55.74 on overtime
Shift Wage Rate: $119.10

Engineer - Heavy Construction Maintenance Engineer III

On Generators, Light Towers

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $37.56
Supplemental Benefit Rate per Hour: $31.07
Supplemental Note: $55.74 on overtime
Shift Wage Rate: $60.10

Preliminary

Engineer - Heavy Construction Maintenance Engineer IV

On Pumps and Mixers including mud sucking

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $38.53
Supplemental Benefit Rate per Hour: $31.07
Supplemental Note: $55.74 on overtime
Shift Wage Rate: $61.65

Engineer - Heavy Construction Operating Engineer III

Minor Equipment such as Tractors, Post Hole Diggers, Ditch Witch (Walk Behind), Road Finishing Machines, Rollers five tons and under, Tugger Hoists, Dual Purpose Trucks, Fork Lifts, and Dempsey Dumpers, Fireperson.

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $54.09
Supplemental Benefit Rate per Hour: $31.07
Supplemental Note: $55.74 on overtime
Shift Wage Rate: $86.54

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: $51.19
Supplemental Benefit Rate per Hour: $31.07
Supplemental Note: $55.74 on overtime
Shift Wage Rate: $81.90

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: $35.50
Supplemental Benefit Rate per Hour: $31.07
Supplemental Note: $55.74 on overtime
Shift Wage Rate: $56.80

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: $54.33

Preliminary

Supplemental Benefit Rate per Hour: $29.66
Supplemental Note: $53.17 on overtime
Shift Wage Rate: $86.93

Engineer - Steel Erection Oiler I

On a Truck Crane

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $50.91
Supplemental Benefit Rate per Hour: $29.66
Supplemental Note: $53.17 on overtime
Shift Wage Rate: $81.46

Engineer - Steel Erection Oiler II

On a Crawler Crane

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $39.04
Supplemental Benefit Rate per Hour: $29.66
Supplemental Note: $53.17 on overtime
Shift Wage Rate: $62.46

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

Preliminary

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: $51.62
Supplemental Benefit Rate per Hour: $29.66
Supplemental Note: $53.17 on overtime

Engineer - Building Work Maintenance Engineers II

On Pumps, Generators, Mixers and Heaters

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $40.34
Supplemental Benefit Rate per Hour: $29.66
Supplemental Note: $53.17 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: $49.12
Supplemental Benefit Rate per Hour: $29.66
Supplemental Note: $53.17 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: $36.75
Supplemental Benefit Rate per Hour: $29.66
Supplemental Note: $53.17 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.

Preliminary

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

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: $34.61
Supplemental Benefit Rate per Hour: $17.30

Instrument Person

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $28.59
Supplemental Benefit Rate per Hour: $17.30

Rodperson

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $24.79
Supplemental Benefit Rate per Hour: $17.30

Overtime Description

Overtime Benefit Rate - $23.63 per hour (time & one half) $29.95 per hour (double time).

Preliminary

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)

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: $53.64
Supplemental Benefit Rate per Hour: $26.95
Supplemental Note: Overtime Benefit Rate - $37.48 per hour (time & one half) $48.00 per hour (double time).

Field Engineer - BC Instrument Person

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $41.94
Supplemental Benefit Rate per Hour: $26.95
Supplemental Note: Overtime Benefit Rate - $37.48 per hour (time & one half) $48.00 per hour (double time).

Field Engineer - BC Rodperson

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $27.52
Supplemental Benefit Rate per Hour: $26.95
Supplemental Note: Overtime Benefit Rate - $37.48 per hour (time & one half) $48.00 per hour (double time).

Overtime Description

Preliminary

Time and one half the regular rate after a 7 hour work and time and one half the regular rate for Saturday for the t seven hours worked, Double time the regular time rate for Saturday for work performed in excess of seven ..ours, 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.)

Field Engineer - HC Party Chief

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $60.28
Supplemental Benefit Rate per Hour: $29.73
Supplemental Note: Overtime benefit rate - $41.40 per hour (time & one half), $53.06 per hour (double time).

Field Engineer - HC Instrument Person

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $44.28
Supplemental Benefit Rate per Hour: $29.73
Supplemental Note: Overtime benefit rate - $41.40 per hour (time & one half), $53.06 per hour (double time).

Field Engineer - HC Rodperson

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $37.11
Supplemental Benefit Rate per Hour: $29.73
Supplemental Note: Overtime benefit rate - $41.40 per hour (time & one half), $53.06 per hour (double time).

Overtime Description

Preliminary

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
Wage Rate per Hour: $54.50
Supplemental Benefit Rate per Hour: $26.95
Supplemental Note: Overtime benefit rate - $37.48 per hour (time & one half), $48.00 per hour (double time).

Field Engineer - Steel Erection Instrument Person

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $42.63
Supplemental Benefit Rate per Hour: $26.95
Supplemental Note: Overtime benefit rate - $37.48 per hour (time & one half), $48.00 per hour (double time).

Field Engineer - Steel Erection Rodperson

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $28.84
Supplemental Benefit Rate per Hour: $26.95
Supplemental Note: Overtime benefit rate - $37.48 per hour (time & one half), $48.00 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

Preliminary

Time and one half the regular rate after an 8 hour day.
uble time the regular rate for Sunday.
ouble 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
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)

fective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $72.34

Preliminary

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).

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

Preliminary

ective 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
pplemental Benefit Rate per Hour: $28.60
pplemental Note: $51.75 overtime hours
Shift Wage Rate: $91.94

Operating Engineer - Road & Heavy Construction XI

Compressors (Portable 3 or more in battery), Driving of Truck Mounted Compressors, Well-point Pumps, Tugger Machines Well Point Pumps, Churn Drill

Effective Period: 7/1/2013 - 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
hift Wage Rate: $106.32

Operating Engineer - Road & Heavy Construction XIII

Preliminary

Concrete Pumps, Concrete Plant, Well Drilling Machines, 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

Concrete Breaking Machines, Single Drum Hoists, 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

Preliminary

Supplemental Benefit Rate per Hour: $28.60
pplemental 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

perating 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

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

anes

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

Preliminary

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 and Fork Lifts.

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $70.50
Supplemental Benefit Rate per Hour: $28.60
Supplemental Note: $51.75 overtime hours
Shift Wage Rate: $112.80

Operating Engineer - Steel Erection III

Compressors, Welding Machines.

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $41.84
Supplemental Benefit Rate per Hour: $28.60

Preliminary

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, House Cars, Rack and Pinion, 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), House Car (settlement basis only), 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: $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
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

Preliminary

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

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
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
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.

Preliminary

(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
Presidents Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
1/2 day on Christmas Eve if work is performed in the A.M.
1/2 day on New Year's Eve if work is performed in the A.M.

Shift Rates
Two shifts may be utilized with the first shift working 8:00 A.M. to the end of the shift at the straight time of pay. The second shift will receive one hour at double time rate for the last hour of the shift. (eight for seven, nine for eight).

Preliminary

(Carpenters District Council)

LAZIER
(New Construction, Remodeling, and Alteration)

Glazier

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $40.50
Supplemental Benefit Rate per Hour: $33.24
Supplemental Note: Supplemental Benefit Overtime Rate: $41.24

Overtime Description
An optional 8th hour can be worked at straight time rate. If 9th hour is worked, then both hours or more (8th & 9th or more) will be at the double time rate of pay.

Overtime
Double time the regular rate after a 7 hour day.
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

Shift Rates
Shifts shall be any 7 hours beyond 4:00 P.M. for which the glazier shall receive 8 hours pay for 7 hours worked.

(Local #1281)

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

Preliminary

ite 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 - 6/30/2014
Wage Rate per Hour: $23.50
Supplemental Benefit Rate per Hour: $18.54

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

ocal #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
ouble time the regular rate for work on the following holiday(s).
ew Year's Day
Martin Luther King Jr. Day

Preliminary

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)

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: $33.00
Supplemental Benefit Rate per Hour: $24.15

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: $23.05
Supplemental Benefit Rate per Hour: $17.85

Preliminary

/ertime
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)

'ON WORKER - ORNAMENTAL

Iron Worker - Ornamental

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $41.50
Supplemental Benefit Rate per Hour: $39.52
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
emorial Day
dependence Day
Labor Day

Preliminary

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: $45.05
Supplemental Benefit Rate per Hour: $57.85
Supplemental Note: Supplemental benefits are to be paid at the applicable overtime rate when overtime is in effect.

Overtime Description
Monday through Friday- the first eight hours are paid at straight time, the 9th and 10th hours are paid at time and one-half the regular rate, all additional weekday overtime is paid at double the regular rate. Saturdays- the first eight hours are paid at time and one-half the regular rate, double time thereafter. Sunday-all shifts are paid at double time.

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays
1/2 day on Christmas Eve if work is performed in the A.M.

Preliminary

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.

ective 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).
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

hift Rates

Preliminary

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

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)

Preliminary

ective 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

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

Preliminary

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

Mason Tender

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $34.24
Supplemental Benefit Rate per Hour: $24.40

Overtime

Preliminary

Time and one half the regular rate after an 8 hour day.
ıe 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: $33.87
Supplemental Benefit Rate per Hour: $19.22

Mason Tender Tier B

On Interior Demolition job sites 33 1/3 % of the employees shall be classified as Tier A Interior Demolition Workers and 66 2/3 % shall be classified as Tier B Interior Demolition Workers; provided that the employer may employ more than 33 1/3 % Tier A Interior Demolition Workers on the job site. Where the number of employees on a job site is not divisible by 3, the first additional employee (above the number of employees divisible by three) shall be a Tier B Interior Demolition Worker, and the second additional employee shall be a Tier A Interior molition Worker.

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

Preliminary

Wage Rate per Hour: $23.07
Supplemental Benefit Rate per Hour: $13.53

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: $41.23
Supplemental Benefit Rate per Hour: $38.35
Supplemental Note: Supplemental benefits for overtime are paid at the appropriate overtime rate.

Overtime Description
Overtime would be time and one half the regular rate after a seven (7) or eight (8) hours workday, which would be set at the start of the job.

Overtime
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
Washington's Birthday
Good Friday
Memorial Day
Independence Day
Labor Day

Preliminary

Columbus Day
sidential Election Day
anksgiving 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 (½) hour for lunch. Off-Hour Start shall commence after 3:30 P.M. and shall conclude by 6:00 A.M. The first consecutive seven (7) hours shall be at straight time with a differential of twelve dollars ($12.00) per hour. Fringes shall be paid at the straight time rate.

(Local #46)

MILLWRIGHT

Millwright

ective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $46.19
Supplemental Benefit Rate per Hour: $45.67

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

aid Holidays

/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.

Preliminary

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
Labor Day
Columbus Day
Veteran's Day

Preliminary

Thanksgiving Day
y after Thanksgiving
ristmas Day

Paid Holidays
None

(Local #7)

PAINTER

Painter - Brush & Roller

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $37.50
Supplemental Benefit Rate per Hour: $25.12
Supplemental Note: $29.75 on overtime

Spray & Scaffold / Decorative / Sandblast

fective Period: 7/1/2013 - 6/30/2014
age Rate per Hour: $40.50
Supplemental Benefit Rate per Hour: $25.12
Supplemental Note: $29.75 on overtime

Overtime
Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays
Time and one half the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

District Council of Painters #9)

Preliminary

PAINTER - SIGN

Designer

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $36.15
Supplemental Benefit Rate per Hour: $9.66

Journeyperson

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)

Preliminary

PAINTER - STRIPER

Striper (paint)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $33.00

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: $37.00
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

Preliminary

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
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

Preliminary

Time and one half the regular rate after a 7 hour day.
ıe and one half the regular rate for Saturday.
ıne 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: $32.15

Paver & Roadbuilder - Laborer

Paving and road construction work, regardless of material used, including but not limited to preparation of job sites, removal of old surfaces, asphalt and/or concrete, by whatever method, including but not limited to milling; laying of concrete; laying of asphalt for temporary, patchwork, and utility paving (but not production paving); site preparation and incidental work before the installation of rubberized materials and similar surfaces; installation and repair of temporary construction fencing; slurry seal coating, maintenance of safety surfaces; play equipment installation, and other related work.

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $39.67
Supplemental Benefit Rate per Hour: $32.15

roduction Paver & Roadbuilder - Screed Person

Preliminary

(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: $32.15

Production Paver & Roadbuilder - Raker

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $44.61
Supplemental Benefit Rate per Hour: $32.15

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: $32.15

Overtime Description

Veteran's Day is a Paid Holiday for employees working on production paving.

If an employee works New Year's Day or Christmas Day, they receive the single time rate plus 15%, except if an employee works on production paving on New Year's Day or Christmas Day, they receive the single time rate plus one day's pay for the holiday worked.

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
Columbus Day
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.

Preliminary

)ht Work - On night work, the first eight (8) hours of work will be paid for at fifteen percent (15%) over the ngle time rate, except that production paving work shall be paid at 25% over the single time rate. 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 cond shift shall be allowed one-half (½) hour to eat with this time being included in the seven (7) hours of rk.

Preliminary

(Local #530)

PLASTERER - TENDER

Plasterer - Tender

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $34.24
Supplemental Benefit Rate per Hour: $24.40

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
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: $51.76

Preliminary

Supplemental Benefit Rate per Hour: $37.19
Supplemental Note: Overtime supplemental benefit rate per hour: $74.10

Overtime Description
Double time the regular rate after a 7 hour day - unless for new construction site work where the plumbing contract price is $1.5 million or less, the hours of labor can be 8 hours per day at the employers option. On Alteration jobs when other mechanical trades at the site are working an eighth hour at straight time, then the plumber shall also work an eighth hour at straight time.

Overtime
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Shift Rates
Shift work, when directly specified in public agency or authority documents where plumbing contract is $8 million or less, will be permitted. 30% shift premium shall be paid for wages and fringe benefits for 4:00 pm and midnight shifts Monday to Friday. 50% shift premium shall be paid for wages and fringe benefits for 4:00 pm and midnight shift work performed on weekends. For shift work on holidays, double time wages and fringe benefits shall be paid.

(Plumbers Local #1)

PLUMBER (MECHNICAL 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
One and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.

Preliminary

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
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

Preliminary

30% shift premium shall be paid for wages and fringe benefits for 4:00 pm and midnight shifts Monday to Friday. % shift premium shall be paid for wages and fringe benefits for 4:00 pm and midnight shift work performed on eekends. For shift work on holidays, double time wages and fringe benefits shall be paid.

(Plumbers Local #1)

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.

vertime 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)

Preliminary

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
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.

Preliminary

Time and one half the regular rate for Saturday.
e 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

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)

ANDBLASTER - 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
emorial Day
dependence Day
Labor Day

Preliminary

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)

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

Preliminary

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.

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 journeyperson 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.
One and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Preliminary

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

Preliminary

Shift Rates

One 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: $50.75
Supplemental Benefit Rate per Hour: $49.68
Supplemental Note: Overtime supplemental benefit rate: $98.62

Overtime

Double time the regular rate after a 7 hour day.
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays

Double time the regular rate for work on the following holiday(s):
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays

None

Shift Rates

Work performed between 3:30 P.M. and 7:00 A.M. and on Saturdays, Sundays and Holidays shall be at double time the regular hourly rate and paid at the overtime supplemental benefit rate above.

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.

Preliminary

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $50.75
Supplemental Benefit Rate per Hour: $49.68
Supplemental Note: Overtime supplemental benefit rate: $98.62

Overtime
Double time the regular rate after an 8 hour day.
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

Shift Rates
May be performed outside of the regular workday except Saturday, Sunday and Holidays. A shift shall consist of eight working hours. All work performed in excess of eight hours shall be paid at double time. No shift shall commence after 7:00 P.M. on Friday or 7:00 P.M. the day before holidays. All work performed after 12:01 A.M. Saturday or 12:01 A.M. the day before a Holiday will be paid at double time. When shift work is performed the wage rate for regular time worked is a thirty percent premium together with fringe benefits.

On Transit Authority projects, where work is performed in the vicinity of tracks all shift work on weekends and holidays may be performed at the regular shift rates.

Local #638

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: $36.30

Preliminary

Supplemental Benefit Rate per Hour: $11.76

Refrigeration and Air Conditioner Service Person V

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $29.82
Supplemental Benefit Rate per Hour: $10.71

Refrigeration and Air Conditioner Service Person IV

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $24.71
Supplemental Benefit Rate per Hour: $9.80

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: $21.21
Supplemental Benefit Rate per Hour: $9.12

efrigeration 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: $17.60
Supplemental Benefit Rate per Hour: $8.50

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: $10.95
Supplemental Benefit Rate per Hour: $7.90

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.

vertime Holidays

Double time the regular rate for work on the following holiday(s).

Preliminary

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

Preliminary

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
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

Preliminary

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

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

Preliminary

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: $38.44
Supplemental Benefit Rate per Hour: $27.42

Overtime
Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

Preliminary

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: $47.75
Supplemental Benefit Rate per Hour: $30.83

Overtime

Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Shift Rates

Off shift work day (work performed outside the regular 8:00 A.M. to 3:30 P.M. workday): shift differential of one and one quarter (1¼) times the regular straight time rate of pay for the seven hours of actual off-shift work.

(Local #7)

TIMBERPERSON

Timberperson

Preliminary

Effective Period: 7/1/2013 - 6/30/2014
ge Rate per Hour: $42.63
Supplemental Benefit Rate per Hour: $41.99

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
Off shift work, commencing between 5:00 P.M. and 10:00 P.M., shall work eight and one half hours but will be paid for 9 hours, including benefits at the straight time rate for 8 hours.

(Local #1536)

TUNNEL WORKER

Blasters, Mucking Machine Operators (Compressed Air Rates)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $52.00
Supplemental Benefit Rate per Hour: $46.85

Tunnel Workers (Compressed Air Rates)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $50.19
ıpplemental Benefit Rate per Hour: $45.29

Preliminary

Top Nipper (Compressed Air Rates)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $49.27
Supplemental Benefit Rate per Hour: $44.51

Outside Lock Tender, Outside Gauge Tender,Muck Lock Tender (Compressed Air Rates)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $48.37
Supplemental Benefit Rate per Hour: $43.67

Bottom Bell & Top Bell Signal Person: Shaft Person (Compressed Air Rates)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $48.37
Supplemental Benefit Rate per Hour: $43.67

Changehouse Attendant: Powder Watchperson (Compressed Air Rates)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $42.09
Supplemental Benefit Rate per Hour: $41.41

Blasters (Free Air Rates)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $49.62
Supplemental Benefit Rate per Hour: $44.75

Tunnel Workers (Free Air Rates)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $47.48
Supplemental Benefit Rate per Hour: $42.84

All Others (Free Air Rates)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $43.87
Supplemental Benefit Rate per Hour: $39.62

Microtunneling (Free Air Rates)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $37.98

Preliminary

Supplemental Benefit Rate per Hour: $34.27

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.

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.

Preliminary

OFFICE OF THE COMPTROLLER

CITY OF NEW YORK

220 APPRENTICESHIP PREVAILING WAGE SCHEDULE

APPENDIX

Preliminary

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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Preliminary

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)

Preliminary

ective Period: 7/1/2013 - 12/31/2013
age 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: $31.91

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 rat
Supplemental Benefit Rate Per Hour: $33.49

ective Period: 1/1/2014 - 6/30/2014
age Rate Per Hour: 80% of Journeyperson's rat
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

oilermaker (Fourth Year: 2nd Six Months)

Preliminary

Effective Period: 7/1/2013 - 12/31/2013
Wage Rate Per Hour: 95% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $38.20

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)

Preliminary

ective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 95% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $16.60

(Bricklayer District Council)

CARPENTER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Carpenter (First Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $27.69

Carpenter (Second Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $27.69

Carpenter (Third Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $27.69

Carpenter (Fourth Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $27.69

(Carpenters District Council)

CEMENT MASON
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Cement Mason (First Year)

Preliminary

Effective Period: 7/1/2013 - 6/30/2014
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's Rate

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: $17.54

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: $18.37

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: $23.75

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: $24.57

Preliminary

(Cement Concrete Workers District Council)

DERRICKPERSON & RIGGER (STONE)
(Ratio of Apprentice to Journeyperson: 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 Journeyperson's rate
Supplemental Benefit Rate Per Hour: 50% of Journeyperson's rate

Derrickperson & Rigger (stone) - Second Year: 1st Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: 75% of Journeyperson's rate

Derrickperson & Rigger (stone) - Second Year: 2nd Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: 75% of Journeyperson's rate

Derrickperson & Rigger (stone) - Third Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: 75% of Journeyperson's rate

(Local #197)

DOCKBUILDER/PILE DRIVER
(Ratio of Apprentice to Journeyperson: 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 Journeyperson's rate
Supplemental Benefit Rate Per Hour: $27.69

Preliminary

Dockbuilder/Pile Driver (Second Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $27.69

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: $27.69

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: $27.69

(Carpenters District Council)

ELECTRICIAN
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Electrician (First Year - Hired before 5/10/07)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: $15.25
Supplemental Benefit Rate per Hour: $12.22
Overtime Wage Rate Per Hour: $22.88
Overtime Supplemental Rate Per Hour: $13.23

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $15.25
Supplemental Benefit Rate per Hour: $12.47
Overtime Wage Rate Per Hour: $22.88
Overtime Supplemental Rate Per Hour: $13.48

Electrician (First Year - Hired on or After 5/10/07)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: $12.50
Supplemental Benefit Rate per Hour: $10.83
Overtime Wage Rate Per Hour: $18.75
Overtime Supplemental Rate Per Hour: $11.65

Preliminary

ective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $12.50
Supplemental Benefit Rate per Hour: $11.08
Overtime Wage Rate Per Hour: $18.75
Overtime Supplemental Rate Per Hour: $11.90

Electrician (Second Year - Hired before 5/10/07)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: $18.05
Supplemental Benefit Rate per Hour: $13.64
Overtime Wage Rate Per Hour: $27.08
Overtime Supplemental Rate Per Hour: $14.83

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $18.05
Supplemental Benefit Rate per Hour: $13.89
Overtime Wage Rate Per Hour: $27.08
Overtime Supplemental Rate Per Hour: $15.08

Electrician (Second Year - Hired on or After 5/10/07)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: $14.50
Supplemental Benefit Rate per Hour: $11.84
Overtime Wage Rate Per Hour: $21.75
Overtime Supplemental Rate Per Hour: $12.80

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $14.50
Supplemental Benefit Rate per Hour: $12.09
Overtime Wage Rate Per Hour: $21.75
Overtime Supplemental Rate Per Hour: $13.05

Electrician (Third Year - Hired before 5/10/07)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: $20.15
Supplemental Benefit Rate per Hour: $14.70
Overtime Wage Rate Per Hour: $30.23
Overtime Supplemental Rate Per Hour: $16.03

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $20.15
Supplemental Benefit Rate per Hour: $14.95
Overtime Wage Rate Per Hour: $30.23
Overtime Supplemental Rate Per Hour: $16.28

Preliminary

Electrician (Third Year - Hired on or After 5/10/07)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: $16.50
Supplemental Benefit Rate per Hour: $12.85
Overtime Wage Rate Per Hour: $24.75
Overtime Supplemental Rate Per Hour: $13.94

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $16.50
Supplemental Benefit Rate per Hour: $13.10
Overtime Wage Rate Per Hour: $24.75
Overtime Supplemental Rate Per Hour: $14.19

Electrician (Fourth Year - Hired before 5/10/07)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: $22.10
Supplemental Benefit Rate per Hour: $15.69
Overtime Wage Rate Per Hour: $33.15
Overtime Supplemental Rate Per Hour: $17.14

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $22.10
Supplemental Benefit Rate per Hour: $15.94
Overtime Wage Rate Per Hour: $33.15
Overtime Supplemental Rate Per Hour: $17.39

Electrician (Fourth Year - 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: $13.87
Overtime Wage Rate Per Hour: $27.75
Overtime Supplemental Rate Per Hour: $15.08

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $18.50
Supplemental Benefit Rate per Hour: $14.12
Overtime Wage Rate Per Hour: $27.75
Overtime Supplemental Rate Per Hour: $15.33

Electrician (Fifth Year - Hired before 5/10/07)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: $25.80
Supplemental Benefit Rate per Hour: $19.15
Overtime Wage Rate Per Hour: $38.70
Overtime Supplemental Rate Per Hour: $20.77

PRELIMINARY

ctive Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $26.30
Supplemental Benefit Rate per Hour: $19.90
Overtime Wage Rate Per Hour: $39.45
Overtime Supplemental Rate Per Hour: $21.55

Electrician (Fifth Year - 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: $17.25
Overtime Wage Rate Per Hour: $33.00
Overtime Supplemental Rate Per Hour: $18.63

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $22.50
Supplemental Benefit Rate per Hour: $18.00
Overtime Wage Rate Per Hour: $33.75
Overtime Supplemental Rate Per Hour: $19.41

Overtime Description
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

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

Preliminary

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

(Local #1)

ENGINEER
atio of Apprentice to Journeyperson: 1 to 1, 1 to 5)

Engineer - First Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $21.64
Supplemental Benefit Rate per Hour: $20.07

Engineer - Second Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $27.05
Supplemental Benefit Rate per Hour: $20.07

Engineer - Third Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $29.75
Supplemental Benefit Rate per Hour: $20.07

ngineer - Fourth Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $32.45
Supplemental Benefit Rate per Hour: $20.07

(Local #15)

Preliminary

ENGINEER - OPERATING
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 5)

Operating Engineer - First Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour 40% of Journeyperson's Rate
Supplemental Benefit Per Hour: $18.60

Operating Engineer - Second Year

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

Wage Rate Per Hour: 50% of Journeyperson'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 Journeyperson's Rate
Supplemental Benefit Per Hour: $18.60

(Local #14)

FLOOR COVERER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Floor Coverer (First Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 40% of Journeyperson'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 Journeyperson'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 Journeyperson'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 Journeyperson's rate
Supplemental Rate Per Hour: $25.75

(Carpenters District Council)

Preliminary

GLAZIER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Glazier (First Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 40% of Journeyperson'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 Journeyperson's rate
Supplemental Rate Per Hour: $21.13

Glazier (Third Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $23.54

Glazier (Fourth Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $28.34

(Local #1281)

HEAT & FROST INSULATOR
(Ratio of Apprentice to Journeyperson: 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 Journeyperson's rate

Heat & Frost Insulator (Second Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Preliminary

Heat & Frost Insulator (Third Year)

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: $20.06
Supplemental Benefit Rate per Hour: $15.45

House Wrecker - Second Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $21.06
Supplemental Benefit Rate per Hour: $15.45

House Wrecker - Third Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $22.56
Supplemental Benefit Rate per Hour: $15.45

House Wrecker - Fourth Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $25.06
Supplemental Benefit Rate per Hour: $15.45

(Local #79)

Preliminary

IRON WORKER - ORNAMENTAL
(Ratio of Apprentice to Journeyperson: 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 Journeyperson's rate
Supplemental Rate Per Hour: $32.06

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 Journeyperson's rate
Supplemental Rate Per Hour: $32.89

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 Journeyperson's rate
Supplemental Rate Per Hour: $33.73

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 Journeyperson's rate
Supplemental Rate Per Hour: $35.39

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 Journeyperson's rate
Supplemental Rate Per Hour: $36.22

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 Journeyperson's rate
Supplemental Rate Per Hour: $37.89

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 Journeyperson's rate
Supplemental Rate Per Hour: $30.40

Preliminary

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 Journeyperson's rate
Supplemental Rate Per Hour: $31.23

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: $32.06

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: $33.73

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: $35.39

(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: $23.62
Supplemental Benefit Rate per Hour: $41.21

Iron Worker (Structural) - 7- 18 Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $24.22
Supplemental Benefit Rate per Hour: $41.21

Iron Worker (Structural) - 19 - 36 months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $24.82
Supplemental Benefit Rate per Hour: $41.21

(Local #40 and #361)

LABORER (FOUNDATION, CONCRETE, EXCAVATING, STREET PIPE LAYER & COMMON)
(Ratio Apprentice to Journeyperson: 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 Journeyperson'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 Journeyperson'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 Journeyperson'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 Journeyperson's rate
Supplemental Rate Per Hour: $33.25

(Local #731)

MARBLE MECHANICS
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Cutters & Setters - 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)

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

Preliminary

olishers & 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

(Local #7)

MASON TENDER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Mason Tender - First Year

Effective Period: 7/1/2013 - 6/30/2014
ıge Rate per Hour: $20.33
Supplemental Benefit Rate per Hour: $16.16

Mason Tender - Second Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $21.33
Supplemental Benefit Rate per Hour: $16.16

Mason Tender - Third Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $22.83
Supplemental Benefit Rate per Hour: $16.16

Mason Tender - Fourth Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $25.33
Supplemental Benefit Rate per Hour: $16.16

ɔcal #79)

Preliminary

METALLIC LATHER
(Ratio of Apprentice to Journeyperson: 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: $27.91
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: $32.51
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: $37.57
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: $22.71
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: $27.71
Supplemental Benefit Rate per Hour: $19.85

(Local #46)

Preliminary

LLWRIGHT
(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: $25.40
Supplemental Benefit Rate per Hour: $28.67

Millwright (Second Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $30.02
Supplemental Benefit Rate per Hour: $31.87

Millwright (Third Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $34.64
Supplemental Benefit Rate per Hour: $36.19

illwright (Fourth Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $43.88
Supplemental Benefit Rate per Hour: $41.50

(Local #740)

Preliminary

PAVER AND ROADBUILDER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Paver and Roadbuilder - First Year (Minimum 1000 hours)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $25.72
Supplemental Benefit Rate per Hour: $15.75

aver and Roadbuilder - Second Year (Minimum 1000 hours)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $27.29
Supplemental Benefit Rate per Hour: $15.75

(Local #1010)

PAINTER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Painter - Brush & Roller - First Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $14.40
Supplemental Benefit Rate per Hour: $10.88

Painter - Brush & Roller - Second Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $18.00
Supplemental Benefit Rate per Hour: $14.73

Painter - Brush & Roller - Third Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $21.60
Supplemental Benefit Rate per Hour: $17.64

Painter - Brush & Roller - Fourth Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $28.80
Supplemental Benefit Rate per Hour: $23.02

(District Council of Painters)

PAINTER - STRUCTURAL STEEL
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

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

Preliminary

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: $17.96
Supplemental Benefit Rate per Hour: $16.25

Plumber - Third Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $20.06
Supplemental Benefit Rate per Hour: $16.25

Plumber - Fourth Year

PRELIMINARY

Effective Period: 7/1/2013 - 6/30/2014
ge Rate per Hour: $22.91
Supplemental Benefit Rate per Hour: $16.25

Plumber - Fifth Year: 1st Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $24.31
Supplemental Benefit Rate per Hour: $16.25

Plumber - Fifth Year: 2nd Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $36.38
Supplemental Benefit Rate per Hour: $16.25

(Plumbers Local #1)

POINTER - WATERPROOFER, CAULKER MECHANIC (EXTERIOR BUILDING RENOVATION)

atio 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

Preliminary

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $38.66
Supplemental Benefit Rate per Hour: $11.34

(Bricklayer District Council)

ROOFER
(Ratio of Apprentice to Journeyperson: 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 Journeyperson's Rate

Roofer - Second Year

Effective Period: 7/1/2013 - 6/30/2014
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's Rate

Roofer - Third Year

Effective Period: 7/1/2013 - 6/30/2014
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's Rate

Roofer - Fourth Year

Effective Period: 7/1/2013 - 6/30/2014
Wage and Supplemental Rate Per Hour: 75% of Journeyperson's Rate

(Local #8)

SHEET METAL WORKER
(Ratio of Apprentice to Journeyperson: 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 Journeyperson's rate
Supplemental Rate Per Hour: $15.37

Preliminary

ıeet Metal Worker - Second Year

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)

Preliminary

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

Preliminary

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

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

Preliminary

Wage Rate and Supplemental Rate Per Hour: 85% of Journeyperson's rate.

(Local #638)

STONE MASON - SETTER
(Ratio Apprentice of Journeyperson: 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 Journeyperson's rate

Stone Mason - Setters - Second 750 Hours

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Third 750 Hours

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Fourth 750 Hours

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Fifth 750 Hours

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Sixth 750 Hours

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 100% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

(Bricklayers District Council)

Preliminary

TAPER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Drywall Taper - First Year

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

Preliminary

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

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: $27.49

Timberperson - Second Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $27.49

Timberperson - Third Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: $27.49

Timberperson - Fourth Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $27.49

(Local #1536)

PRELIMINARY

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.

Exemptions: Business Improvement Districts and employers with manufacturing operations at the premises to which the financial assistance pertains.

Preliminary

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: Wasyl Kirach, ESQ., Office of the Comptroller, 1 Centre Street, Room 1122, New York, N.Y. 10007; Fax (212) 669-4092.

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.

Preliminary

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 (oprime "Oficina de Derecho Laboral").

Wasyl Kinach, P.E.
Director of Classifications
Bureau of Labor Law

Preliminary

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Preliminary

BOILER SERVICEPERSON/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)

Preliminary

BUILDING CLEANER AND MAINTAINER (OFFICE)

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.

Preliminary

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

Preliminary

NEW HIRE: Cleaner/Porter, Elevator Operator, Exterminator, Fire Safety Director may be paid 75% of the wage rate above for the first 21 months of employment, 85% of the wage rate above for the 22nd through 42nd months of employment, and upon the completion of 42 months of employment employee shall be paid the full wage rate. Note: New Hires hired before January 1, 2012 will continue to receive 80% of the wage rate above for the first 30 months, and upon the completion of 30 months of employment employee shall be paid the full wage rate. Upon completion of two years of employment the new hire receives the full supplemental benefit rate.

Office Building Class "C" Handyperson (Less than 120,000 square feet gross area)

Effective Period: 7/1/2013 - 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

Preliminary

NEW HIRE: Cleaner/Porter, Elevator Operator, Exterminator, Fire Safety Director may be paid 75% of the wage 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.

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)

Preliminary

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 - $9.75

Residential Building Class "A" Cleaner/Porter

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: $9.75
Supplemental Note: for new employee 0-12 months of employment - $7.13; for new employee 13-24 months of employment - $9.50

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" Handyperson

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 - $9.75

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.

Preliminary

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
Wage Rate per Hour: $21.28
Supplemental Benefit Rate per Hour: $9.75
Supplemental Note: for new employee 0-12 months of employment - $7.13; for new employee 13-24 months of employment - $9.50

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 - $9.75

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: $9.75

Preliminary

Supplemental Note: for new employee 0-12 months of employment - $7.13; for new employee 13-24 months of employment - $9.50

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

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)

Preliminary

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

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
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

Preliminary

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $11.18
Supplemental Benefit Rate per Hour: $1.68
(The above rates are preliminary and are subject to change on July 1 based upon anticipated data to be published by the New York State Department of Labor)

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)

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

Preliminary

Overtime

T[illegible] and one half the regular rate after an 8 hour day.
[illegible] and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
Martin Luther King Jr. Day
Lincoln's Birthday
Washington's Birthday
Memorial Day
Independence Day
Labor Day
Columbus Day
Election Day
Veteran's Day

Triple time the regular rate for work on the following holiday(s).
New Year's Day
Thanksgiving Day
Christmas Day

Paid Holidays

New Year's Day
Martin Luther King Jr. Day
Lincoln's Birthday
[illegible]hington's Birthday
[illegible]morial 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

[illegible]ardener

Preliminary

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $17.04
Supplemental Benefit Rate per Hour: $1.68
(The above rates are preliminary and are subject to change on July 1 based upon anticipated data to be published by the New York State Department of Labor)

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)

LOCKSMITH

Locksmith

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $21.46
Supplemental Benefit Rate per Hour: $6.12
(The above rates are preliminary and are subject to change on July 1 based upon anticipated data to be published by the New York State Department of Labor)

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

Preliminary

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
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)

Preliminary

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: $23.11
Supplemental Benefit Rate per Hour: $4.46

(The above rates are preliminary and are subject to change on July 1 based upon anticipated data to be published by the New York State Department of Labor)

Light Truck Driver

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $18.08
Supplemental Benefit Rate per Hour: $4.46
(The above rates are preliminary and are subject to change on July 1 based upon anticipated data to be published by the New York State Department of Labor)

Laborer and Freight, Stock, and Material Movers, Hand

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $17.68
Supplemental Benefit Rate per Hour: $4.46
(The above rates are preliminary and are subject to change on July 1 based upon anticipated data to be published by the New York State Department of Labor)

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)

REFUSE REMOVER

Refuse Remover

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $27.62
Supplemental Benefit Rate per Hour: $4.46
(The above rates are preliminary and are subject to change on July 1 based upon anticipated data to be published by the New York State Department of Labor)

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)

Preliminary

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

New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas 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)

Preliminary

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

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

Preliminary

Security Guard (Unarmed) 25 - 30 months

ctive 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.

Preliminary

Overtime Description

ard who works a holiday is paid the regular rate plus receives the paid holiday.
pplemental Benefits shall be paid for each hour paid, up to forty (40) paid hours per week.

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular hourly rate after 40 hours in any work week.

Paid Holidays

New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

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

k 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

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

Preliminary

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
Wage Rate per Hour: $25.44
Supplemental Benefit Rate per Hour: $9.91

Preliminary

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)

Preliminary

SECTION 01000

GENERAL CONDITIONS

APPLICABLE TO ALL CONTRACTS

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The ADDENDUM TO THE GENERAL CONDITIONS is contained in Volume 3 of the Contract Documents. Volume 3 contains the following:

- Addendum to the General Conditions
- Specifications

SECTION 01000
GENERAL CONDITIONS

PART 1 - GENERAL

1.01 Applicability of General Conditions

A. Since there are several separate Contracts pertaining to the construction of this project, for convenience, the General Conditions are stated only once. These General Conditions are applicable to all Contracts and shall constitute an integral part of each separate Contract to the same extent as though they were repeated in full therein.

B. The Contractor is advised that various sections of these General Conditions are amended by the Addendum to the General Conditions. This Addendum also includes various schedules referred to in these General Conditions (Schedules A through F). These schedules contain important information that is specific to this project. The Addendum, including Schedules A through F, is set forth in Volume 3 of the Contract Documents.

C. Throughout these General Conditions, various responsibilities and obligations are assigned to each of the following four Contractors: (1) General Construction, (2) Plumbing, (3) Heating/Ventilating/Air-Conditioning/Fire Protection, and (4) Electrical. In the event the Project does not involve all four Contracts, the responsibilities and obligations of each omitted Contract shall be assigned to one of the Contracts which is included in the Project. The Addendum to the General Conditions specifies which Contractor shall perform the responsibilities and obligations of each omitted contract, as set forth in the General Conditions.

1.02 Scope and Intent

A. DESCRIPTION OF PROJECT - Refer to the Addendum to the General Conditions for a description of this project.

B. PROGRESS SCHEDULE

1. Within 15 days after the Notice to Proceed, the Contractor for General Construction Work shall prepare a composite Job Progress Chart that shall indicate graphically and chronologically the time the various parts of the work of all Contracts shall commence and be completed. The Chart shall be in a reproducible form approved by the Commissioner.

2. Immediately after the Notice to Proceed of their Contracts, the Contractors for Plumbing Work, Heating, Ventilating and Air Conditioning Work (HVAC) and Electrical Work, as applicable, shall furnish all necessary data to the Contractor for General Construction Work, and cooperate in all respects in connection with formulation of the Chart.

3. The Chart shall show the sequence and interrelationship of each operation of all the Contracts.

4. The Chart shall show the estimated time for fabrication and/or delivery of all materials and equipment required for the work.

5. As directed by the Resident Engineer, the Contractors shall meet with each other and with the Resident Engineer to review and make the necessary adjustments to the composite Job Progress Chart, and to coordinate the work indicated thereon. (Article 12 of the Contract).

6. When completed, the Job Progress Chart shall be signed and dated by each Contractor or their official representative. The Resident Engineer is authorized to sign the Chart for the Department of Design and Construction. Thereafter, the Chart shall be modified only with the Commissioner's approval. When directed by the Commissioner, the Chart shall be revised and updated. If necessary, a new revised Chart shall be prepared in the same manner as outlined above for the original Chart.

7. The approved Chart shall be distributed by the Contractor for General Construction Work, as follows: the original and two (2) copies to the Resident Engineer, two (2) copies to each Contractor, and two (2) copies to the Department of Design and Construction

8. All Contractors shall consult the approved Progress Chart and install their work within the time limits indicated on the Chart.

9. The Resident Engineer shall post in a prominent place in the field office a copy of the Chart and mark thereon the progress of the work, including the times when various parts of the work commenced and were completed.

C. COMPLETION OF WORK - Work to be done under each separate Contract comprises the furnishing of all labor, materials, equipment and other appurtenances and obtaining of all regulatory agency approvals necessary and required to complete the construction work in accordance with the Contract.

D. OMISSION OF DETAILS - All work called for in the Specifications applicable to each separate 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. Such work is deemed included in the Bid Price.

E. 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. Such work is deemed included in the Bid Price.

F. 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.

G. 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 on 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.

H. COOPERATION BETWEEN CONTRACTORS - Inasmuch as the completion of the project within the prescribed limit of time is dependent largely upon the close and active cooperation of all those engaged therein, it is therefore expressly understood and agreed that the Contractor shall lay out and install all work at such time or times and in such manner as not to delay or interfere with the carrying forward of the work of other Contractors. In the event of any dispute arising as to possible or alleged interference between the various Contractors which may retard the progress of the work, the dispute shall be adjudicated by the Commissioner, whose decision as to the party or parties at fault and as to the manner in which the matter may be adjudicated, shall be binding and conclusive on all parties.

I. "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.

J. "APPROVED," ETC. - "Approved," "acceptable," "satisfactory," and words of similar import shall mean and intend approved, acceptable or satisfactory to the Commissioner.

K. CONFLICTS OF INTERESTS - The Charter of the City of New York, Section 2604, provides a number of safeguards in relation to conflicts of interest. Such safeguards include, without limitation, the following: "No public servant shall receive compensation except from the City for performing any official duty or accept or receive any gratuity from any person whose interest may be affected by the

public servant's official action."

1. Other sections of the City Charter, the Administrative Code and the Penal Law are applicable in implementing the basic Conflicts of Interest Section and under certain circumstances penalties may be invoked against the donor as well as the recipient of any form of valuable gift.

2. Notice is hereby given that sections of the City Charter, the Administrative Code and the Penal Law alluded to herein shall apply under the terms of this Contract to circumstances relevant to conflicts of interest and shall be extended in application to subcontractors authorized to perform work, labor and services pursuant to this Contract and further, it shall be the duty and responsibility of the Contractors to so inform their respective subcontractors.

1.03 Provisions Referenced in the Contract

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 to the General Conditions, sets forth 1) the referenced Articles of the Contract, and 2) the specific requirements applicable to each respective Contract.

B. 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 therefor.

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 and Specifications, the Contractor shall remove and replace, at Contractor's own cost, such defective or improperly incorporated material with materials complying with the Contract and Specifications. 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 Contract 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 therefor 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. EXCISE AND TRANSPORTATION TAXES- Pursuant to Section 6 of the "Information for Bidders", the Contractor may be exempted from the payment of Federal Excise and Transportation Taxes in accord with the following:

1. Excise Tax Exemption Certificate will be certified by the Department of Design and Construction where requested by the Contractor, for items which fall within the scope of the Contract and which may be exempt from Federal Excise Tax.

2. TRANSPORTATION TAX - The 3% Federal Tax has been repealed and is hereby deleted from the Contract. The 10% Federal Tax for travel remains in effect.

E. CORRESPONDENCE - There shall be six (6) copies of all letters of correspondence to the Department of Design and Construction. An additional copy of all correspondence shall be sent directly to the Resident Engineer at the job site.

F. MOBILIZATION PAYMENT - A line item for mobilization shall be allowed on the Contractor's Detailed Estimate 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 Estimate 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			= $	6,000				
$ 100,001 - $	500,000	x	6	= $	6,000	(min) - $	30,000	(max)	

$ 500,001 -	$ 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.

1.04 Contract Drawings

A. SCHEDULE C - The Contract Drawings are listed in Schedule C, which is set forth in the Addendum to the General Conditions. Such drawings referred to in the Contract, and in the applicable Specifications for the various Contracts bear the general title:

City of New York
Department of Design and Construction
Division of Structures

B. DOCUMENTS FURNISHED TO THE CONTRACTOR - After the award of the Contract, the Contractor for General Construction Work will be furnished with five (5) sets of paper prints of all Contract Drawings mentioned in Paragraph A above.

C. PRINTS **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

Each Contractor, other than the Contractor for General Construction Work referred to in Paragraph B, will receive two (2) sets of paper prints of all Drawings listed in Paragraph A and three (3) sets of paper prints of all Contract Drawings applying directly to each Contractor's own Contract.

D. Each Contractor will receive nine (9) complete sets of Specifications.

E. ADDITIONAL COPIES of Drawings and Specifications, when requested, will be furnished to the Contractor if available.

F. COORDINATION AND COOPERATION - Since the Contracts are all related to the project, the Contractor shall consult and study the requirement of the Contract Drawings and Specifications of all Contracts furnished to the Contractor, 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.

G. 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.

H. COMPENSATION - Where Supplementary Drawings entail extra work, compensation therefor 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.

I. SUPPLEMENTARY DRAWING PRINTS - Three (3) copies of prints of these Supplementary Drawings will be furnished to the Contractor.

J. 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.

K. 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.

1.05 Shop Drawings and Record Drawings

A. SHOP DRAWINGS

1. SUBMISSION OF SHOP DRAWINGS - For instructions relative to Shop Drawings involving electrical or mechanical work or equipment of any nature called for in any Contract, see the General Electrical Requirements and the General Mechanical Requirements.

2. SHOP DRAWINGS - The Contractor shall promptly prepare and submit layout detail and Shop Drawings of such parts of the work as are indicated in the Specifications 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 preferably be on sheets of the same size as the Contract Drawings, 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 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 thicknesses and finishes.

   e. All other information 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 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.

NOTE: In addition to the above requirements, the Shop Drawings shall bear a stamp having the following wording:

FIELD MEASUREMENTS - The Contractor certifies that it has verified and supplemented the Contract Drawings by taking all required field measurements, that said measurements correctly reflect all field conditions and that this Shop Drawing incorporates said measurements.

6. THE SUBMISSION OF SHOP DRAWINGS - The Shop Drawings shall be accompanied by a letter of transmittal, in triplicate, containing the name of the Project, the name of the Contractor, the number of Drawings, titles and any other requirements. Re-submission of the same drawings shall bear the original number of the drawings and the original titles.

7. PRELIMINARY SUBMISSION - The Contractor shall submit one (1) set of sepia Shop Drawings to the Consultant Architect/Engineer for their approval. A satisfactory Shop Drawing will be stamped "Approved", be dated and one (1) copy thereof will be returned to the Contractor by letter. Should the Shop Drawing not be approved by the Consultant Architect/Engineer, the Commissioner will return the sepia Shop Drawings with the necessary corrections and changes to be made as indicated thereon.

8. REVISIONS - The Contractor must make such corrections and changes and again submit one (1) set of sepia drawings for the approval of the Consultant Architect/Engineer. The Contractor shall revise and resubmit the Shop Drawing as required by the Consultant Architect/Engineer until approval thereof is obtained. However, Shop Drawings which have been stamped "Approved As Noted" shall be considered an "Approved" Shop Drawing and NEED NOT be revised and resubmitted.

No work called for by the Shop Drawings shall be done until the approval of the said drawings by the Consultant Architect/Engineer is given. In addition to the foregoing Shop Drawing transmissions, a copy of any Shop Drawing prepared by any of the Contractors which Shop Drawing indicated work related to, adjacent to, impinging upon, or affecting work to be done by other Contractors, shall be transmitted to the Contractors so affected. These approved Shop Drawings shall be delivered to the Resident Engineer for distribution to the affected Contractors at the job meetings and shall be so recorded in the minutes.

9. FINAL SUBMISSION - When approval of any Shop Drawing is obtained by the Contractor, it shall insert the date of the approval of the drawing and promptly furnish the Consultant Architect/Engineer with eight (8) additional prints of the approved Drawings. No work called for by the Shop Drawings shall be performed until the approval of the said drawings by the Commissioner is given. In addition to the foregoing Shop Drawing transmissions, a copy of any Shop Drawing prepared by any of the Contractors which indicates work related to, adjacent to, impinging upon, or affecting work to be done by other Contractors, shall be transmitted to the Contractors so affected. These approved Shop Drawings shall be delivered to the Resident Engineer for distribution to the affected Contractors at the job meetings and shall be so recorded in the minutes.

10. 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. Approval of the Shop Drawings shall constitute approval of the subject matter thereof only and not of any structural apparatus shown or indicated.

11. CATALOGUE CUTS - Except as otherwise prescribed herein, the submission of catalogue cuts shall conform to the procedures specified for Shop Drawings.

    a. PRELIMINARY SUBMISSION - The Contractor shall submit three (3) sets of catalogue cuts to the Consultant Architect/Engineer to approve. A satisfactory catalogue cut will be stamped

"Approved", be dated and one (1) copy thereof will be returned to the Contractor by letter. Should the catalogue cut not be approved by the Commissioner, the Commissioner will return one (1) set of such catalogue cuts with the necessary corrections and changes to be made indicated thereon.

b. REVISIONS - The Contractor shall make such corrections and changes and again submit four (4) sets of the catalogue cuts, in duplicate, for the approval of the Commissioner. The Contractor shall revise and resubmit the catalogue cuts as required by the Consultant Architect/Engineer until approval thereof is obtained.

However, catalogue cuts which have been stamped "Approved As Noted" shall be considered an "Approved" catalogue cut and need not be revised and resubmitted.

c. FINAL SUBMISSION - When approval of any catalogue cut is obtained by the Contractor, it shall insert the date of the approval and promptly furnish the Consultant Architect/Engineer with four (4) additional sets of the approved catalogue cuts.

12. RESPONSIBILITY OF 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.

13. SHOP DRAWINGS AND MATERIAL SAMPLES SCHEDULE – The Shop Drawings and Material Samples Schedule is set forth in Schedule F, which is included in the Addendum to the General Conditions. Completion of this Schedule shall be in accordance with Article 1.41 (A) of these General Conditions.

14. PROCEDURE FOR PREPARING, FORWARDING, CHECKING AND RETURN - of all Shop Drawings shall be, generally, as follows:

The Contractor shall make available to its subcontractors the necessary Contract Documents and have them determine dimensions and conditions in the field, particularly with reference to coordination with other trades or work under other Contractors. The Contractor shall direct its subcontractors to prepare Shop Drawings for submission to the Consultant Architect/Engineer 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:

a. Review and be responsible to the Commissioner, or the Commissioner's authorized representative, for information shown on subcontractor's Shop and Installation drawings and manufacturers' date, and also for conformity to Contract Documents.

b. "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.

c. Clearly designate which trade 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 Consultant Architect/Engineer.

d. Stamp submissions "Recommended for Approval", date and forward to the Commissioner or the Commissioner's authorized representative.

In order to expedite Shop Drawing procedures, the Contractor shall write a Shop Drawing status letter directly to the Consultant Architect/Engineer, each week, containing the following subject matter:

(1) A list of all Shop Drawings which have been sent to but not returned by the Architect or Engineer giving name of the subcontractor, drawing number, title and date of submission.

(2) An indication of the desired priority of the return, if necessary.

NOTE: The status letter shall be prepared and sent at a given time each week, preferably Friday afternoon, to enable the Consultant Architect/Engineer to receive the letter on Monday morning. This procedure shall be maintained throughout the active Shop Drawing period of construction.

B. INTEGRATED DRAWINGS **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

1. The Contractor for General Construction Work shall provide to the Contractor for Heating, Ventilating and Air Conditioning Work reflected ceiling starting points or plans, beam soffit elevations, ceiling heights, roof openings, etc.

2. The Contractor for Heating, Ventilating and Air Conditioning Work shall prepare a drawing or drawings showing ductwork, heating and sprinkler piping. This drawing shall include location of grilles, registers, etc. and access doors in hung ceilings. Locations shall be fixed by elevations and dimensions from column center lines and/or walls.

3. The Contractor for Heating, Ventilating and Air Conditioning Work shall prepare and distribute to each of the other Contractors, the Resident Engineer and to the Consultant Architect a sepia of the above.

4. The Contractor for General Construction Work shall lay out on its sepia, the reflected ceiling plan, beam soffit elevations, ceiling heights, roof openings, etc.

5. The Contractor for Plumbing Work shall lay out its piping, valves, cleanouts, etc., indicating locations and elevations and shall indicate the necessary access doors.

6. The Contractor for Electrical Work shall indicate its fixtures, large conduit runs, clearances, pull boxes, junction boxes, sound system speakers, etc.

7. The Resident Engineer will call as many meetings with the Contractors as are necessary to resolve any conflicts that become apparent. The Resident Engineer will call on the services of the Consultant Engineer or Architect where necessary. The Resident Engineer is responsible for the coordination of the Contract Drawings.

8. Upon resolution of the conflicts, each Contractor shall enter its own work on the Resident Engineer's sepia, which will become the Master or Integrated Drawing. The Master Sepia shall be signed by each Contractor to indicate its acceptance of the arrangement of the work.
9. A reproducible copy of the Master Integrated Drawing or Drawings will be prepared and distributed by the Contractor for Heating, Ventilating and Air Conditioning Work to each Contractor and to the Consultant Architect for information.

10. Each Contractor shall prepare its Shop Drawings in accordance with the Integrated Drawings. No work will be permitted without approved Shop Drawings. It is therefore essential that this procedure be instituted as quickly as possible.

11. Contractors shall be held strictly accountable for cooperation in preparing the Integrated Drawing or Drawings.

C. RECORD DRAWINGS

1. The Department of Design and Construction, at the start of construction (kick-off meeting), will furnish to each Contractor at no cost a complete set of Contract Document mylars pertaining to the work to be performed under its Contract. It is the responsibility of each 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 drawings if necessary such as Addenda Drawings and Supplementary Drawings as may be necessary to indicate all work in detail as actually completed.

   NOTE TO CONTRACTOR: All professional seals must be blocked out. Title box complete with project title and Consultants' names will remain.

2. Each Contractor shall maintain, during the progress of the work, an accurate record of the work as actually installed, on Record Drawings, on mylar, in ink. These Record Drawings shall be made available to the Resident Engineer upon request.

   The Contractor's attention is particularly directed to the necessity of keeping accurate records of all subsurface and concealed work, so that the Record Drawings may contain this information in exact detail and location. Record Drawings should also show all connections, valves, gates, switches, cut-outs and similar operating equipment.

   Before substantial completion payment, each Contractor shall furnish to the Commissioner one (l) complete set of mylar 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 sponsoring agency by Department of Design and Construction.

3. 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.

4. Each Record Drawing shall bear the legend "RECORD DRAWING" in heavy block lettering, one half (l/2) inch high, and contain the following data:

   RECORD DRAWING
   Contractor's Name _____

   Contractor'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 - Each Contractor shall prepare a title sheet, the same size as Record Drawings, which shall contain the following:

   a. Heading:
      The City of New York
      Department of Design and Construction
      Division of Structures

   b. Capital Budget Project Number (CAPIS ID)

c. Name and Location of Project

d. Contractor's Name and Address

e. Record of changes (a caption description of work affected, and the date and number of Change Order or other authorization)

f. List of Record Drawings

6. 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.

7. BULLETINS, OPERATING AND SERVICE MANUALS - Where the Contractor has submitted prints in the form of technical bulletins, operating and service manuals, or other printed matter as a Shop Drawing, having diagrams or drawings thereon of a material or equipment installed in the work, the Contractor shall furnish three (3) sets thereof so that the Commissioner may have all the necessary information for the proper operation maintenance and repair of the material and equipment and the ordering of spare parts. All bulletins and operating and service manuals shall be compiled and indexed in book form for each Contract.

1.06 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 Building Code of the City of New York, 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.

C. REPUTE OF MANUFACTURER - No manufacturer will be approved for any materials to be furnished under the Contract unless it shall be of good reputation, shall have a plant of ample capacity and shall have successfully produced similar products. All required approvals for legal use of materials and equipment such as B.S.A. and M.E.A. must be obtained prior to installation.

D. ALL MATERIALS - fixtures, fittings, supplies and equipment furnished under the Contract shall be new and unused, except as approved by the Agency, 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.

E. 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.

F. STANDARD REFERENCES - Whenever reference is made to the furnishing of materials or testing thereof to conform to the standards of any technical society, organization or body, it shall be construed to mean the latest standard, code, specification or tentative specification adopted and published at the date of advertisement for bids, even though reference has been made to an earlier standard.

G. REFERENCES - Reference to a technical society, organization or body may be made in the Specifications by abbreviations in accordance with the following list:

A.I.A. for American Institute of Architects

A.C.I.	for American Concrete Institute
A.G.A.	for American Gas Association
A.G.M.A.	for American Gear Manufacturer Association
A.I.E.E.	for American Institute of Electrical Engineers
A.I.S.C.	for American Institute of Steel Construction
A.S.A.	for American Standards Association
A.S.T.M.	for American Society for Testing Materials
A.W.S.C.	for American Welding Society Code
A.W.W.A.	for American Water Works Association
B.S.& A.	for New York City Board of Standards & Appeals
C.I.P.R.A.	for Cast Iron Pipe Research Association
B.G.& E.	for Bureau of Gas & Electricity of the City of New York
FED. SPEC.	for Federal Specification
I.P.C.E.A.	for Insulated Power Cable Engineer's Association
NAVY SPEC.	for Navy Department Specification
N.E.C.	for National Electric Code
N.E.M.A.	for National Electrical Manufacturers Association
N.Y.B.C.	for New York City Building Code
N.Y.E.C.	for New York City Electrical Code
N.Y. SPEC.	for New York City Department of Purchase Specification
P.P.S.	for Power Piping Society
S.A.E.	for Society of Automotive Engineers Standards
S.H.B.I.	for Steel Heating Boiler Institute

H. 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.

I. SAMPLES OF MATERIALS - The Contractor shall submit to the Commissioner for approval, samples of all materials specified to be used in the project.

1. For samples of materials involving electrical work of any nature, see the 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. However, in addition thereto, after approval, three (3) additional samples showing the material, color and texture of all interior finishes, including the finishes of exposed built-in equipment, trim, glazing, fittings and fixtures, etc., shall also be furnished. The sizes of these additional samples shall be as directed by and acceptable to the Commissioner.

3. Each of the samples shall be labeled, bearing the name and quality of the material, the Contractor's name, date, Contract and project, and the related Specification or Contract Drawing reference to the samples submitted.

4. A letter of transmittal, in triplicate, from the Contractor requesting approval must accompany all such samples.

5. Transportation charges to the Commissioner's office must be prepared on all samples forwarded.

6. Samples for testing purposes shall be as required in the Specifications.

J. SAMPLES ON DISPLAY - When samples are specified to be equal to samples in the office of the Commissioner, they shall be carefully examined by the bidders and by those whom the bidder expects to employ for the furnishing of such materials.

K. 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 approval is received, in writing, from the Commissioner. All materials shall be furnished equal in every respect to the approved samples.

L. THE APPROVAL 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 Commissioner, 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 Commissioner, for the project.

M. ACCEPTIBILITY OF TEST DATA - The Commissioner will be the final judge as to acceptability of laboratory test data and performance in service of materials submitted.

N. 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.

O. EQUIVALENT QUALITY OF MATERIALS - All materials and equipment which are designated in the Specifications by a number in the catalogue of any manufacturer or by a manufacturer's grade or trade name, are designated for the purpose of describing the article and fixing the standard or the quality and finish. Materials and equipment, which are, in the opinion of the Commissioner, the equivalent to that specified, will be acceptable.

P. The submission of any material, or article, as the equal of the materials or articles set forth in the Specifications as a standard shall be accompanied by illustrations, drawings, descriptions, catalogues, records of tests, samples and any and all other information essential for judging the equality to the materials, finish and durability of that specified as standard, as well as information indicating satisfactory use under similar operating conditions.

Q. 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.

R. COMMISSIONER TO SELECT INSPECTORS - Except as specifically provided in the Specifications, the Commissioner will select and designate all persons, firms, or corporations to make or witness each and every inspection, test or analyses, with or without reports.

S. 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.

T. NO SHIPPING BEFORE INSPECTION - The Contractor shall comply with the foregoing before shipping any material.

U. 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.

V. 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.

W. 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.

X. REPORTS - Six (6) copies of the reports shall be submitted and authoritative certification thereof must be furnished to the Commissioner as prerequisite for the acceptance of any material or equipment.

Y. 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 without cost to the City.

Z. FURNISH DESIGNATED MATERIAL - 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.

AA. COST OF TESTS BORNE BY CITY - Where the City directs test 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.

BB. COST OF TESTS BORNE BY CONTRACTOR - Where tests are specifically called for in the Specifications to be made by the Contractor, the cost thereof shall be borne by the Contractor and shall be deemed to be included in the Contract price. The expenses of the testing personnel assigned by the City shall not be the Contractor's obligation. The Contractor shall reimburse the City for expenditures incurred in the making of tests on materials and equipment submitted by the Contractor as the equivalent of that specifically named in the Specifications and rejected for non-compliance.

1.07 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. THE CONTRACTOR SHALL COORDINATE DELIVERIES - in order to avoid delaying or impeding the progress of the work of any related Contractor.

E. 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.

F. 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.

G. 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 other Contractor, the relevant Contractor shall remove and restack such materials at no additional cost to the City.

1.08 Temporary Structures

A. FIELD OFFICE FOR CONTRACTOR - 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 each 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. TELEPHONE ARRANGEMENTS - Arrangements shall be made by the Contractor whereby its representative may be readily accessible by telephone.

E. 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.

F. SUBSTANTIAL CONSTRUCTION - All temporary structures shall be of substantial construction and neat appearance, and shall be painted a uniform gray unless otherwise directed by the Commissioner.

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.

H. 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.

1.09 Surveys (REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)

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 - Each 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 MARKS - 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 for General Construction Work 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 for General Construction Work shall establish the permanent lines of exterior walls. Such 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 for General Construction Work 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 licensed Surveyor 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.

FINAL SURVEY - The Contractor for General Construction Work shall submit to the Department of Design and Construction 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.

1.10 Contractor's Superintendent

A. 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 Superintendent competent and capable of maintaining proper supervision and care of the work and acceptable to the Commissioner, who, 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 Superintendent on the job shall not be changed or removed without the consent of the Commissioner.

1.11 Permits

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.

1.12 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.

1.13 Sleeves And Hangers (REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)

A. COORDINATE TO PROGRESS SCHEDULE - Contractors required to furnish and install conduits, outlets, piping sleeves, boxes, inserts and all other materials and equipment necessary to be built into the work to be performed by the Contractor for General Construction Work, shall promptly furnish and set such sleeves or other materials in conformity with the requirements of the project.

B. COOPERATION OF CONTRACTORS - All Contractors 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 affected 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 for General Construction Work 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 or Contractors responsible therefore.

D. INSERTS - The Contractor for General Construction Work 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.

1.14 Cutting And Patching

A. RESPONSIBILITY - Each Contractor shall do all cutting, patching and restoration required by its work, unless otherwise particularly specified in the Specifications of its Contract.

B. RESTORE WORK - Each Contractor shall restore any work they damage that is the work of another Contractor.

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. REMOVALS - Each 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 article on REMOVAL OF RUBBISH AND SURPLUS MATERIALS.

1.15 Temporary Heat (REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)

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 Firewatch 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 responsible for the provision of Temporary Heat, and 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 Paragraph (b) below, each Contractor shall be responsible for the provision of its own Temporary Heat.

      (2) Post Enclosure - Once the Commissioner determines that the building, or any portion thereof, has been enclosed, as set forth in Paragraph B below, the Contractor for Heating, Ventilating and Air Conditioning Work ("HVAC Work") 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). The Contractor for HVAC Work 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 for HVAC Work 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 for HVAC Work provided for herein is subject to the exception set forth in Paragraph H.3.b.(2) below.

   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 for HVAC Work shall be responsible for the provision of Temporary Heat, except as otherwise provided in Paragraph H.3.b.(2) below.

(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 Paragraph H.3.b.(1) below, determines that the provision of Temporary Heat is necessary due to special and/or unforeseen circumstances, the Contractor for HVAC Work shall be responsible for the provision of Temporary Heat and such Contractor shall be paid for the same in accordance with Paragraph H.3.b.(1).

B. ENCLOSURE OF STRUCTURES

1. Notification - The Contractor for General Construction Work shall notify all other Contractors 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 Paragraph A above, once the building has been enclosed, the Contractor for HVAC Work 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 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 for General Construction Work, and such work shall be deemed included in the Contractor for General Construction Work's bid 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 for HVAC Work shall be required to provide Temporary Heat 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 Contractor for HVAC Work 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 for HVAC Work shall include in its Total Bid 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 General Conditions. 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 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.

3. No open fires will be permitted.

4. Electric heating will not be permitted unless required by Contract Documents and Specifications or otherwise approved by the Commissioner.

5. Direct-fired equipment will be allowed in construction areas where the use of such equipment will not damage or deteriorate the construction or finishes or be harmful to persons working in the area.

F. TEMPORARY HEATING SYSTEM

1. The temporary system for the provision of Temporary Heat provided by the Contractor for HVAC

Work following enclosure of the building shall be complete including, but not limited to, torpedo blowers and/or propane heaters subject to provisions of paragraph E above), boilers and fuel storage, pumps, radiators, unit 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. THE CONTRACTOR FOR GENERAL CONSTRUCTION WORK

1. The Contractor for General Construction Work shall coordinate with the Contractor for HVAC Work in the work of providing Temporary Heat, and shall so coordinate its operations as to insure sufficient and timely performance of the work under all Contracts. The Contractor for General Construction Work 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 for General Construction Work shall include all expenses in connection with the supply of water for Temporary Heat in its Total Bid Price. During the period in which Temporary Heat in an enclosed building is being furnished and maintained by the Contractor for HVAC Work, the Contractor for General Construction Work shall, in order to 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 for General Construction Work shall maintain all permanent or temporary enclosures at its own expense.

H. THE CONTRACTOR FOR HVAC WORK

1. Use of Permanent Heating System for Temporary Heat after Building Enclosure

   a. The Contractor for HVAC Work 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 for HVAC Work at his 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 for HVAC Work 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 for HVAC Work 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 for HVAC Work, including the placing of ancillary system equipment, shall be coordinated with the operations of all Contractors so as to insure sufficient and timely performance of the work of all Contractors. Once the permanent heating system is operating properly, the Contractor for HVAC Work shall remove all portions of the system for Temporary Heat which are not part of the permanent heating system.

3. Temporary Heat Allowance for Special Conditions or and/or Unforeseen Circumstances.

   a. The City has established an allowance in the Contract for HVAC Work for payment of costs and expenses in connection with the provision of Temporary Heat as set forth herein. The amount of such allowance is set forth on the Bid Form for the Contract for HVAC Work and shall be included in the Total Bid Price of the Contractor for HVAC Work. The Contractor for HVAC Work 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 for HVAC Work 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 that after enclosure of the building, the Commissioner determines that (i) Contractors other than the Contractor for HVAC Work have not sufficiently advanced the work of their contracts that is necessary and required to permit the Contractor for HVAC Work to use the permanent or other heating equipment for the provision of Temporary Heat, and (ii) the Contractor for HVAC Work does not bear any responsibility for such other Contractors' failure to advance the work, the City shall pay the Contractor for HVAC Work for all differential costs for labor, material, and equipment necessary and required for the provision of a substitute system(s) for the provision of Temporary Heat or portions thereof in lieu of the permanent or other systems intended for Temporary Heat. 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.

(3) In the event the Commissioner determines that there is a need for maintenance of the permanent heating system by the Contractor for HVAC Work after written acceptance by the Commissioner of the work of all Contractors, and that the need for such maintenance is not the fault of the Contractor for HVAC Work, the Contractor for HVAC Work 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 HVAC Work 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 for HVAC Work 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 for HVAC Work must present original invoices for the same. DDC reserves the right to furnish the required fuel.

d. Deduction - In the event that any amount of the allowance set forth herein is expended for payment to the Contractor for HVAC Work under the circumstances set forth in Paragraph b.(2) above, the Commissioner shall deduct and retain such amount out of moneys that are due and owing hereunder to the other Contractor(s) responsible for the failure to advance the work, as determined by the Commissioner. In the event the amount expended from the allowance exceeds the total sum due and owing to such other Contractor(s), such excess shall be paid to the City by such other Contractor(s) immediately upon demand.

THE CONTRACTOR FOR ELECTRICAL WORK

1. The Contractor for Electrical Work shall be responsible for providing the items set forth below and shall include all expenses in connection with such items in its Total Bid Price. The Contractor for Electrical Work shall provide such items promptly when required and shall in all respects coordinate its work with the Contractor for General Construction Work and the Contractor for HVAC Work in order to facilitate the provision of Temporary Heat by the Contractor for HVAC Work.

   a. The Contractor for Electrical Work 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 for Electrical Work 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 by the Contractor for HVAC Work. Such power shall be provided by the Contractor for Electrical Work for the duration the Contractor for HVAC Work 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 for Electrical Work is advised that labor may be required seven (7) days a week and/or during other than normal working hours for the period of time required by seasonal weather conditions.

J. THE CONTRACTOR FOR PLUMBING WORK

1. The Contractor for Plumbing Work 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 his Contract. The Contractor for Plumbing Work shall include all expenses in connection with such items of work in its Total Bid Price. The Contractor for Plumbing Work shall provide such items of work promptly when required and shall in all respects coordinate its work with the Contractor for General Construction Work and the Contractor for HVAC Work in order to facilitate the provision of Temporary Heat by the Contractor for HVAC Work.

2. In the event portions of the permanent plumbing equipment furnished by the Contractor for Plumbing Work as part of the work of his Contract are used for the provision of Temporary Heat by the Contractor for HVAC Work, either during construction or prior to acceptance by the City of the complete plumbing system, the Contractor for Plumbing Work 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 for Plumbing Work 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).

1.16 Scaffolding and Platforms

A. CONFORMANCE: Unless otherwise indicated, the Contractor for General Construction 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 following items.

B. RESPONSIBILITY

1. A Jobsite Monitor who shall be a competent person, designated and employed by the contractor who has a daily presence on the 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 Monitor is absent. The Jobsite Monitor shall:

a. Verify completeness of documentation and submittals (as described below).
b. Verify that inspections are performed, including pull tests (see below), reports are filed and reported deficiencies are corrected.
c. Monitor trades using scaffold.
d. Limit access to scaffold areas that are tagged for non-use.
e. Inform trades of scaffold load limitations.
f. Monitor loading of decks.
g. Verify that any ties that are temporarily removed are properly restored in the same shift.
h. Verify that outriggers and planks that are moved are properly set up and secured.
i. Verify that all scaffold decks in use have proper access/egress.
j. Verify that all open sides of decks in excess of 14 inches have proper guardrails and toe-boards.
k. 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.
l. Keep a log of significant actions and events connected with the scaffolding.

2. The Contractor shall be responsible for erection, maintenance and dismantling of the scaffold / shed in conformance with the New York City Building Code and OSHA requirements, contract documents and engineering specifications. The Contractor shall also be guided by generally accepted standards of scaffold industry practice as promulgated by the Scaffold Industry Association.

3. Scaffold Engineer is a New York State licensed PE engaged by the scaffold contractor / erector and responsible to ensure that the installation design conforms to the New York City Building Code and OSHA requirements, that the design comports with the capabilities of the components and the characteristics of the site, that scaffold loads on the host building, including netting, have been properly considered and that the design documents communicate information for erectors and users.

4. 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 Monitor and inform the Jobsite Monitor of known hazards, non-conformances or violations.

C. JOBSITE DOCUMENTATION AND SUBMITTALS:

1. 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;

2. Site logistics plan / site safety plan;

3. Installation drawing(s), design and product data to be provided for <u>all</u> scaffold(s) and shed(s) must include, at a minimum:

a. Plan(s);
b. Elevation(s);
c. Duty load designation; "standard" (150 psf live load) or "heavy duty" (300 psf live load).
d. Details including base support, anchors and ties;
e. Notes and specifications including load limits, number of planked levels, tie spacing, netting, and sequence of installation and removal.
f. Anchorage into sound material.
g. Load limits based on pull tests;
h. Specifications for pull test(s), method, proof load and the number of trials;
i. Elevations, levels or heights, where anchorage is made into masonry;

j. Specifications for frames, planks, screw jacks, anchors, and any other ancillary hardware;
k. Samples for anchors, ties and netting;
l. Sequence of operations for erection and demolition;
m. Location plan, heights, widths, "jumps" over doorways and driveways;
n. Specify size, maximum span and maximum spacing of headers and stringers;
o. Specify legs, girts, braces, nailing and connections;
p. All sidewalk sheds shall be designed, engineered, signed and sealed by a Professional Engineer licensed in the State of New York;
   1) Generic (not job specific) engineering drawings are satisfactory for standard sheds and arrangements.
   2) Special engineering is required for custom sheds, site-specific problems or non-standard arrangements.

D. INSPECTIONS:

1. Signed inspection reports shall be issued for each inspection and pull-test below, and shall be logged and maintained on site by the Jobsite Monitor for the duration of the project.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. Scaffolds shall be inspected daily by the Jobsite Monitor or alternate prior to use by scaffold users.
8. At the completion of the project, submit all inspection documents to the Commissioner for record purposes.

E. LADDERS AND STAIRS: The Contractor for General Construction Work 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.

F. ACCESS AND EXITS: 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.

1.17 Hoists and Hoistways

A. RESPONSIBILITY - The Contractor for General Construction Work shall provide adequate numbers of material hoists for the most expeditious performance of all parts of its work. All other Contractors are required to provide their own facilities for the hoisting of materials under their respective Contracts. However, these Contractors may make arrangements, whenever possible, with the Contractor for General Construction Work for the use of its hoist upon such terms and conditions as it may prescribe.

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 other Contractors. 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 hoistways providing such use meets with the Building Code of the City of New York and the approval of the Commissioner, and providing further it entails no interference with the progress of the work of any Contractor.

D. PROTECTION FOR INTERIOR HOISTS - All interior material hoistways 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.

1.18 Certificates of Approval

A. RESPONSIBILITY - Each Contractor shall be responsible for and shall obtain all final approvals for the work installed under its 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 before final acceptance of the work of the Contract.

1.19 Acceptance Tests

A. GOVERNMENTAL AGENCIES - All equipment and appliances furnished and installed under the Contract shall conform with 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 TEST - 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 Controlled 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, reinspecting, replacing of material and/or damage to the work of other trades and any delay caused to the schedule shall be borne by the Contractor.

1.20 Progress Photographs (REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)

A. PHOTOGRAPHER - The Contractor for General Construction Work shall employ and pay for the services of a competent photographer who shall take photographs showing the progress of the work.

B. PHOTOGRAPHS - There shall be four (4) photographs taken each month from the commencement of the Contract to the time of completion. These photographs shall show as far as possible, the work

completed within and on the exterior of the structure. The first series of photographs shall be taken prior to the actual commencement of work at the site. In addition thereto before final payment, there shall be six (6) photographs taken of unobstructed views of the completed project or projects 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 done. (For demolition work included in the Contract there shall be four (4) photographs taken before commencement of demolition operations; four (4) at the mid-point of operations; and four (4) at the completion of demolition operations). The prints shall be 8" x 10" gloss finish, mounted with a one (1) inch binding flap of muslin on the left side. They shall be marked on the back with date of exposure; the title of the project; and the specific location. Three (3) copies of each photograph shall be furnished free of charge to the Department of Design and Construction. Photographs shall be taken as ordered by the Commissioner.

1.21 Job Meetings

A. MEETINGS SCHEDULE - Meetings shall be held as scheduled by the Resident Engineer in his office at the site, at which time Contractors for all separate Contracts shall have their representatives present to discuss all details relative to the execution of the work.

B. ACCOMODATIONS - The Contractor for General Construction Work shall provide ample tables and chairs to accommodate all present at the meetings, and table space for Contract Drawings.

C. AGENDA - The Resident Engineer shall preside over these meetings. Prior to each meeting, the Resident Engineer will consult with the Contractors 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 each Contractor will then dictate a brief statement for the record.

The Contractor for General Construction Work shall furnish all necessary typing and printing of the minutes prepared by the Consultant Architect/Engineer. Ample copies of the printed minutes shall be furnished to the Resident Engineer for distribution to all Contractors and representatives of the Commissioner.

D. COORDINATION - Job meetings shall also be called by the Contractor for General Construction Work for the purpose of coordinating, expediting and scheduling the work of all Contracts in accordance with the master coordinated Job Progress Chart. All Contractors and their subcontractors, material suppliers or vendors whose presence is necessary, are required to attend. These meetings may, at the discretion of the Contractor for General Construction Work, be held at the same place and immediately following the Job Meetings held by the Resident Engineer. Minutes of these meetings shall be recorded, typed and printed by the Contractor for General Construction Work and distributed to all parties concerned.

1.22 Guarantees and Warranties - Refer to the Addendum to the General Conditions for the applicability of this article.

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 to the General Conditions.

B. FORM – For all guarantee requirements set forth in Schedule B, the Contractor shall provide a written guaranty, in the form set forth on the following page.

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

Subscribed and sworn to before me this

day of _____ , year _____

_____

Notary Public

1.23 Removal of Rubbish and Surplus Materials

A. 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.

B. LOCATION - Each Contractor shall sweep up and deposit, at a location designated on each floor by the Contractor for General Construction Work, all of its rubbish, debris and waste materials, as it accumulates and when directed by the Resident Engineer. Wood cratings shall be broken up, neatly bundled, tied and stacked ready for removal and be deposited at a location designated on each floor by the Contractor for General Construction Work.

C. LABORERS - The Contractor for General Construction Work 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 cratings 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.

D. SURPLUS MATERIALS - Each Contractor shall remove from the site all surplus materials when there is no further use for same.

E. 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.

1.24 Cleaning

Each 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 at time of substantial completion.

1.25 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, each Contractor will be required to arrange for all final inspections by the inspectional staff of the Department of Buildings 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.

1.26 Security Guards/Fire Guards on the Site (REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)

A. SECURITY GUARDS (WATCHMEN)

1. The Contractor for General Construction Work shall provide competent Security Guards on the site until final completion of the project or earlier if so notified in writing by the Commissioner. The Security Service shall commence with the start of work. 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 trades. 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, until final completion of the project or earlier if so notified in writing by the Commissioner.

2. Every Security Guard shall be required to hold a "Certificate of Fitness" issued by the Fire Department. Every Security Guard shall, during their tour of duty, perform the duties of Fire Guard in addition to their security obligations.

3. Should the Commissioner find that any Security Guard is unsatisfactory, such guard shall be replaced by the Contractor for General Construction Work upon the written demand of the Commissioner.

4. Each Security Guard furnished by the Contractor for General Construction Work shall be instructed by the Contractor for General Construction Work to include in their duties the entire construction site including the Field Office, temporary structures, and equipment, materials, etc.

5. Should the Contractor for General Construction Work or any other Contractor consider the security requirements outlined above inadequate, it 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 who provides the additional protection.

6. Nothing contained in this Article shall diminish in any way the responsibility of each Contractor 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 for General Construction Work shall employ Security Guards/Fire Guards at all times, 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 for General Construction Work.

C. RESPONSIBILITY - All Contractors will be responsible for safeguarding and protecting their own work, materials, tools and equipment.

.27 Contractor's Daily Reports

A. DAILY REPORTS - As soon as the Contractor has started work on the Project, it shall submit to the Resident Engineer written daily reports of the work performed the previous day by any of its employees, including the employees of its subcontractors.

B. INFORMATION - The reports shall be prepared by the Contractor's Superintendent and shall bear the Contractor's Superintendent signature. Each report shall contain the following information:

1. The type of materials and/or major equipment being installed by the Contractor and the total number of employees working in each category on that particular day.

2. The names of the subcontractors working and the type of materials and/or major equipment being installed by each, together with the total number of employees working for each subcontractor on that particular day.

3. The major construction equipment being used by each Contractor and/or subcontractor.

1.28 Alternate or Substitute Equipment

A. In general, the Contract Drawings and Specifications show and describe arrangements suitable for the specific items of equipment either named or described. In the event that a Contractor submits for approval, and receives such approval, a device or piece of equipment which requires connections (vacuum, gas, steam, water, air, electric, etc.) or arrangements of these services, differing from those indicated or described in the Contract Documents, it shall be incumbent upon the Contractor submitting the alternate or substitute equipment to give timely notice to the other Contractors involved so that they may make suitable alterations in the work to accommodate the substitute or alternate equipment. The Contractor making the substitution shall be responsible for any and all additional

costs incurred by any of the Contractors by virtue of the substitution of equipment for the equipment named or described in the Contract Documents.

1.29 Sleeve and Penetration Drawings (REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)

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 Contractors for the engineering trades (Plumbing, Heating, Ventilating and Air Conditioning. and Electrical) shall submit to the Department of Design and Construction 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 that it may be determined if such penetrations will materially weaken the project's structure. The sketch will be stamped and returned if approved and/or comments will be transmitted. The engineering Contractors shall continue to submit sketches as the pouring schedule and the concrete work progresses and, until approvals for the penetration sketches have been given, shall not predicate their layout work on unapproved sketches.

1.30 Location of Partitions (REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)

A. Within three (3) weeks after the concrete slabs have been poured on each floor level, the Contractor for General Construction Work shall immediately locate accurately all of the partitions, including the door openings, on the floor slabs in a manner approved by the Resident Engineer.

1.31 Furniture and Equipment

A. RESPONSIBILITIY - Each Contractor is responsible for moving all loose furniture and/or equipment in all areas when 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.

1.32 Overtime Work (Ordered by Commissioner)

A. OVERTIME – The Commissioner reserves right to order and pay for overtime work.

1. The Commissioner can order overtime work when in the Commissioner's opinion, delay occurs and such delay is not the fault of the Contractor, or
2. When work is of such an important nature that delay in carrying such work to completion would result in serious disadvantage to the public.

B. ORDER FOR OVERTIME WORK - When overtime work is ordered by the Commissioner, such "Order" will be issued by the Commissioner on a special form letter over the signature of the Commissioner.

C. CONTRACTOR'S PROCEDURE PRIOR TO COMMENCING WORK

1. Make immediate application to the Commissioner of Department of Labor, State of New York, for dispensation in accordance with Subdivision 2 of Section 220 of the Labor Law.
2. Upon receipt of such dispensation, proceed expeditiously with ordered overtime work.

1.33 Compliance with OSHA Regulations

These Contract Documents and the work hereby contemplated shall be governed, at all times, by the following Federal Laws:

A. William Steiger Occupational Safety and Health Act of 1970, Public Law 91-596;

B. Part 1910 - Occupational Safety and Health Standards, Chapter XVII of Title 29, Code of Federal Regulations;

C. Part 1926 - Safety and Health Regulations for Construction, Chapter XVII of Title 29, Code of Federal Regulations.

1.34 Temporary Services

PART A **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

A. TEMPORARY WATER - during construction shall be furnished in the following manner:

1. Immediately after the Contractor for General Construction Work has been ordered by the Commissioner to start work, it shall file an application with the Dept. of Environmental Protection for the schedule of charges for water use during construction. The Contractor for General Construction Work will be responsible for payment of water charges.

2. Immediately after the Contractor for Plumbing Work has been ordered by the Commissioner to start work, it shall file an application with the Department of Environmental Protection's Bureau of Water Supply and obtain its permit to install the temporary water supply system. The system shall be installed and maintained for the use of all Contractors. A copy of the above mentioned permit shall be filed with the Commissioner. The Contractor for Plumbing Work 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 for Plumbing Work 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 for Plumbing Work shall take the necessary precautions to prevent the temporary systems from freezing.

B. TOILET FACILITIES - both exterior and interior, for the use of all Contractors, shall be furnished and installed in the following manner:

1. Toilet fixtures shall be furnished, installed and maintained in a satisfactory operating condition by the Contractor for Plumbing Work.

2. Enclosures for the toilet fixtures shall be erected and maintained by the Contractor for General Construction Work.

3. Heating for the enclosures shall be furnished, installed and maintained by the Contractor for General Construction Work.

4. Electric lighting for the enclosures shall be furnished, installed and maintained by the Contractor for Electrical Work.

5. The Contractor for General Construction Work shall keep the temporary toilet fixtures and enclosures in a clean and sanitary manner.

6. No Contractor shall cause any sanitary nuisances to be committed by its employees in or about the work. Each Contractor shall enforce all sanitary regulations of the City and State Health Authorities.

C. OVERTIME USE - Whenever any Contractor(s) work before or after the regular work hours hereinafter specified under Subparagraph D, or on a Saturday, Sunday or Holiday of any trade, such Contractor(s) shall pay the Contractor for Plumbing Work for the activation of the temporary water system and toilet facility services during such overtime periods. When more than one (1) Contractor is involved in overtime work, the costs thereof shall be prorated as determined by the Resident Engineer. When overtime is required by any or all Contractors on the work, the provisions for payment for regular time use of the temporary water supply system as specified in Subparagraph D shall apply.

D. ACTIVATION - The Contractor for Plumbing Work shall bear the cost of keeping the temporary water supply system activated from a period of time 15 minutes before the established starting time of that trade which starts work earliest in the morning, to 15 minutes after the established quitting time of that trade which stops work latest in the evening. This applies to every day in the week which is established as a regular working day for aforementioned trades and holds until completion and final acceptance of the work of the Contractor for Plumbing Work or until the services are terminated by instructions from the Commissioner.

PART B **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

A. WATER - The Contractor for General Construction Work will be responsible for payment of water charges. Billing will be in accordance with the Department of Environmental Protection schedule of charges for Building Purposes.

B. ELECTRICITY - for temporary light and the operation of small tools, is available in the area of this project and will be furnished to the Contractor for General Construction Work by the Contractor for Electrical Work without cost.

C. TOILET FACILITIES - The Contractor for General Construction Work shall arrange with the Commissioner for the temporary use of certain toilets or washrooms within the project for the use of all employees during the execution of the work.

D. MAINTENANCE - The Contractor for General Construction Work shall maintain the temporary toilet facilities in a clean and sanitary manner and make all necessary repairs due to misuse.

E. NUISANCES - The Contractors shall not cause any sanitary nuisance to be committed by its employees in or about the work, and shall enforce all sanitary regulations of the City and State Health Authorities.

1.35 Temporary Use, Operation and Maintenance of Elevators during Construction

PART A - FOR NEW BUILDINGS UP TO AND INCLUDING 15 STORIES **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

A. INSTALLATION - The Contractor for General Construction Work shall install and complete, as indicated herein, one (I) selected main elevator in the Project for temporary operation by the Contractor for General Construction Work for the transporting of employees of all Contractors and representatives of the Department of Design and Construction and other Governmental Agencies having jurisdiction of work at the project. The Contractor for General Construction Work shall furnish, install and maintain for such elevators, 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 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 for General Construction 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. The Contractor for General Construction shall employ and pay wages, including overtime wages if necessary, for all workers required for the operation and maintenance of the temporary elevator. The Contractor for General Construction shall be responsible for all costs for: (1) the installation of 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) all work in pits, shaftways and machine rooms necessary for the operation of the elevator, and (4) the replacement of the temporary elevator or parts utilized in connection therewith, if required.

C. ACTIVATION TIME - The Contractor for General Construction Work shall keep the temporary elevator activated from a period of time 15 minutes before the established starting time of that trade which starts work earliest in the morning to 15 minutes after the established quitting time of that trade which stops work latest in the evening. This applies to every day in the week, which is established as a regular working day for the aforementioned trades.

D. COMMENCEMENT OF SERVICE - The Contractor for General Construction Work 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 shaftway 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 shaftways.

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 for Electrical Work, 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 shaftway and for the car control and signal traveling cables. The Contractor for Electrical Work shall make all these required connections as soon as the equipment is declared ready for such connections by the Resident Engineer. The cost of this work shall be included in the Contractor for Electrical Work's Contract.

F. REMOVAL - When elevators for permanent use have been installed and are in condition for service, and when directed by the Commissioner, the Contractor for General Construction Work shall remove the temporary enclosures and all temporary elevator equipment and promptly proceed with the installation of the permanent equipment as is required under the Contract.

G. INSPECTION - Before temporary elevator equipment has been removed, a joint inspection of the equipment shall be made by the Contractor for General Construction Work 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 for General Construction Work 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 therefor will be made in accordance with Article 26 of the Contract.

H. REPLACEMENT - The Contractor for General Construction Work shall replace with new, any of the equipment or parts of the temporary elevator installation that were damaged, destroyed, or that indicate excessive wear or corrosion excepting the replacement of hoisting ropes. All shaftways, 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 for General Construction Work except for the replacement of hoisting ropes.

I. COSTS - The Contractor for Electrical Work shall pay the costs of all electrical current used for operating the temporary elevators. The Contractor for General Construction Work shall provide all necessary conduit and wiring connections for the proper operation of the elevator and the signaling of the temporary elevators.

J. LIMITATIONS OF USE - The temporary elevator shall not be used during its operation for hoisting of materials or removal of rubbish, but shall be limited only to the transportation of employees of all Contractors and the representatives of City Departments and other Governmental Agencies having jurisdiction of work at the project. However, the Resident Engineer may grant special permission at specified times to the various Contractors 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. The particular Contractor using the elevator for the hoisting of its material shall be responsible for any damage to the elevator during the entire period of such use. The Contractor for General Construction Work shall give notification in writing to the Resident Engineer of any alleged damage to the elevator installation within 24 hours after the elevator has been employed for the hoisting of materials by the particular Contractor(s).

K. PAYMENT FOR USE - The Contractor for General Construction Work shall be paid for its operation and maintenance of the temporary elevator or permanent elevator used for temporary service at the daily rate indicated under the Item of its Contract. All other costs in connection with the elevator installation and equipment, excepting electrical work done by the Contractor for Electrical Work under its Contract, shall be included in the Contractor for General Construction Work's Contract.

L. LIQUIDATED DAMAGES - The Contractor for General Construction Work 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 for General Construction Work.

M. OVERTIME USE - All Contracts. Whenever any Contractor or Contractors work before or after the regular work hours as indicated in Paragraph B above, or on a Saturday, Sunday or Holiday, such Contractor or Contractors shall pay the Contractor for General Construction Work for the operation and maintenance of the temporary elevator, if required by such Contractor or Contractors, at the daily rate indicated in the Contract but increased to reflect the difference between regular wage rates and overtime wage rates. The basic hourly charge shall be considered as one ninth (1/9) of the amount shown in the Item of the Bid form of the General Construction Work Contract. The City will not pay any Contractor for such overtime use of the elevator. When more than one (1) Contractor is involved in the overtime work, the charges shall be prorated as determined by the Resident Engineer unless otherwise agreed mutually among all the Contractors involved.

PART B - FOR NEW BUILDINGS OVER 15 STORIES **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

A. INSTALLATION - The Contractor for General Construction Work shall install and complete, as indicated herein, two (2) selected main elevators in the Project for temporary operation by the Contractor for General Construction Work for the transporting of employees of all Contractors and representatives of the Department of Design and Construction and other Governmental Agencies having jurisdiction over work at the project. The Contractor for General Construction Work shall furnish, install and maintain for such elevators, 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 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. The two (2) elevators will not be operated simultaneously.

B. RESPONSIBILITY - The Contractor for General Construction 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. The Contractor for General Construction shall employ and pay wages, including overtime wages if necessary, for all workers required for the operation and maintenance of the temporary elevator. The Contractor for General Construction shall be responsible for all costs for: (1) the installation of 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) all work in pits, shaftways and machine rooms necessary for the operation of the elevator, and (4) the replacement of the temporary elevator or parts utilized in connection therewith, if required.

C. ACTIVATION TIME - The Contractor for General Construction Work shall keep the temporary elevator activated from a period of time 15 minutes before the established starting time of that trade which starts work earliest in the morning to 15 minutes after the established quitting time of that trade which stops work latest in the evening. This applies to every day in the week, which is established as a regular working day for the aforementioned trades.

D. LOW RISE ELEVATOR - The Contractor for General Construction Work 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 shaftways.

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 for Electrical Work, 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 for Electrical Work shall make all these required connections as soon as the Equipment is declared ready for such connections by the Resident Engineer. The cost of this work shall be included in the Contractor for Electrical Work's Contract.

F. HIGH RISE ELEVATOR - The Contractor for General Construction Work 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 shaftway 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 shaftways.

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. The Contractor for Electrical Work, 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 shaftway.

The Contractor for Electrical Work shall make all these required connections as soon as the equipment is declared ready for such connections by the Resident Engineer. The cost of this work shall be included in the Contractor for Electrical Work's Contract.

H. When the high rise elevator is completed and ready for temporary operation, the low rise temporary elevator shall be shut down.

I. 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 for General Construction Work shall remove the temporary enclosures and all temporary elevator equipment, and promptly proceed with the installation of the permanent equipment as is required under the Contract.

J. Before temporary elevator equipment has been removed, a joint inspection of the equipment shall be made by the Contractor for General Construction Work 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 for General Construction Work 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 therefor will be made in accordance with Article 26 of the Contract.

K. The Contractor for General Construction Work shall replace with new, any of the equipment or parts of the temporary elevator installations that were damaged, destroyed, or that indicate excessive wear or corrosion excepting the replacement of hoisting ropes. All shaftways, 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 for General Construction Work except for the replacement of hoisting ropes.

L. The Contractor for Electrical Work shall pay the costs of all electrical current used for operating the temporary elevators. The Contractor for General Construction Work shall provide all necessary conduits and wiring connections for the proper operation of the elevators and the signaling of the temporary elevators.

M. No temporary elevator shall be used during its operation for hoisting of materials or removal of rubbish, but shall be limited only to the transportation of employees of all Contractors and the representatives of City Departments and other governmental agencies having jurisdiction of work at the project. However, the Resident Engineer may grant special permission at specific times to the various Contractors to hoist materials which, in the Resident Engineer's opinion, will not overload or damage the elevator installation, but only after such time as all plastering has been completed from the second floor up. The particular Contractor using the elevator for the hoisting of its material shall be responsible for any damage to the elevator during the entire period of such use. The Contractor for General Construction Work shall give notification in writing to the Resident Engineer of any alleged damage to the elevator installation within 24 hours after the elevator has been employed for the hoisting of materials by the other Contractors.

N. The Contractor for General Construction Work shall be paid for its operation and maintenance of each temporary elevator or permanent elevator used for temporary service at the daily rate indicated under the item of its Contract. All other costs in connection with elevator installation and equipment, excepting Electrical Work done by the Contractor for Electrical Work under its Contract, shall be included in the Contractor for General Construction Work's Contract.

O. LIQUIDATED DAMAGES - The Contractor for General Construction Work 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 for General Construction Work.

P. OVERTIME USE - ALL CONTRACTS. Whenever any Contractor(s) work before or after the regular work hours as indicated in Subparagraph B above, or on a Saturday, Sunday or Holiday, such Contractor or Contractors shall pay the Contractor for General Construction Work for the operation and maintenance of the temporary elevator, if required by such Contractor or Contractors, at the rate indicated in the Item of the bid form of the General Construction Work Contract but increased to reflect the difference between regular wage rates and overtime wage rates. The basic hourly charge shall be considered as one ninth (1/9) of the amount shown in the item of the General Construction Work Contract. The City will not pay any Contractor for such overtime use of the elevator. When more than one (1) Contractor is involved in the overtime work, the charges shall be prorated as determined by the Resident Engineer unless otherwise agreed mutually among all the Contractors involved.

PART C - EXISTING BUILDINGS **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

A. The Contractor for General Construction Work may use, at the Commissioner's discretion, one (1) selected elevator in the project for temporary operation by the General Construction Work Contractor for the transportation of employees of all Contractors and representatives of the Department of Design and Construction and other Governmental Agencies having jurisdiction over work at the Project. The Contractor for General Construction Work shall maintain for such elevators, all necessary hoisting ropes, governor cables, traveling conductor cables, operating devices hand reset target annunciators, signal devices, and all other permanent or temporary parts. The installation 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. The Contractor for General Construction 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. The Contractor for General Construction shall employ and pay wages, including overtime wages if necessary, for all workers required for the operation and maintenance of the temporary elevator. The Contractor for General Construction shall be responsible for all costs for: (1) the installation of 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) all work in pits, shaftways and machine rooms necessary for the operation of the elevator, and (4) the replacement of

the temporary elevator or parts utilized in connection therewith, if required.

C. The Contractor for General Construction Work shall keep the temporary elevator activated from a period of time of 15 minutes before the established starting time of that trade which starts work earliest in the morning to 15 minutes after the established quitting time of that trade which stops work latest in the evening. This applies to every day in the week, which is established as a regular working day for the aforementioned trades.

D. The Contractor for General Construction Work shall replace with new any of the equipment or parts of the elevator for temporary operation installation that were damaged, destroyed, or that indicate excessive wear or corrosion excepting the replacement of hoisting ropes. All shaftways, 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 for General Construction Work except for the replacement of hoisting ropes.

E. The elevator for temporary operations shall be used during its operation for hoisting of materials or removal of rubbish, but shall be limited only to the transportation of employees of all Contractors and the representative of City Departments and other Governmental Agencies having jurisdiction of work at the project. However, the Resident Engineer may grant special permission at specified times to the various Contractors to hoist materials which, in the Resident Engineer's opinion, will not overload or damage the elevator installation. The particular Contractor using the elevator for the hoisting of its material shall be responsible for any damage to the elevator during the entire period of such use. The Contractor for General Construction Work shall give notification in writing to the Resident Engineer of any alleged employed for the hoisting of materials by the particular Contractor(s).

F. The Contractor for General Construction Work shall pay all costs for the operation and maintenance of the elevator for temporary operation. All other costs in connection with the elevator and equipment excepting electrical work done by the Contractor for Electrical Work under its Contract, shall be included in the Contractor for General Construction Work's Contract.

G. LIQUIDATED DAMAGES - The Contractor for General Construction Work 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 for General Construction Work.

H. OVERTIME USE - ALL CONTRACTS - Whenever any Contractor(s) work before or after the regular work hours as indicated in Paragraph B above, or on a Saturday, Sunday or Holiday, such Contractor(s) shall pay the Contractor for General Construction Work for the operation and maintenance of the elevator, if required by such Contractor(s) at the union daily rates but increased to reflect the difference between regular wage rates and overtime wage rates. The City will not pay any Contractor for overtime use of the elevator. When more than one (1) Contractor is involved in the overtime work, the charges shall be prorated as determined by the Resident Engineer unless otherwise agreed mutually among all the Contractors involved.

1.36 General Mechanical Requirements (REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)

A. The General Mechanical Requirements contained herein shall be followed by all Contractors furnishing mechanical equipment under their respective Contracts.

B. 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.

C. THE 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. The Contractor shall follow these Contract Drawings in laying out the work and shall consult the Contract Drawings of the other Contracts to become familiar with all conditions affecting it and to verify the spaces in which it will be installed. The Contractor shall cooperate with the Public Utilities doing certain necessary work for this project. The attention of the Contractor is called to the Contract Drawings for General Construction Work for the location, arrangement and extent of plumbing and other fixtures and equipment. All work shall be installed in locations as shown on these Contract Drawings.

D. 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. The work shall not be deemed substantially complete until the certificates have been delivered.

E. SHOP DRAWING SUBMITTALS - Contractors doing mechanical work shall submit, as directed, Shop Drawings, roughing drawings, manufacturer's Shop Drawings, field drawings, cuts, bulletins, etc., of all materials, equipment and methods of installation shown or specified.

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.

F. 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.

G. 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.

H. 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.

I. 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.

J. MACHINERY PARTS - shall conform exactly to the dimensions shown on the Contract Drawings. The equivalent parts of identical machines shall be identical so that they can be interchangeable.

K. FITTINGS - All grease lubricating fittings on equipment shall be of a uniform type and shall be readily accessible and types proposed to be used shall be submitted for approval.

L. GUARDS - All machinery shall be designed with protecting guards conforming with the requirements of the Industrial Code of the New York State Department of Labor or OSHA, whichever is stricter.

M. LIMIT SWITCHES - Unless otherwise specified, limit switches and other mechanically actuated switches shall be enclosed in tight metal boxes and be installed in the proper locations ready for conduit connections. Switches shall be complete with all supports, stops, cams, arms, tripping and operating members, which shall be adjustable where required for proper functioning.

N. ANCHORS, BOLTS, ETC. AND FOUNDATIONS - Unless otherwise specified, the Contractor shall furnish the necessary anchors, bolts, guides, track rails, bearing plates, substantial templates and all other appurtenances, and build the necessary foundations, as approved by the Commissioner, for all equipment supplied by the Contractor under its Contract.

O. EQUIPMENT DESIGN - Equipment and appurtenances shall be designed in conformity with ASME and AIEE standards and shall be of rugged construction and of sufficient strength to withstand all stresses which may occur during fabrication, testing, transportation, installation, and all conditions of operations. Adequate stays, braces and anchors shall be provided. All bearings and moving parts shall be adequately protected against wear by bushings, or other approved means, and shall be fully lubricated by readily accessible devices. Details shall be designed for appearance as well as utility. Protruding members, joints, corners, gear covers and the like shall be finished in appearance. All exposed welds shall be ground smooth and the corners of structural shapes shall be mitered.

P. SUPPORTING STRUCTURES DESIGNED BY THE CONTRACTOR - Unless otherwise specified, supporting structures for equipment to be furnished by the Contractor shall be designed and 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:

1. Structural Steel - ASTM Standard Specifications, AISC and NYBC.

2. 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 NYBC for average concrete.

3. 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.

Q. ENGINEER'S ASSUMED DESIGN DATA - All structural steel, concrete and reinforcement indicated or specified to support the equipment or appurtenances and the area immediately adjacent thereto have been designed from data based on assumed average anticipated clearances and loading. The final structural design in these locations will be based on definite data received from the Contractor after the Commissioner approves the equipment and appurtenances to be installed. The Commissioner will then redesign, if necessary, the supporting structure to properly support and maintain the approved equipment and appurtenances. Necessary major changes in design will be covered by Supplementary Drawings that will be furnished to the Contractor. All changes indicated or necessary to accommodate the equipment and appurtenances, shall be incorporated into the Working Drawings submitted for approval, and the cost of furnishing and installing the work necessitated by these changes shall be borne by the Contractor furnishing the equipment.

R. INSTALLATION OF EQUIPMENT - Equipment shall be erected in a neat and workmanlike manner on the foundations, at the locations and elevations shown on the Contract Drawings or as required. All equipment shall be correctly aligned, leveled and adjusted for satisfactory operation and shall be installed so that proper and necessary connections can be made readily between various units and with piping and equipment that may be installed under other Contracts. When required by the Specifications, the Contractor shall obtain the assistance of a competent and experienced Engineer or Superintendent, in the employ of the manufacturer, to install the equipment.

S. ELIMINATION OF NOISE - All work provided under the Contract shall operate without objectionable noise or vibration.

1. 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.

2. Should noise or vibration found objectionable by the Commissioner be transmitted by any pipe or portions of the structure from 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.

T. GROUTING - The Contractor shall furnish all material and labor for proper bedding on Portland Cement grout, the equipment or its supporting base. Grout shall consist of one (I) part Portland Cement and one (I) part of approved sand. The top of the masonry foundation shall be properly cleaned and wetted before grouting. Grout shall completely fill all spaces between the equipment, or base, and the foundation and it shall generally average one (1) inch in thickness. Leveling wedges shall not be removed before the grout has reached its final set. Voids left by wedges shall be pointed with grout. Exposed surfaces of the grout shall have a finished appearance.

U. 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.

V. 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.

1.37 General Electrical Requirements

SCOPE - This Article 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 Article and the requirements of the Specifications and/or the Contract Drawings, whichever requirements is the most stringent, as determined by the Commissioner, shall take precedence.

PART A - PROCEDURE--ELECTRICAL APPROVALS

SCOPE- This 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 contracts for other than the Contract for Electrical Work.

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. SUPERVISION AND ACCEPTANCE - The electrical work and equipment shall be installed under the supervision of the Commissioner's representative. Final acceptance and approval of the work will be contingent upon the inspection and test of the installation by the City regulatory agency, on completion.

C. TESTS - The Contractor shall notify the Commissioner when the Contractor will examine and begin

work and shall also notify the Commissioner when the Contractor has completed the work and is ready to have it inspected and tested. Upon completion of the work and prior to final payment, 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 are 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.) - Before final payment is made, there must be filed with the Department of Design and Construction, a Certificate of Inspection signed by the Director of the B.E.C., which Certificate shall certify that all materials and workmanship comply with the rules and regulations of the B.E.C. of the City of New York and with the Electrical Code of the Administrative Code of the City of New York.

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 these Specifications.

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 apparatus 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 apparatus or materials of the same kind, type or classification and being used for identical types of service, shall be made by the same manufacturer.

G. CONTRACTOR'S ELECTRICAL DRAWINGS AND SAMPLES FOR APPROVAL

1. The Contractor shall submit to the Commissioner for approval, 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 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.

H. TIMELINESS - All material shall be submitted in sufficient time for the program 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.

I. CONTRACTOR'S STATEMENT WITH SUBMITTALS - All dimensional drawings of equipment, blueprints, catalogues, models, samples and other data relative to the equipment, the materials, the work or any part thereof submitted for approval are to be accompanied by a statement that they have been examined by the Contractor and that the drawings, data and other material submitted agree with the requirements of the Contract and Specifications and shall list and describe the points of

disagreements, if any exist. In the absence of such statement, approvals will be given with the understanding that articles of equipment or materials or methods of installation are in substantial compliance with the Contract and that if the adoption of these designs, details, articles, equipment, materials, constructions, installations, places and locations necessitate changes, alterations or replacements at an increased cost to the Contractor or others, the Contractor making the substitution for the specified equipment or material shall bear all such additional expense involved.

J. BULLETINS AND INSTRUCTIONS - The Contractor shall furnish and deliver to the Commissioner, 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 B - TEMPORARY LIGHTING, SITE SECURITY LIGHTING & POWER

SCOPE - This Section sets forth the General Conditions and procedures relating to Temporary Lighting, Site Security Lighting and Power during the construction period, and is applicable to, and binding on, all Contracts insofar as they are affected.

A. TEMPORARY LIGHTING **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

1. Energy for the Temporary Lighting System for minor rehabilitation projects (those projects whose existing distribution system is not being changed or modified under the scope of this project) may be taken from the existing electrical distribution system if the existing system is of adequate capacity for the additional temporary lighting load. The Contractor for Electrical Work is to cooperate and coordinate with the facility custodian so as not to interfere with the normal operation of the facility.

2. Energy for the Temporary Lighting system for new projects and for those existing projects that are not covered in the preceding paragraph shall be provided as in the following paragraphs.

3. CONNECTION TO UTILITY LINES - Temporary Electric Service for use during construction shall be provided as follows: The Contractor for Electrical Work 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. The Contractor for Electrical Work shall include in its bid any charges which may be made by the Public Utility Company for extending its electrical facilities, and for making final connections. The Contractor for Electrical Work shall make payment directly to the Public Utility Company.

4. APPLICATIONS FOR METER - The Contractor for Electrical Work 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 Lighting. The Contractor for Electrical Work shall pay to the Public Utility Company, all bills for Temporary Lighting energy used throughout the work, as they become due.

5. SERVICE AND METERING EQUIPMENT - The Contractor for Electrical Work shall furnish and install, at a suitable location on the site, approved service and metering equipment for the Temporary Lighting 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 Temporary Lighting and Site Security Lighting and shall meet all requirements of the NYCEC.

6. The Contractor for Electrical Work shall furnish and connect to the metered service point, a system of Temporary Lighting 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.

7. ITEMS - The Temporary Lighting System 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, trailers 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.

8. The Temporary Lighting System shall be progressively installed as required for the advancement of the work under the various Contracts.

9. RELOCATION - Any Contractor requiring the relocation or extension of the original Temporary Lighting System that is not required due to the normal advancement of the work, as determined by the Commissioner's field representative, shall bear all costs thereof.

10. TRAILERS - Trailers shall be furnished with left-hand sockets with locked type guards and 40 feet of rubber covered cable. The Contractor for Electrical Work shall furnish and distribute a minimum of three (3) complete trailers to each Contractor. See the detailed Electrical Specifications for possible additional trailers required.

11. LAMPS - The Contractor for Electrical Work shall furnish and install one (1) complete set of lamps, including those for the trailers. Broken and burned out lamps in the general lighting system shall be replaced by the Contractor for Electrical Work while those in the trailers shall be replaced by the Contractor using such equipment. All lamps shall be 100 watt.

12. CIRCUIT PROTECTION - The Contractor for Electrical Work shall furnish and install GFI protection for the Temporary Lighting and Site Security Systems.

13. ENERGIZING - The Contractor for Electrical Work shall keep the Temporary Lighting System energized from a period of time, 15 minutes before the established starting time of that trade, which starts work earliest in the morning to 15 minutes after the established quitting time of that trade which stops work latest in the evening. This applies to every day in the week which is established as a regular working day for any trade involved in the construction of this facility and holds until completion and final acceptance of the work of the Contractor for Electrical Work or until the services are terminated by instructions from the Commissioner.

14. MAINTENANCE OF TEMPORARY LIGHTS

    a. The Contractor for Electrical Work shall maintain the Temporary Lighting System in good working order during the scheduled hours established.

    b. The Contractor for Electrical Work is to include in its contract all charges for energy for the Temporary Lighting System.

    c. The Contractor is advised to show the estimated cost of the installation, maintenance and energy of temporary electrical facilities in its detailed cost estimate of its Contract so as to facilitate partial payments during construction.

15. OVERTIME USE - Any Contractor requiring Temporary Lighting Service before or after hours set forth hereinbefore, or on weekends or a Holiday for all trades involved in the construction of this facility, shall pay for the additional cost of keeping the system energized and repaired. If more than one (1) Contractor is involved, the charges shall be prorated, or shared by other acceptable means previously agreed upon by the Contractors involved. When overtime is required by all Contractors on the work, the provisions for payment for regular time use of the Temporary Lighting System shall apply.

16. SERVICE BEYOND COMPLETION DATE - When failure to comply with the terms and conditions of any Contract necessitates temporary light beyond the date set for completion of the Contract for Electrical Work, the Contractor requiring such additional service shall pay for keeping it energized. When more than one (1) Contractor requires such service, the expense thereof shall be prorated

as determined by the Commissioner.

17. ADJUSTMENT IN CONTRACT PRICE FOR TEMPORARY LIGHTING MAINTENANCE - In the event that the temporary lighting maintenance extends beyond the Contract time through no fault of the Contractor for Electrical Work, the additional maintenance cost will be in accordance with the requirements of the following paragraphs:

    a. Payment for maintaining Temporary facilities when required will be made at the average hourly wage for electricians plus 69% of this rate, for each hour of work done upon order of the Resident Engineer. Payments will be included in partial estimates upon submission of detailed vouchers stating date, hour and time expended for each item of work.

    b. The addition of 69% of the average hourly wage rate specified above shall be deemed as the total allowance for all profit and overhead and for any and all other costs and expenses of any nature whatsoever, including but not limited to allowance for insurance, workman's compensation, unemployment insurance and other supplementary benefits.

18. REMOVAL OF TEMPORARY LIGHTING WIRING - The temporary lighting system shall be removed by the Contractor for Electrical Work when authorized by the Commissioner.

19. HAND TOOLS - The temporary electric lighting system shall not be used for power purposes, excepting that light hand tools not larger than 1/4 horsepower may be operated therefrom by any Contractor.

B. SITE SECURITY LIGHTING (FOR NEW CONSTRUCTION ONLY) **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

1. The Contractor for the Electric Work 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.

2. It is essential that the site security lighting system be completely installed and operating, at the earliest possible date. All Contractors must 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, and a part of the system interferes with the work of any trade, that trade 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 for Electrical Work.

5. The site security system shall be kept illuminated at all times during the hours of darkness. The Contractor for Electrical Work, at its own expense, shall keep the system in operation, furnishing and installing all material necessary to replace all damaged or burned out parts.

6. The Contractor for Electrical Work 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 for Electrical Work and shall be removed and disposed of by the Contractor for

Electrical Work upon completion of that phase of the project.

C. TEMPORARY POWER

1. Any Contractor requiring temporary power for equipment larger than 1/4 horsepower shall arrange with the Public Utility for service and pay for all electrical energy consumed by its lines.

2. The Contractor shall provide service, metering equipment and distribution centers as required, and be responsible for keeping the system in working order.

3. When directed by the Commissioner, the Contractor shall remove its own temporary power system.

D. 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 for Electrical Work shall have the temporary lighting system changed over from the temporary service points to the main distribution panel.

2. COST OF CHANGE OVER - The Contractor for Electrical Work shall be responsible for all cost 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 lighting specified herein shall be adhered to after change over of service.

4. NO EXTRA COST - The operation of the service and switchboard equipment shall be under the supervision of the Contractor for Electrical Work, 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 for Electrical Work.

PART C - ELECTRICAL INSTALLATION PROCEDURE

SCOPE - This Section sets forth the general installation procedure that shall apply to all electrical work and electrical equipment appearing in any of the Contracts.

A. INTENT OF CONTRACT DOCUMENTS - Contract Specifications and Contract Drawings 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 each Contractor shall provide whatever labor and materials are found necessary, within the scope of its 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 the Department of Design and Construction. 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 the Department of Design and Construction 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 Contractor for Plumbing Work and shall extend one (1) inch above finished floor.

D. COORDINATION - Each 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. Each 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. RESPONSIBILITY FOR ERRORS OF INSTALLATION - In case of interference with the work of others or erroneous placement of work with respect to equipment or structures, each Contractor shall cooperate with other affected Contractors for an immediate agreeable solution of the affected work with each Contractor furnishing its responsible share of the labor and materials necessary to complete the installation in an approved manner.

F. 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 who caused the damage. Each 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. Any Contractor who pierces waterproofing because of the installation of their work shall, at their own expense, restore the waterproofing to the satisfaction of the Commissioner.

G. ELECTRICAL WORK AT SITE - Any Contractor who is required to furnish 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 who furnished the unit, without cost to the City.

H. COOPERATION AMONG CONTRACTORS - Whenever an electrically operated unit or system involves the combined work of several Contractors for its installation and successful operation, each Contractor shall exercise the utmost diligence in cooperating with others to produce a complete, harmonious installation.

I. DEFINITIONS

1. WIRING means both wire and raceway (rigid steel, heavy wall conduit unless specifically indicated otherwise).

2. POWER WIRING means wiring from a panelboard 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.

3. 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.

J. WORK BY CONTRACTORS FURNISHING ELECTRICAL EQUIPMENT - Any Contractor who furnishes an electrically operated or motorized unit of equipment shall install same and, as part of its Contract, perform the following work in connection therewith:

1. FOUNDATIONS - Unless otherwise specified or indicated, the Contractor furnishing electrically operated equipment shall also furnish and install approved foundations for same. Special

foundations, if required, will be described in the detailed Specification.

a. MATERIAL - All foundations, unless required otherwise, shall rest on a structural slab and shall be of poured concrete, of a mixture specified for reinforced concrete. Foundations shall present a neat, smooth appearance without voids, sharp corners or edges.

b. DIMENSIONS - Foundation dimensions, height above floor, methods of setting, aligning and anchoring of equipment shall be as recommended by the manufacturer of equipment and approved by the Commissioner. The minimum height of foundations above finished floor shall be four (4) inches and foundations shall extend at least six (6) inches at all sides beyond the base plates of equipment.

2. At least one (1) inch of grout shall be applied under the equipment base plate after placement and alignment of the equipment.

3. ITEMS - Anchor plates, bolts, sleeves, nuts and washers and other necessary items for proper installation of equipment shall be provided. The Contractor shall also furnish and set required templates to locate accurately the positions of the hold-down bolts.

4. VIBRATION ISOLATION - If specifically required in the detailed Specifications for a particular unit, vibration isolators shall be provided for rotating equipment.

5. SUPPORTS - If any motorized equipment is required to be mounted overhead or off a wall, the Contractor supplying the unit shall furnish and install a suitable platform, bracket or shelf, whichever is appropriate or specified, and mount the equipment thereon. This support shall be constructed of substantial steel members, plates, etc., and the whole securely fastened to the structure or to anchors previously embedded in the wall or slab. In case of excessive vibration transmitted to structure, isolating pads or other devices shall be installed. The Contractor shall apply one (1) coat of approved primer paint to the support and one (1) additional coat of approved paint in the field.

6. ASSOCIATED EQUIPMENT - The Contractor who furnishes a motorized or electrically operated unit of equipment shall also furnish all associated motor starters, disconnect means, relays, control devices, lamps, or other devices, necessary for the successful functioning of the unit.

7. POINT OF DELIVERY - Any item specified to be installed by the Contractor for Electrical Work and delivered to the site that can not be hand carried (due to bulk, weight or timeliness) to the location of its installation is to be delivered and set in place, leveled and secured by the Contractor furnishing the equipment. Such delivery shall be to the location where it is to be installed by the Contractor for Electrical Work.

8. CONTROL AND INTERLOCK WIRING

a. General Construction Work and Plumbing Work.

(1) All control wiring associated with doors and door hardware is to be furnished and installed, unless otherwise indicated, by the Contractor furnishing the doors. Power for the door operation and for its controls shall be furnished and installed by the Contractor for Electrical Work.

(2) All other control wiring associated with equipment furnished by either the Contractor for General Construction Work or the Contractor for Plumbing Work is to be furnished and installed by the Contractor for Electrical Work.

b. Contractor for Heating, Ventilating and Air Conditioning Work

(1) The furnishing and installing of all control devices and all control and interlock wiring for equipment furnished under the Heating, Ventilating and Air Conditioning Contract shall be

by that Contractor, including any power required for any control device.

(2) The Contractor for Heating, Ventilating and Air Conditioning Work shall deliver to the Contractor for Electrical Work all starters and disconnect switches specified to be furnished under the Heating, Ventilating and Air Conditioning Contract. The Contractor for Electrical Work is to install the starters and disconnect switches, and furnish and install all power wiring and make connections between the starter, disconnect switch and motor or equipment being served. The motor or equipment is to be mounted by the Contractor furnishing the motor.

9. INSTALLATION OF BURNER - The Contractor who furnishes and installs the gas/oil-fired boiler/furnace shall also include as part of its Contract, the work of furnishing, installing and connecting all equipment, controls with necessary conduits and wiring, to a service point provided by the Contractor for Electrical Work. Unless detailed otherwise in the Specific Requirements, the Contractor for Electrical Work shall furnish power from the power source to a junction box furnished and installed by the Contractor for the Electrical Work and located near the boiler/furnace control panel. The Contractor for Electrical Work shall also furnish and install an empty conduit and a junction box to be located at a remote location (outside of the boiler/furnace room) for an emergency shut-off switch. The shut-off switch and all other conduit and wire shall be furnished and installed by the Contractor furnishing the boiler/furnace.

K. WORK BY CONTRACTOR FOR ELECTRICAL WORK - The Contractor for Electrical Work shall perform the following work:

1. PANELETTE - The Contractor for Electrical Work shall furnish and install a four (4) circuit panelette in each mechanical equipment room.

2. STARTERS AND DISCONNECT SWITCHES - The associated disconnect switches and starters approved by the Department of Design and Construction which require mounting or wiring apart from a main equipment unit shall be delivered, prewired, to the Contractor for Electrical Work at the site of the project, who shall install and wire them. The electrical Contractor shall acknowledge acceptance in writing to the Contractor supplying them, and thereafter assume responsibility for their safe keeping until final acceptance of its work by the City.

3. CONTROL DEVICES - The Contractor for Electrical Work shall install conduit, wire, and make all connections for all interlock and control devices furnished under the Plumbing Work Contract and also all control and interlock devices furnished under the General Construction Work Contract, except for door control wiring. The various control and interlock devices, furnished (prewired) by the Contractors for Plumbing and General Construction Work Contractors, shall be installed and final connections made by the Contractor for Electrical Work.

4. DOOR CONTROL WIRING - Unless specifically detailed otherwise in the Contract Documents for Electrical Work, all door control and interlock devices are to be furnished and installed and wired by the Contractor furnishing the required control and interlock devices.

5. TESTS - The Contractor supplying the equipment, together with the Contractor for Electrical Work shall cooperate in making preliminary tests to establish the correctness of the installation. If a faulty operation of the unit is discovered, the Contractor whose work is the cause shall, without delay, remedy the trouble.

L. PAINTING

1. Ingredients and methods of application shall conform to that as required for similar work under the Contract for General Construction Work.

2. ALL METAL CABINETS - including switchboards, panelboards, boxes (pull, junction and outlet), trims, doors and covers shall be painted as follows:

All surfaces inside and outside, one (1) approved coat of primer. All accessible surfaces one (1) coat of approved paint inside and outside, in the field after installation.

3. HANGERS. CONDUITS AND FITTINGS – The Contractor who installs them shall give one (1) field applied, approved coat primer, followed by a second coat.

4. FINAL COAT--A final or third coat of paint, as directed, shall be applied by the Contractor installing them when the wall surfaces on which they are supported or the ceiling from which they are hung are not painted by the Contractor for General Construction Work. Pull boxes shall be neatly and legibly stenciled to show service.

5. PAINTING OF MOTORIZED EQUIPMENT - The Contractor furnishing electrically driven equipment shall paint motors and driven equipment, starters and controllers and other equipment provided by the Contractor. The Contractor shall provide any painting or finishing that may be required in the Specifications. For certain equipment having special corrosion resistant factory finishes, painting may be waived by special permission. Equipment shall be neatly stenciled, with legible characters to indicate service by the Contractor who supplies the equipment.

6. NAME PLATES - shall be left clean of all paint.

PART D - ELECTRICAL CONDUIT SYSTEM INCLUDING BOXES (PULL, JUNCTION AND OUTLET) - **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

SCOPE - This Section sets forth the requirements applying to any Contract requiring the installation of electrical conduits, boxes or fittings. Rigid steel conduit shall be used through out, unless specifically indicated otherwise. TYPES-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.

A. CONDUIT TYPES

1. RIGID STEEL CONDUIT - shall be interpreted to 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 Building Code. Rigid steel conduit shall be used for all underground conduits in contact with earth, for Fire Alarm Systems and as required by authorities having jurisdiction.

2. ELECTRICAL METALLIC TUBING (EMT) - shall be industry standard thin wall conduit of galvanized steel only. All elbows, bends, couplings and similar fittings which constitute a part of the conduit system shall be specifically designed 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.

3. FLEXIBLE METALLIC - 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.

B. 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 NYCEC 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 by the Contractor installing them 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 - The Contractor installing underground conduits, duct banks or manholes shall perform, as part of its Contract, 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 zinc coated 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 (each 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. For conduits one (1) inch in diameter or larger, insulating bushings to be O.Z. or approved equal.

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 who installed them using a ball mandrel and a brush and snake before the installation will be accepted. The ball shall be of lignum vitae 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 Electrical Inspector. Any conduits or ducts which reject the mandrel shall be cleared at once with the Contractor bearing all costs, such as chopping concrete, to replace the defective conduit and restore the surface to its original condition.

b. TAGS - Numbers or letters shall be assigned to the various conduit runs, and as they test clear they shall be identified by a fiber tag not less than 1-¼ inch width, attached by means of a nylon cord. All conduit terminations in panel, splice or pull boxes as well as those out of the floor or ceiling shall be tagged.

c. TEST RECORDS - As the conduit runs clear, a record shall be kept under the heading of "Empty Conduit Tested, Left Clear, Tagged and Capped" showing conduit designation, diameter, location, date tested and by whom. When complete, this record shall be signed by the Electrical Inspector and submitted in triplicate for approval. This record shall be entered on the Record drawings, which are required under "General Conditions Governing All Contracts."

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.

C. 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 zinc coated and shall be built of No. 12 USSG steel reinforced at corners by substantial angle irons and riveted or welded to plates. Bottom or side of pull boxes shall be removable and held in place by corrosion resistant machine screws. Pull boxes in damp locations shall have threaded hubs and gaskets. All pull boxes shall be suspended from ceiling or walls in the most substantial manner.

2. For large boxes, sufficient suitable porcelain clamp insulators or other approved devices shall be provided in the pull boxes for supporting the cables passing through the box so that the cables will not be unsupported for a distance greater than three (3) feet and so as to permit a neat and orderly arrangement of the cables.

3. For pull boxes having the largest side more than nine (9) square feet in area, special rectangular and diagonal angle-iron bracing will be required as approved.

4. Pull boxes of special or odd shapes are required to be installed by the Contractor, even though not shown on plans, where necessary to overcome interference or to facilitate the pulling of conductors in conduits.

5. 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. Precautions should be exercised regarding the location of window and door trims,

paneling, etc. Mistakes resulting from failure to observe these precautions, must be corrected by the Contractor without cost to the City. Outlets in hung ceilings shall be supported from the black iron or structure.

6. 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.

7. Exposed wall outlet boxes shall be erected neatly and tight against the walls and securely anchored to same.

8. 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.

9. 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

10. 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.

11. 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.

12. 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.

13. 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.

14. 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.

15. 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, noncorrodible and not less than four (4) in number for each box opening.

PART E - ELECTRICAL WIRING DEVICES **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

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, 15 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 then three (3) switches are located at one (1) point, the faceplates may be made up in multiple units.

PART F - ELECTRICAL CONDUCTORS AND TERMINATIONS **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

A. CONDUCTORS FOR LIGHT AND POWER - All wire and cable shall be of annealed copper of 98% conductivity. Aluminum wire or cable will not be permitted. The insulation shall be flame retardant, moisture and heat resistant, thermoplastic, type THW or THWN rated for 600 volts at 75 degrees C. for both wet and dry locations. Wires No. 8 or larger shall be stranded. Wires and cables shall also be subject to the requirements of the NYCEC. Cables for incoming service or wire in conduits contiguous with the earth or in concrete or other damp or wet locations shall be synthetic rubber insulated with neoprene jacket, heat and moisture resistant and shall be equal to UL Type USE and rated for 600 volts at 75 degrees C. for both wet and dry locations.

B. FIXTURE WIRE - Lighting fixtures shall be wired with No. 14 gauge wire designated as AWM and rated at 105 degrees C.

C. OTHER TYPES - Cables and wires for interior communication systems are described in detailed

Specifications of applicable Contracts.

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. TESTS

1. NOTIFICATION OF TEST - No cable shall be released for shipment from the mill unless authorized by the Commissioner. The Contractor shall give the Commissioner at least 10 days notice when the cable will be available for testing at the mill. The Contractor's representative or inspector shall have access during working hours to all parts of the plant where the cable is being manufactured, and all reasonable inspection and testing facilities shall be afforded to the Contractor without increase in price to the City. The Inspector shall witness the complete test of cable and receive a copy of all test data.

2. TEST DATA - The Contractor shall forward to the Commissioner six (6) copies of all test data for approval before accepting shipment of the cable.

3. INSPECTION DURING MANUFACTURE - The Commissioner reserves the right to dispatch a representative to the factory at any time during the period of manufacture of the cable for the purpose of expediting or checking progress. The living and traveling expenses of the City Engineers making these inspections and witness tests will be borne by the City of New York.

4. TEST IN CITY LABORATORY - Sufficient additional length of conductor shall be provided on each reel, so that a six (6) foot sample may be removed for testing in the City's Laboratories. This sample shall be cut from the reel in the presence of the Inspector of the Department of Design and Construction and cut in two (2) three-foot lengths, each piece to be tagged showing reel number, size and type, manufacture, date, name or project & Contract number. Samples shall be handed to the Inspector for transmittal. If it is found as the result of test that the cable does not comply with the approved factory test the Contractor will be ordered to remove all cable which came off the reel and has been installed, and to replace the defective cable not used, without cost to the City. The Contractor will be held responsible for any delays in the construction program caused by the defective cable.

5. FINAL FIELD TEST - After conductors are installed and connected, the City will test the work for overall insulation resistance. The Contractor shall furnish all test equipment necessary. To be acceptable, the test shall meet the requirements set forth in the NYCEC.

I. 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.

J. 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 manufacture. 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 Contractor furnishing a device containing lugs is to coordinate with the Electrical Work Contract Documents 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. This requirement

applies to both the Contractor for Electrical Work whose branch circuit protector must have lugs of the proper size, as well as to the Contractor who furnishes the device who may have to increase the size of that particular device.

PART G - CIRCUIT PROTECTIVE DEVICES **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

SCOPE - This Section sets forth the circuit protective devices such as circuit breakers and safety switches, used in connection with Motor Control Equipment, Distribution Centers, Panelboards 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 BARRIERS - 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. The trip rating of all circuit breakers shall not exceed 70% of frame rating.

7. 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 Specific Requirements or indicated on the Contract Drawings.

8. 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, 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.

9. CONSTANCY OF CALIBRATION - The tripping elements shall insure constant calibration and be capable of withstanding excessive short circuit conditions without injury.

10. CONTACTS shall be non-welding under operating conditions and of the silver to silver type.

11. 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.

12. 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.

PART H - DISTRIBUTION CENTERS **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

SCOPE - This Section sets forth the construction and installation procedure for Switchboards, Panelboards and Cabinets.

A. PANELBOARDS--GENERAL TYPE - The panelboards 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 deadfront 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 panelboard shall be equipped with main lugs only and capacity as required on Contract Drawings. Where main protection is required, automatic circuit breakers shall be used. A neutral bus of at least the same capacity as a live bus bar shall be provided for the connection of all neutral conductors. Each terminal shall be identified. All current carrying parts, exclusive of circuit breakers, shall be of copper with a minimum number of joints. The bus bar structure shall be a self supporting unit, firmly fastened to a ½ inch plastic board, extending the full length and width of assembly which shall serve to insulate the bus structure from the back of panel box. Other methods affording equally effective bus structure support and insulation will be given consideration. An insulating barrier shall separate neutral bus from other parts of panel.

D. CIRCUIT BREAKER ASSEMBLY - The entire circuit breaker and bus bar assembly shall be mounted on an adjustable metal base or pan and secured to the back of panel box. The panel shall have edges flanged for rigidity.

E. PANEL MOUNTING - The panel shall be centered in the panel box to line up with door openings and set level and plumb so that no live parts are exposed with the door open.

F. PANEL CABINET CONSTRUCTION AND SUPPORT

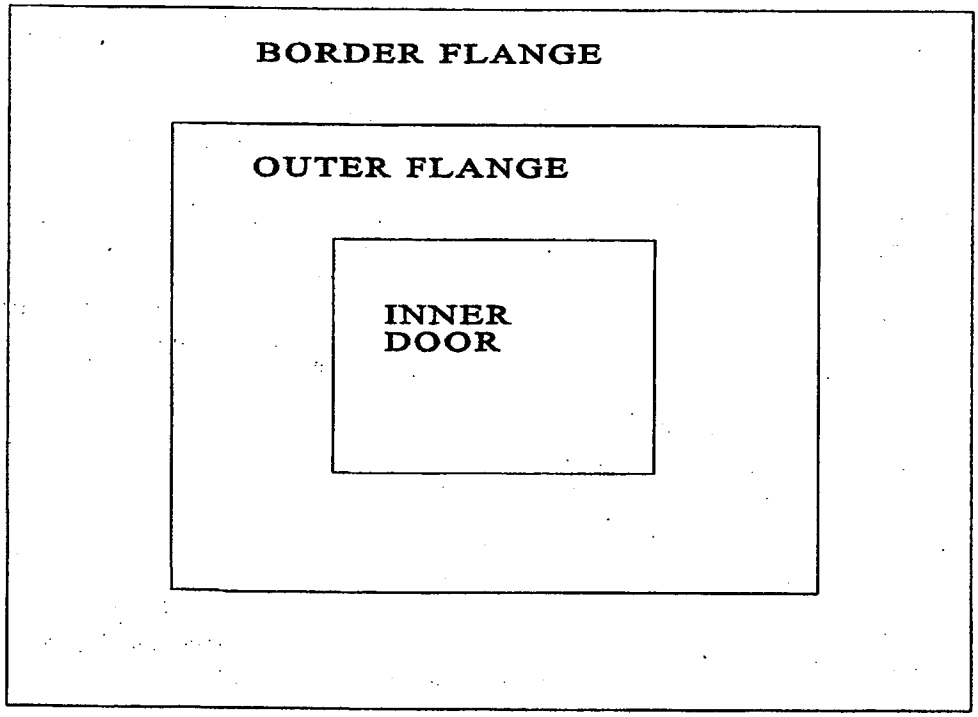
1. Panel boxes shall be fabricated from No. 12 USSG sheet steel of no more than three-piece construction, reinforced at the corners and with continuous welds. Boxes having a back whose area is larger than 16 square feet, shall be of No. 10 USSG sheet steel and reinforced to provide ample stiffness and to prevent buckling. Boxes shall be of sufficient size to afford a clear gutter space on all sides, of not less than six (6) inches.

2. PANEL CABINET INSTALLATION - When installed surface, or in panel closets, they shall be mounted on Kindorf channel, supported from floor slab to ceiling slab.

3. 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. CABINET TRIM - Trim for both lighting and power panelboards shall be door-in-door type installation as depicted in DETAIL A TRIM FOR LIGHTING AND POWER PANELBOARDS. Construction details are to be as described in the following paragraphs.



DETAIL A TRIM FOR LIGHTING AND POWER PANELBOARD

1. CABINET TRIM - The trim and doors for lighting and power panels shall be made of No. 12 USSG full finish sheet steel in one (1) piece. Cabinet trim larger than 16 square feet shall be made of No. 10 USSG. The inner door shall cover the circuit breaker section only and be provided with appropriate brass hinges. The outer door shall cover the entire gutter space and shall be attached to the border type flange with appropriate hinges. Both doors for power panels shall be provided with a New York City Lock No. 511S, with key change to No. 47 and two (2) keys. For lighting panels, the inner door shall be provided with a substantial catch. All hinges shall be of the concealed type. Locks shall be flush with trim. In addition, for panels requiring doors over 48 inches in height, furnish a vault handle and a 3-point catch arranged to fasten door at top, bottom and center.

2. The door shall close against a flange or rabbet to afford a dust tight fit. All space between the panel and the cabinet trim shall be closed by means of a sectional plate secured to the trim.

3. The border flange of the trim shall be fastened to the box with oval head screws finished to prevent corrosion or with approved trim clamps.

4. To facilitate installation of trim, a suitable angle iron shall be spot welded across the bottom of each trim to carry the weight of the trim while the holding screws are being put in place.

H. MOTOR CONTROL CENTERS - Motor centers shall be furnished by the Contractor as indicated in the Specifications or Contract Drawings, but shall be installed by the Contractor for Electrical Work.

I. NAMEPLATES - Nameplates where required, shall be made of engraved Lamicoid sheet, or approved

equal. Letters and numbers shall be engraved white on a black background (except for Firehouse projects which shall have white letters on a red background) the Contractor shall submit an engraved sample for approval as to design and style of lettering before proceeding with the manufacture of the nameplate. Nameplates shall be of suitable size and shall also be provided at the top of the switchboard or section thereof and on the trim at the top of all lighting and power panels. Similar nameplates shall also be provided for each distribution circuit breaker giving the breaker number, the number of the feeder, and the name of the equipment fed.

J. SHOP DRAWINGS - showing all details of boxes, panels, etc., shall be submitted for approval.

K. 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 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.

L. 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, panelboards shall be enclosed and gasketed NEMA 3R type. Panelboards located outdoors or exposed to the weather shall be cast iron.

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. All of the aforementioned painting is to be done by the Contractor who furnishes the boxes and trim. Where panel trims or boxes are installed on walls which are to be painted, the previously mentioned third or finishing coat of paint shall be included in the work of the Contractor who has the Contract for general interior painting.

PART I – MOTORS **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

SCOPE - This Section sets forth the general design, construction and performance requirements, which shall apply to all motors furnished in any of the Contracts.

A. MOTOR DESIGN - All motors shall be designed to comply with the New York State Energy Code currently in effect. 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 present 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. MOTORS OF SAME MANUFACTURER - Unless expressly permitted otherwise by the Commissioner, all motors under the same Contract shall be manufactured by the same company. Exceptions may be granted in the case of motors of 1/4 horsepower rating and smaller, or for a motor that is an integral part of the equipment, with its housing especially built for this purpose.

C. STANDARDS OF COMPARISON - 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.

D. 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 Building Code of the City of New York 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.

E. 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. Each Contractor who furnishes four (4) or more such motors shall also furnish, as part of its 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.

F. 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.

G. 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.

H. 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.

I. MOTORS ON LIGHTING PANELS - The largest A.C. motor permitted on branch circuits of lighting panels shall not exceed 1/4 horsepower.

J. MOTORS RATED ½ horsepower and larger shall be polyphase.

K. TESTS

1. FACTORY INSPECTION - Electrical equipment and devices (except portable) not covered by standard Specifications or tests herein prescribed shall be inspected and witnessed on test at the factory with the tested equipment being completely assembled and connected under conditions approved by the Commissioner as equivalent to the actual working conditions. Suitability and

ruggedness of the design for the specified purpose will be a condition for acceptance.

2. SHOP TESTS - to determine the load performance of motors shall be made in accordance with Standard C-50, of the ASA. Motors shall meet the requirements of C-50 for insulation resistance, dielectric strength, efficiency and temperature rise. Efficiency (and power factor for A.C. motors) shall be established for 50, 75 and 100 percent of rated horsepower but for motors of 100 horsepower or larger, the 125 percent loading shall be included.

3. TEST REPORTS - The result of shop tests shall be submitted to the Commissioner for approval and shall be on forms approved by the City. The evaluated test data shall include a signed statement confirming the fact that the equipment meets the requirements of the standards of performance.

4. MANNER OF TEST - For motors of 100 horsepower or smaller, check tests against complete tests of similar motors will be accepted. For motors larger than 100 horsepower, complete tests for each motor furnished shall be made, and certified test data sheets shall be submitted for approval, unless shop tests are required by the Detailed Specifications.

5. PREFERRED METHODS - The efficiency of fractional horsepower motors shall be determined by the input-output method; for larger motors up to and including 100 horsepower, the separate loss method as specified in ASA Standards C-50 will be accepted unless otherwise required in the Specifications.

L. SPARE PARTS - The Contractor who furnishes motors, including fractional horsepower, shall provide the following spare parts and accessories in connection therewith:

1. BRUSHES - One (1) additional set of brushes for each motor equipped with them.

2. BEARINGS - For each group of three (3) and fraction thereof, of each type and size of motor, the Contractor shall furnish one (1) set of extra bearing linings or ball or roller bearings. Where less than three (3) of any type of motor is involved, one (1) set of extra bearings shall be furnished.

3. SPRINGS - One (1) set of brush springs used in slip ring motor or universal type motors.

4. WRAPPER MARKING - All parts shall be delivered neatly and securely wrapped and boxed, plainly tagged and marked for identification and reordering.

PART J - MOTOR CONTROL EQUIPMENT **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

SCOPE - This Section sets forth the requirements for motor controllers and associated devices, which are applicable to all Contracts under which motor control equipment is furnished or installed.

A. MANUFACTURER - All control equipment furnished under one (1) 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 who furnishes a motor 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 who furnishes the motor 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 ½ horsepower or more, magnetic starters and circuit breakers shall be used. Single phase A.C. motors smaller than ½ horsepower or three-phase A.C. motors smaller than one (1) horsepower where manual control is specified may be furnished with starters of toggle switch or push button type with inbuilt thermal protection. No additional disconnecting means is required to be furnished with this type of starter. This type of starter may also be used in series with automatic control devices such as thermostats, float and pressure switches, provided the individual motor or the sum of fractional horsepower motors is less than ½ horsepower.. Means for manual operation shall be provided.

D. DISCONNECTING BREAKER - All motor starters, unless otherwise specified shall be provided with a disconnecting means in the form of a circuit breaker of the type specified under "CIRCUIT PROTECTIVE DEVICES" of the General Conditions. 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 Contractors who furnish electrically operated equipment shall give to the Contractor for Electrical Work full information relative to sizes and locations of apparatus furnished by them which require electrical connections.

Equipment being installed by the Contractor for Electrical Work shall be delivered to the Contractor for Electrical Work by other Contractors in proper time and sequence so that the Contractor for Electrical Work shall be able to meet the Contractor for Electrical Work working schedule.

I. SPARE PARTS

1. FURNISH - Each Contractor shall furnish the following spare parts pertaining to equipment furnished by each Contractor.

   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.

PART K - SCHEDULE OF ELECTRICAL EQUIPMENT

Schedule D requirements for electrical motor equipment may be included in one or more of the Specifications for the separate contracts for the Project. SCHEDULE D delineates the responsibilities of each separate contractor for electrical motor control equipment. SCHEDULE D is included in the Addendum to the General Conditions. In the event of any conflict between the Specifications and 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.

1.38 Safety

A. Each Contractor shall provide and maintain all necessary temporary closures, guard rails, and barricades to adequately protect all workers and the public from possible injury. Any Contractor requiring removal of these items shall be responsible for the replacement of same.

1.39 Interruption of Services and of Project Facilities

A. EVENING AND WEEKEND WORK - Where the work makes temporary shutdowns of the services unavoidable, they shall be made at night or on weekends or at such times that will cause no interferences with the established routines and operations of the projects 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.

B. INTERRUPTION OF PROJECT FACILITIES

1. The Contractor shall not interrupt any of the services of the project nor interfere with these 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 will the Contractor, 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. The facility operates 24 hours per day seven (7) days a week. Toilet facilities, water and electricity

must be operational at all times. No services of the project 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.

5. Contractors shall schedule their work to avoid noise interference that will affect the normal functions of the project. In particular, construction operations producing noises that are objectionable to the project functions will be scheduled at times of day or night, day of the week, or weekend, which will not interfere with the project personnel. Any additional cost resulting from this scheduling shall be borne by the specific Contractor.

6. The Contractor shall arrange to work continuously, including overtime, if required, to assure that services will be shut down only during the time actually required to make the necessary connections to the existing work.

7. The Contractor shall give ample written notice in advance to the Commissioner and project personnel of any required shutdown.

1.40 Separation of Work Between Trades (REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)

A. SCHEDULE E – Requirements for various items of work are included in the Specifications for the separate contracts for the Project and in the General Conditions. Schedule E delineates the responsibilities of each separate contractor for various items of work, as well as the extent to which certain items involve coordination between trades. Schedule E is included in the Addendum to the General Conditions. The delineation set forth in Schedule E shall be taken as specific instruction to the Contractor that it is responsible for the listed items of work. Schedule E is not intended to limit the Contractor's responsibility for supervision and coordination as set forth in Paragraph B below. In the event of any conflict between the Specifications, the General Conditions and Schedule E, Schedule E shall take precedence; provided, however, in the event of an omission from Schedule E (i.e., Schedule E omits either a reference to or information concerning an item of work which is set forth in the Specifications or the General Conditions), such omission from Schedule E shall have no effect and the Contractor's obligation to perform the work, as set forth in the Specifications or the General Conditions, shall remain in full force and effect.

B. SUPERVISION AND COORDINATION - Each Contractor is required to supply all necessary supervision and coordination information to any other trades who are to supply work to accommodate their installations.

1.41 Shop Drawing and Material Samples Schedule

A. SCHEDULE F – Schedule F sets forth all submittal requirements for shop drawings and material samples. Schedule F is included in the Addendum to the General Conditions. At the kick-off meeting, each Contractor must review this Schedule with the Commissioner's Representative and the 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 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 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.

B. COORDINATION - The Resident Engineer for this project will coordinate and review the data submitted by various Contractors. Upon acceptance by the Resident Engineer, the Resident Engineer

will date and sign the schedule as approved and transmit it to the Consultant, Contractors and Project Manager within the Department of Design and Construction.

C. ARTICLE 11 - Thereafter, this schedule will be subject to the provisions of Article 11 of the agreement and must be strictly adhered to by the Contractor.

1.42 Specific Requirements

A. The work of this article shall be the responsibility of the Contractor for General Construction Work, unless otherwise indicated.

B. FIELD MEASUREMENTS

1. Each Contractor shall verify all dimensions and conditions on the job so that all work will properly join the existing work.

2. Each Contractor, before commencing work, shall examine all adjoining work on which each Contractor's work is in any way dependent on good workmanship in accordance to the intent of the Specification and Contract Drawings. The Contractor shall report to the Commissioner any condition that will prevent any Contractor from performing work that is below the required standard.

C. BORINGS **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

1. 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:

2. 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.

3. SOIL 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.

4. 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.

5. 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.

6. 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.

D. DEFERRED CONSTRUCTION

1. 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 under any other Contract in effect 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.

2. The Contractor shall confer with the affected Contractors and ascertain arrangements, time and facilities necessary to be made by the Contractor in order to execute the provisions specified herein.

E. WORK FENCE ENCLOSURE **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

1. The Contractor shall furnish and erect a wood fence to the extent shown on the drawings enclosing the entire project on all sides. All materials used shall be new. Any permit required for the installation and use of said fence shall be borne by the Contractor.

2. THE FENCE shall be 7'-0" high with framing construction of yellow pine, using 4" x 4" posts on not more than 6'-0" centers, with three (3) rails of at least 2" x 4" size to which shall be secured boards, 3/4" x 6" tongue and groove, laid solid and surface and double nailed to each bearing. 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. The Contractor has the option of using ½" exterior grade plywood in lieu of the 3/4" x 6" tongue and groove boards.

3. 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 provide with tension or sag rods for the swinging sections.

4. PAINTING - The fence and gates shall be entirely painted on the street and public sides with two (2) coats of approved lead and oil paint. The below-grade section of the posts shall be first creosoted or given a coat of tar base paint. Black stenciled signs reading "POST NO BILLS" shall be painted on fence with three (3) inch high letters on 25 foot spacings for the entire length of fence on street traffic sides. Signs shall be stenciled five (5) feet above the sidewalk.

5. It shall be the obligation of the Contractor to remove all posters, advertising signs, and markings, etc., immediately.

6. Where sidewalks are used for "drive over" purposes for Contractor vehicles, a suitable wood mat or pad shall be provided for protection of sidewalks.

7. Where required, make provision for fire hydrants, lampposts, etc.

8. REMOVAL - When directed by the Resident Engineer, the fence shall be removed.

F. PUMPING

1. 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.

2. All pumps shall be maintained at all times in proper working order.

G. RESIDENT ENGINEER'S OFFICE

1. OFFICE SPACE IN EXISTING BUILDING **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

   a. The Resident Engineer will arrange for office space for sole use in the building where work is in progress. The Contractor for General Construction Work shall provide and install a lockset

for the door to secure the equipment in the room. The Contractor for General Construction Work shall provide two (2) keys to the Resident Engineer. After completion of the project the Contractor for General Construction Work shall replace the original lockset on the door and ensure its proper operation.

b. The Contractor for General Construction Work shall provide one (1) telephone, where directed, for the exclusive use of the Resident Engineer. The Contractor for General Construction Work shall pay all costs for telephone service for calls within New York City limits for the duration of the project. The telephone service shall continue for a period of 90 days following substantial completion.

c. The Contractor for General Construction Work shall provide the following equipment:

(1) 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) lockers, metal olive green or gray, 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 ½"D x 18"W in a grey finish by Art Steel No. 2904L or approved equal.
(2) 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.
(3) Two (2) metal wastebaskets, 13 inches square 15 inches high with rubber feet and corners by Art Metal Company No. 168 or approved equal.
(4) One (1) fire extinguisher one (1) quart vaporizing liquid type, brass, wall mounted by Pyrene No. C21 or approved equal.
(5) 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.

2. TRAILER OFFICE **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

a. The Contractor for General Construction Work shall provide at its own cost and expense a trailer and install and connect all utility services to trailer within twenty (20) days of start of work. The trailer shall have equipment having the minimum requirements hereinafter specified. Any permit required for the installation and use of said trailer shall be borne by the Contractor.

b. The trailer shall remain the property of the Contractor for General Construction Work except that the file cabinets herein specified, shall become the property of the City of New York.

c. Trailer shall be office type trailer of the following general minimum dimensions:

1.	Length, overall:	35 feet.
2.	Length, inside:	32 feet.
3.	Width, overall:	8 feet.
4.	Width, inside:	7 feet, 5 inches.

d. Trailer shall be manufactured by International Trailer Company, Model No. 1 MU-35-D or Atlantic Trailer Corporation, Model No. F-36 or approved equal.

e. The exterior of the trailer and the wheels shall be given an approved coat of exterior enamel. The enamel finish coat shall be DUPONT orange lacquer or approved equal. 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 STRUCTURES	3-1/2"
RESIDENT ENGINEER'S OFFICE	2-1/2"

NOTE: In lieu of painting letters on trailer the Contractor for General Construction Work may substitute a sign constructed of a good quality lumber with the same type and size of lettering above.

f. All windows and doors shall have insect aluminum screens and wire mesh protective screening.

g. The interior shall be finished in 1/4 inch plywood. Plywood shall be finished in natural color, with two (2) coats of varnish or lacquer.

h. The interior shall be divided by partitions into one (1) large room in front of trailer, and a private office approximately 6' x 7' at rear of trailer and a washroom located adjacent to the private office.

i. The washroom shall be equipped with a flush toilet, wash basin with two (2) faucets, medicine cabinet, complete with supplies by Hospital Supply and Watters Labs., Inc., Model No. 1 or approved equal 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.

j. The heating system shall consist of thermostatically controlled electric baseboard heaters capable of delivering not less than 30,000 BTU per hour and heaters shall be as manufactured by Chromalox or approved equal, sized per area with individual approved thermostats.

k. The trailer shall be equipped with an approved two-circuit, 110-120 volt armored cable wiring system of adequate capacity complete with entrance connector with provision for grounding, enclosed fused service switch and branch circuit fuse box. The circuits for lighting, water heater, heater and convenience outlets, etc. shall be two-conductor, No. 12. The circuits for the space heaters shall be sized minimum No. 12 wire led from individual circuits in the branch circuit fuse box. Metal boxes shall be provided at all outlet points. All wiring shall conform to the requirements of the Electrical Code of the City of New York for armored cable wiring systems.

l. Lighting to be furnished by a minimum of four (4) 48 inch, single tube, fluorescent fixtures for the large rooms and an incandescent fixture for the washroom. Lighting fixtures shall be provided with built-in pull-chain switches. A minimum of six (6) duplex convenience outlets shall be installed; four (4) in the larger room and two (2) in the smaller room. These outlets shall be in addition to connections for electric space heaters and heaters for domestic hot water.

m. In addition to the washroom and private office, the following shall be built-in to the trailer:

    1. The drafting or reference table at least 60 inches long by 36 inches wide with cabinet below, head shelf at each end of the trailer, wall type plan rack at least 42 inches wide and wardrobe opposite washroom.

n. The following movable equipment shall be furnished:

    1. Four (4) single pedestal desks, 42" x 32"; two (2) swivel chairs with arms and three (3) side chairs without arms to match desk. Four (4) lockers, metal olive green or gray, 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 ½" D x 18"W in a grey finish by Art Steel No. 2904L or approved equal.

    2. One (1) 6000 B.T.U. and one (1) 9000 B.T.U. air conditioner. Wiring for the air conditioners shall be minimum No. 12 AWG fed from individual circuits in the fuse box.

3. Two (2) metal wastebaskets, olive green or grey finish, 13 inches square 15 inches high with rubber feet and corners by Art Metal Company No. 168 or approved equal.

4. One (1) fire extinguisher one (1) quart vaporizing liquid type, brass, wall mounted by Pyrene No. C21 or approved equal.

5. 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.

o. TRAILER TEMPORARY SERVICE - Plumbing and electrical work required for the trailer will be furnished and maintained as below.

1. PLUMBING WORK - shall include all water supply and drainage piping required for a complete installation. Contractor to provide a temporary water service from the City's water main and extend in the trailer and properly connect up all fixtures requiring water supply. Provide all necessary soil, waste, vent and drainage piping.

a. Plumbing Contractor to frost-proof all water pipes to prevent freezing.

b. REPAIRS, MAINTENANCE - The Plumbing Contractor provide repairs when and as required for a period of thirty (30) days after the date of substantial completion acceptance.

c. DISPOSITION OF PLUMBING WORK - At the expiration of the time limit set forth in Subparagraph 3, the water drainage connections and piping to the office trailer shall be removed 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 for General Construction Work.

2. ELECTRICAL WORK - The Contractor for Electrical Work shall furnish, install and maintain a temporary electric feeder to the trailer to be used by the Resident Engineer immediately after it is placed at the job site.

a. The temporary electric feeder shall be at least three (3) No. 6RH wire and shall be protected by a 60 Ampere fused safety switch, complying with codes and utility requirements having jurisdiction.

b. Make all arrangements and pay all costs to provide electric service.

c. 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 a period of thirty (30) days after the date of substantial completion acceptance.

d. 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.

e. All repair work due to these removals shall be the responsibility of the Contractor.

p. MAINTENANCE

1. The Contractor for General Construction Work shall provide and pay all costs for hot and cold water, heat and fuel and regular daily janitor service. Furnish toilet paper, cloth towels and soap and maintain the field office in first-class condition, including all repairs, until 30 days after the date of substantial completion acceptance.

2. Provide fire, extended coverage and vandalism, malicious mischief and burglary and theft

insurance coverage for the Resident Engineer's field office equipment in the amount of $10,000. All insurance coverage shall be provided by a company licensed and authorized to do business in the State of New York. Such coverage must, under the loss payable clause or by endorsement thereon, state the following: "loss, if any, payable to the City of New York."

3. At 30 days after the date of substantial completion acceptance, or sooner as directed by the Commissioner, the Contractor for General Construction Work shall have all services disconnected and capped to the satisfaction of the Resident Engineer.

q. The Contractor for General Construction Work shall provide and pay all costs for the following telephone services for the Resident Engineer's trailer:

1. Two (2) desk phones

2. One (1) wall phone (with six (6) foot extension cord) at plan table.

3. A remote bell located on outside of trailer

4. The telephone service shall continue for a period of 90 days following substantial completion.

r. Should it become necessary to relocate the trailer or move the field office from one (1) location to another, Contractor for General Construction Work shall be responsible for move or moves and of reconnecting all utilities described above at new location, and shall assume all costs incurred.

s. PERMITS - The Contractor for General Construction Work shall make the necessary arrangements and obtain all permits required for this work.

t. The Contractor for General Construction Work 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 General Construction Work must be approved by the Commissioner before the area is rented. All insurance maintenance and equipment required for trailer field office shall also apply to rented spaces.

H. ADDITIONAL EQUIPMENT FOR THE RESIDENT ENGINEER **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

1. The Contractor for General Construction Work shall supply photo equipment not to exceed $250. Said equipment to be specified by Resident Engineer. At the completion of the project, the equipment shall become the property of the City of New York.

2. The Contractor for General Construction Work shall provide a copy machine for paper sizes 8½ x 11 & 8½ x 14. Copier shall remain at job site 30 days beyond the Substantial Completion date.

3. The Contractor for General Construction Work shall furnish a fax machine and a telephone answering machine at commencement of the project. All materials shall be new, sealed in manufacturer's original packaging and shall have manufacturers' warrantees. All items shall remain the property of the City of New York at the completion of the project.

4. Computer Workstation (Refer to the Addendum to the General Conditions for the number of Computer Workstations to be provided):

Computers shall be provided for all contracts that have a total duration of 180 Consecutive Calendar Days (CCDs) or more, as set forth in Schedule "A". Contracts that have a total duration of less than 180 CCDs shall not require computers. Computer workstations shall be provided for

the duration of the contract.

(1) Personal Computer(s) - Workstation Configuration.

(a) Make and Model: Dell, Gateway, Toshiba, HP, IBM, or an approved equal. (Note: an approved equal requires written approval of the Assistant Commissioner of ITS.)

(b) Processor: 3.0 GHz Pentium 4 or faster computer - Single Processor.

(c) System RAM: Minimum of 1 GB (Gigabytes) of SDRAM or DDR.

(d) Hard Disk Drive(s): 80 GB (Gigabytes) 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, 2 USB Ports. Serial Ports must consist of UART 16550 Chip or better.

(h) Video Display Card: PCI Interface with a minimum of 64 MB of RAM.

(i) Monitor: 17" TFT LCD monitor.

(j) Available Exp. Slots: System as configured above shall have at least two (2) full size PCI Slots available.

(k) Fax/Modem: Internal Fax/Modem 56 Kbps speed, featuring 3COM or US Robotics Chipset and supporting a minimum of V.92 and MNP5 compliant. Integrated 10/100/1000 Ethernet.

(l) Other Peripherals: Optical scroll Mouse, 101 Key Keyboard, Mouse Pad and all necessary cables.

(m) Software Requirements: Microsoft Windows XP Professional, Microsoft Office 2003 Professional, Microsoft Project 2002 Professional, Adobe Acrobat reader, Anti-Virus software package with one year updates subscription, Win Zip and Auto Cad 2008 LT.

(2) All field offices requiring computers shall be provided with the following:

(a) One (1) broad-band internet service account. This account will be active for the life of the project.

(b) One (1) 600 DPI HP Laser Jet Printer (twelve (12) pages per minute or faster) with one (1) Extra Paper Tray (Legal Size)

(c) All necessary Cabling

(d) Storage Boxes for and Blank CDs/DVDs

(e) Printer Table

(f) UPS/Surge Suppressor combo

(3) 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.

(4) An adequate supply of blank CD's/DVD's, 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 Engineer.

(5) 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.

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 Raul Canabal, Assistant Commissioner of Information Technology Services at 718-391-1668.

I. PUBLIC TELEPHONE **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

1. The Contractor shall provide a public telephone located on the site, where directed, for the duration of the Contract.

J. 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 office of the Resident Engineer.

2. Upon completion of the project, the helmets shall become the property of the Contractor.

K. RODENT AND INSECT CONTROL

1. DESCRIPTION - The General 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:

   a. Wet areas within the project area, including all temporary structures.

   b. All exterior and interior temporary toilet structures within the project area.

   c. All Field Offices and shanties within the project area of all Contractors and the Department of Design and Construction (DDC).

   d. Wherever there is evidence of food waste and/or discarded food or drink containers, in quantity, that would cause breeding of rodents or the insects herein specified.

   e. Any other portion of the premises requiring such special attention.

2. MATERIALS: 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

3. PERSONNEL: All pest control personnel must be supervised by an exterminator licensed in categories 7A & 8.

4. METHODS

a. Application and dosage of all materials shall be done in strict compliance with the manufacturer's recommendations.

b. Under the Maintenance of Site item (section 1.42.L), any unsanitary conditions, such as uncollected garbage or debris, resulting from the General Contractor's activities which will provide food and shelter to the resident rodent population shall be corrected by the General Contractor immediately after notification of such condition by the Commissioner

5. RODENT CONTROL WORK

a. 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 streambanks. Live traps must be used in these seventy-five (75) foot buffer zone areas and within wetland and woodland areas.

b. 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.

c. 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.

d. The General Contractor shall be responsible for collecting and disposing of all trapped and poisoned rodents found in live traps and tamper proof bait stations. The General Contractor shall also be responsible for posting and maintaining signs announcing the baiting of each particular location.

The General Contractor, under his/her Maintenance of Site operations, shall be responsible for the immediate collection and disposal of any visible rodent remains found on streets or sidewalks within the project area.

e. It is anticipated that public complaints will be addressed to the Commissioner. The General 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.

f. 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.

6. EDUCATION & TRAINING

a. The General 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 General 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.

b. Prior to application of any chemicals, the General 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.

7. RECORDS AND REPORTS

a. The General 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.

b. The General Contractor shall maintain records of all locations baited along with the type and quantity of rodenticide and insecticide bait used.

L. SITE SECURITY/PERIMETER SIGNAGE

1. 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

---

2. 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).

M. MAINTENANCE OF SITE AND ADJOINING PROPERTY

1. Take over and maintain the site, after order to start work.

2. Until the work of the Contract is completed and accepted, 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. The Contractor shall, at its own expense, except as otherwise specified, protect same and maintain them in least as good a condition as that in which the Contractor finds them.

3. 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.

4. Provide and keep in good repair all bridging and decking necessary to maintain vehicular and pedestrian traffic.

5. The Contractor shall also remove all snow and ice as it accumulates on the sidewalks within the Contract Limits Lines.

N. SAFETY PRECAUTIONS FOR CONTROL CIRCUITS

1. 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.

O. OBSTRUCTIONS IN DRAINAGE LINES

1. 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 for General Construction Work.

P. MAINTENANCE OF PROJECT SITE

1. Take over and maintain all project areas, after order to start work.

2. Until the work of the Contract is completed and accepted, 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.

3. 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.

4. The Contractor shall keep the space for the Resident Engineer in a clean condition.

Q. PROJECT SIGN AND RENDERING
PART 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 point and in a position where 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 same in first class condition and in proper position. Prior to fabrication, contractor shall submit an 8-1/2" x 11" color match print proof from the sign manufacturer of 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 prefinished 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 ½" 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. All visual components of the sign are in an Adobe *.pdf file, which is provided by the

Commissioner's representative. The file is to be opened in Acrobat Professional or Acrobat Approval in order to be saved with project information. 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. At no point in the update, saving or renaming of the file should it be locked by any user. The digital file shall be provided by DDC to the Contractor (on a CD or via E-mail) for printing.

b. The DDC *.pdf file with names provided by the commissioner shall be reproduced at the Sign Panel size of 4' x 8' on 3M High Performance Vinyl or approved equal. The sign manufacturer is required to print from the Acrobat *.pdf provided, and must match the following colors specified by Pantone: 3025 C, 119 C, 131 C, 1805 C, 1817 C in their exact locations as indicated in the *.pdf file, and on the DDC website: www.nyc.gov/buildnyc.

c. Color shall be created in a four-color process to reproduce Pantone Colors (per Pantone formula).

1. Pantone color 3025 C (C-100, M-17, Y-0, K-51).
2. Pantone color 119 C (C-0, M-12, Y-100, K-49).
3. Pantone color 131 C (C-0, M-32, Y-100, K-23).
4. Pantone color 1805 C (C-0, M-91, Y-100, K-23).
5. Pantone color 1817 C (C-0, M-90, Y-100, K-66).

The typeface, Helvetica shall be used in all text-fields as is specified in the settings of the Acrobat *.pdf.

Note: 3M High Performance Vinyl or equivalent shall be guaranteed for nine (9) years. Guarantee must cover fading, peeling, chipping or cracking.

PART B – PROJECT RENDERING **(REFER TO THE ADDENDUM TO THE GENERAL CONDITIONS FOR THE APPLICABILITY OF THIS ARTICLE)**

1. Responsibility: In addition to the Project Sign, the Contractor shall furnish and install one (1) sign showing a rendering of the project. From an approved image file provided by the DDC, the Project Rendering is to be sized, printed, and mounted in an identical manner as described in Part A above for the Project Sign. Any area of the 4' X 8' panel area not filled by the rendering shall be printed in Pantone color 3025 (c-100, M-17, y-0, K-51). 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.

R. PLANT PEST CONTROL REQUIREMENTS and TREE PROTECTION REQUIREMENTS

1. Plant Pest Control Requirements: The Contractor for General Construction Work (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.

a. 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.

b. 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.

c. 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.

d. 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.

2. 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.

a. 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 above; (3) evaluation of the general health and condition of any infected plant material.

b. 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.

c. 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.

1. 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).

2. 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.

3. 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.

d. 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.

3. 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.

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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

Contractor

Dated _____ , 20 _____

Approved as to Form
Certified as to Legal Authority

Acting Corporation Counsel

Dated _____ , 20 _____

Entered in the Comptroller's Office

First Assistant Bookkeeper

Dated _____ , 20 _____

FMS ID: **PV467IRT1**

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**
CONTRACT NO. 2	**PLUMBING WORK**
CONTRACT NO. 3	**HVAC + FIRE PROTECTION WORK**
CONTRACT NO. 4	**ELECTRICAL WORK**

Renovation of the Irish Repertory Theater

LOCATION: **132 West 22nd Street**
BOROUGH: **New York, NY 10011**
CITY OF NEW YORK

Chinatown Plumbing & Heating Inc.
Contractor

Dated June 12, 20 14

Approved as to Form
Certified as to Legal Authority

Acting Corporation Counsel

K.T. 6/5/13

Dated June 5, 20 13

Entered in the Comptroller's Office

First Assistant Bookkeeper

Dated _____, 20____

NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

PROJECT ID: PV467IRT1

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

VOLUME 3 OF 3

ADDENDUM TO THE GENERAL CONDITIONS

SPECIFICATIONS

FOR FURNISHING ALL LABOR AND MATERIALS
NECESSARY AND REQUIRED FOR:

Renovation of the Irish Repertory Theater

LOCATION: 132 West 22nd Street
BOROUGH: New York, NY 10011
CITY OF NEW YORK

CONTRACT NO. 1 GENERAL CONSTRUCTION WORK
CONTRACT NO. 2 PLUMBING WORK
CONTRACT NO. 3 HVAC + FIRE PROTECTION WORK
CONTRACT NO. 4 ELECTRICAL WORK

DCA

Garrison Architects

Date: April 29, 2013

13-052

CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF STRUCTURES

ADDENDA CONTROL SHEET

BID OPENING DATE: **July 24, 2013**

PROJECT No. : **PV467IRT1**

TITLE: **Irish Repertory Theater Renovation**

ADDENDA ISSUED	NO. OF DWG	DATE	APPROVED BY: ARCHITECTURE/ ENGINEERING	GENERAL COUNSEL
#1 Revisions to Volume 2		7/11/2013	KBA	7/12/13

THE CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF STRUCTURES

July 11, 2013

ADDENDUM No. # 1

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

PV467IRT1
Irish Repertory Theater Renovation

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. **Revisions to Volume 2:**
   Delete existing Prevailing Wage Schedule and replace with latest Prevailing Wage Schedule, published July 1, 2013, included with this Addendum.

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: _____

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: Wasyl 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.

Wasyl Kinach, P.E.
Director of Classifications
Bureau of Labor Law

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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.

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.

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

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

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

Off shift work, commencing between 5:00 P.M. and 10:00 P.M. shall work eight and one half hours allowing for one half hour for lunch, but will be paid for 9 hours including benefits at the straight time rate for 8 hours.

(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)

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

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)

DERRICKPERSON AND RIGGER

Derrick Person & Rigger

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $40.50
Supplemental Benefit Rate per Hour: $42.07
Supplemental Note: The above supplemental rate applies for work performed in Manhattan, Bronx, Brooklyn and Queens. $43.49 - 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

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.

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 but will be paid 113% of the straight time hourly wage and the straight time supplemental benefits.

(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
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
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

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

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.

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.
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
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
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.

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
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

Cherrypickers 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, Cherrypickers. 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

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

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

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

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Engineer - Building Work Maintenance Engineers I

Installing, repairing, maintaining, dismantling (of all equipment including: Steel Cutting and Bending Machines, Mechanical Heaters, Mine Hoists, Climbing Cranes, Tower Cranes, Linden Peine, Lorain, Liebherr, Mannes, or machines of a similar nature, Well Point Systems, Deep Well Pumps, Concrete Mixers with loading Device, Concrete Plants, Motor Generators when used for temporary power and lights), skid steer machines of a similar nature including bobcat.

Effective Period: 7/1/2013 - 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

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
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)

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.)

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
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
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).

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.

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

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

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
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
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).

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
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

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)

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
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.

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).
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

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

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

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

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).
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 (½) hour for lunch. Off-Hour Start shall commence after 3:30 P.M. and shall conclude by 6:00 A.M. The first consecutive seven (7) hours shall be at straight time with a differential of twelve dollars ($12.00) per hour. Fringes shall be paid at the straight time rate.

(Local #46)

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

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
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
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

Journeyperson

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: $33.00
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: $37.00
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
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

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.

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: $51.76
Supplemental Benefit Rate per Hour: $37.19
Supplemental Note: Overtime supplemental benefit rate per hour: $74.10

Overtime Description

Double time the regular rate after a 7 hour day - unless for new construction site work where the plumbing contract price is $1.5 million or less, the hours of labor can be 8 hours per day at the employers option. On Alteration jobs when other mechanical trades at the site are working an eighth hour at straight time, then the plumber shall also work an eighth hour at straight time.

Overtime

Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Shift Rates

Shift work, when directly specified in public agency or authority documents where plumbing contract is $8 million or less, will be permitted. 30% shift premium shall be paid for wages and fringe benefits for 4:00 pm and midnight shifts Monday to Friday. 50% shift premium shall be paid for wages and fringe benefits for 4:00 pm and midnight shift work performed on weekends. For shift work on holidays, double time wages and fringe benefits shall be paid.

(Plumbers Local #1)

PLUMBER (MECHNICAL 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
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)

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
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

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)

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.

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 journeyperson 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.
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

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: $36.30
Supplemental Benefit Rate per Hour: $11.76

Refrigeration and Air Conditioner Service Person V

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $29.82
Supplemental Benefit Rate per Hour: $10.71

Refrigeration and Air Conditioner Service Person IV

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $24.71
Supplemental Benefit Rate per Hour: $9.80

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: $21.21
Supplemental Benefit Rate per Hour: $9.12

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: $17.60
Supplemental Benefit Rate per Hour: $8.50

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: $10.95
Supplemental Benefit Rate per Hour: $7.90

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
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

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.
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
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 but will be paid 113% of the straight time hourly wage and the straight time supplemental benefits.

(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
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)

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: $31.91

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 rat
Supplemental Benefit Rate Per Hour: $33.49

Effective Period: 1/1/2014 - 6/30/2014
Wage Rate Per Hour: 80% of Journeyperson's rat
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

Wage Rate Per Hour: 95% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $38.20

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

Supplemental Benefit Rate Per Hour: $16.60

(Bricklayer District Council)

CARPENTER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Carpenter (First Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $27.69
Effective 7/18/13 - Supplemental Benefit Rate Per Hour: $30.29

Carpenter (Second Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $27.69
Effective 7/18/13 - Supplemental Benefit Rate Per Hour: $30.29

Carpenter (Third Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $27.69
Effective 7/18/13 - Supplemental Benefit Rate Per Hour: $30.29

Carpenter (Fourth Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $27.69
Effective 7/18/13 - Supplemental Benefit Rate Per Hour: $30.29

(Carpenters District Council)

CEMENT MASON
(Ratio of Apprentice to Journeyperson: 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 Journeyperson's Rate

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 Journeyperson: 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 Journeyperson's rate
Supplemental Benefit Rate Per Hour: 50% of Journeyperson's rate

Derrickperson & Rigger (stone) - Second Year: 1st Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: 75% of Journeyperson's rate

Derrickperson & Rigger (stone) - Second Year: 2nd Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: 75% of Journeyperson's rate

Derrickperson & Rigger (stone) - Third Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: 75% of Journeyperson's rate

(Local #197)

DOCKBUILDER/PILE DRIVER
(Ratio of Apprentice to Journeyperson: 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 Journeyperson'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 Journeyperson'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 Year - Hired before 5/10/07)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: $15.25
Supplemental Benefit Rate per Hour: $12.26
Overtime Wage Rate Per Hour: $22.88
Overtime Supplemental Rate Per Hour: $13.26

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $15.25
Supplemental Benefit Rate per Hour: $12.51
Overtime Wage Rate Per Hour: $22.88
Overtime Supplemental Rate Per Hour: $13.51

Electrician (First Year - Hired on or After 5/10/07)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: $12.50
Supplemental Benefit Rate per Hour: $10.86
Overtime Wage Rate Per Hour: $18.75
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: $11.11
Overtime Wage Rate Per Hour: $18.75
Overtime Supplemental Rate Per Hour: $11.93

Electrician (Second Year - Hired before 5/10/07)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: $18.05
Supplemental Benefit Rate per Hour: $13.68
Overtime Wage Rate Per Hour: $27.08
Overtime Supplemental Rate Per Hour: $14.87

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $18.05
Supplemental Benefit Rate per Hour: $13.93
Overtime Wage Rate Per Hour: $27.08
Overtime Supplemental Rate Per Hour: $15.12

Electrician (Second Year - Hired on or After 5/10/07)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: $14.50
Supplemental Benefit Rate per Hour: $11.88
Overtime Wage Rate Per Hour: $21.75
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 Wage Rate Per Hour: $21.75
Overtime Supplemental Rate Per Hour: $13.08

Electrician (Third Year - Hired before 5/10/07)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: $20.15
Supplemental Benefit Rate per Hour: $14.75
Overtime Wage Rate Per Hour: $30.23
Overtime Supplemental Rate Per Hour: $16.08

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $20.15
Supplemental Benefit Rate per Hour: $15.00
Overtime Wage Rate Per Hour: $30.23
Overtime Supplemental Rate Per Hour: $16.33

Electrician (Third Year - Hired on or After 5/10/07)

Effective Period: 7/1/2013 - 5/13/2014
Wage Rate per Hour: $16.50
Supplemental Benefit Rate per Hour: $12.89
Overtime Wage Rate Per Hour: $24.75
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: $13.14
Overtime Wage Rate Per Hour: $24.75
Overtime Supplemental Rate Per Hour: $14.23

Electrician (Fourth Year - 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 Wage Rate Per Hour: $33.15
Overtime Supplemental Rate Per Hour: $17.20

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $22.10
Supplemental Benefit Rate per Hour: $15.99
Overtime Wage Rate Per Hour: $33.15
Overtime Supplemental Rate Per Hour: $17.45

Electrician (Fourth Year - 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 Wage Rate Per Hour: $27.75
Overtime Supplemental Rate Per Hour: $15.13

Effective Period: 5/14/2014 - 6/30/2014
Wage Rate per Hour: $18.50
Supplemental Benefit Rate per Hour: $14.16
Overtime Wage Rate Per Hour: $27.75
Overtime Supplemental Rate Per Hour: $15.38

Electrician (Fifth Year - 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 Wage Rate Per Hour: $38.70
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 Wage Rate Per Hour: $39.45
Overtime Supplemental Rate Per Hour: $21.61

Electrician (Fifth Year - 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 Wage Rate Per Hour: $33.00
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: $18.05
Overtime Wage Rate Per Hour: $33.75
Overtime Supplemental Rate Per Hour: $19.46

Overtime Description

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

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

(Local #1)

ENGINEER
(Ratio of Apprentice to Journeyperson: 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 Journeyperson: 1 to 1, 1 to 5)

Operating Engineer - First Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour 40% of Journeyperson'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 Journeyperson'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 Journeyperson's Rate
Supplemental Benefit Per Hour: $18.60

(Local #14)

FLOOR COVERER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Floor Coverer (First Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 40% of Journeyperson'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 Journeyperson'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 Journeyperson'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 Journeyperson's rate
Supplemental Rate Per Hour: $25.75

(Carpenters District Council)

GLAZIER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Glazier (First Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 40% of Journeyperson'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 Journeyperson'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 Journeyperson'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 Journeyperson's rate
Supplemental Rate Per Hour: $28.34

(Local #1281)

HEAT & FROST INSULATOR
(Ratio of Apprentice to Journeyperson: 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 Journeyperson's rate

Heat & Frost Insulator (Second Year)

Effective Period: 7/1/2013 - 6/30/2014
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Heat & Frost Insulator (Third Year)

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 Journeyperson: 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 Journeyperson'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 Journeyperson'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 Journeyperson'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 Journeyperson'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 Journeyperson'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 Journeyperson'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 Journeyperson'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 Journeyperson's rate
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 Journeyperson: 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 Journeyperson'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 Journeyperson'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 Journeyperson'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 Journeyperson's rate
Supplemental Rate Per Hour: $33.25

(Local #731)

MARBLE MECHANICS
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Cutters & Setters - 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)

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

(Local #7)

MASON TENDER
(Ratio of Apprentice to Journeyperson: 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 Journeyperson: 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
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

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 Journeyperson: 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 Journeyperson: 1 to 1, 1 to 3)

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)

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: $17.96
Supplemental Benefit Rate per Hour: $16.25

Plumber - Third Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $20.06
Supplemental Benefit Rate per Hour: $16.25

Plumber - Fourth Year

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $22.91
Supplemental Benefit Rate per Hour: $16.25

Plumber - Fifth Year: 1st Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $24.31
Supplemental Benefit Rate per Hour: $16.25

Plumber - Fifth Year: 2nd Six Months

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate per Hour: $36.38
Supplemental Benefit Rate per Hour: $16.25

(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
Wage Rate per Hour: $38.66
Supplemental Benefit Rate per Hour: $11.34

(Bricklayer District Council)

ROOFER
(Ratio of Apprentice to Journeyperson: 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 Journeyperson's Rate

Roofer - Second Year

Effective Period: 7/1/2013 - 6/30/2014
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's Rate

Roofer - Third Year

Effective Period: 7/1/2013 - 6/30/2014
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's Rate

Roofer - Fourth Year

Effective Period: 7/1/2013 - 6/30/2014
Wage and Supplemental Rate Per Hour: 75% of Journeyperson's Rate

(Local #8)

SHEET METAL WORKER
(Ratio of Apprentice to Journeyperson: 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 Journeyperson's rate
Supplemental Rate Per Hour: $15.37

Sheet Metal Worker - Second Year

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

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 Journeyperson: 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 Journeyperson's rate

Stone Mason - Setters - Second 750 Hours

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Third 750 Hours

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Fourth 750 Hours

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Fifth 750 Hours

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Sixth 750 Hours

Effective Period: 7/1/2013 - 6/30/2014
Wage Rate Per Hour: 100% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

(Bricklayers District Council)

TAPER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Drywall Taper - First Year

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

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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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.

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: Wasyl 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.

CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
JOHN C. LIU

Office of the Comptroller
BUREAU OF LABOR LAW

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 (oprime "Oficina de Derecho Laboral").

Wasyl Kinach, P.E.
Director of Classifications
Bureau of Labor Law

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BOILER SERVICEPERSON/TANK CLEANER MECHANIC (LOW PRESSURE)

Boiler Service Person/Tank Cleaner Mechanic (Low Pressure)

Effective Period: 7/1/2013 - 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 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 Building Class "C" Handyperson (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.

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

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" Handyperson

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

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

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

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)

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

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)

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

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)

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

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

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.

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

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

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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CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF STRUCTURES

ADDENDA CONTROL SHEET

BID OPENING DATE: **August 5, 2013**

PROJECT No. : **PV467IRT1**

TITLE: **Irish Repertory Theater Renovation**

ADDENDA ISSUED	NO. OF DWG	DATE	APPROVED BY: ARCHITECTURE/ ENGINEERING	GENERAL COUNSEL
#1 Revisions to Volume 2		7/11/2013		
#2 Revised Bid Opening Date; Questions from Bidders and Responses to Questions; Revisions to the Bid Booklet; Revisions to Volume 2		7/19/2013	[illegible]	FT 7/19/13

THE CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF STRUCTURES

July 19, 2013

ADDENDUM No. # 2

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

PV467IRT1
Irish Repertory Theater Renovation

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. **The Bid Opening for the contract described below scheduled for July 24, 2013, at 2:00 pm is rescheduled to August 5, 2013, at 2:00 pm.**

   Contract #1 – General Construction Work
   Contract #2 – Plumbing Work
   Contract #3 – Heating, Ventilating and Air Conditioning and Fire Safety Work
   Contract #4 – Electrical Work

2. **Questions from Bidders and Responses to Questions:**
   See Attachment A.

3. **Revisions to the Bid Booklet:**
   See Attachment B.

4. **Revisions to Volume 2:**
   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: _____

Attachment A
Addendum #2
July 19, 2013

DDC PROJECT #: PV467IRT1

PROJECT NAME: IRISH REPERTORY THEATER

ATTACHMENT A - BIDDERS QUESTIONS AND DDC RESPONSES

No.	Bidders Questions	DDC Responses
1	Is the Contractor for General Construction responsible for all demolition work for the project (including Electrical, HVAC and Plumbing) as shown on pp. 21-2 thru 21-4 of the Bid Breakdown in Volume 1?	No, demolition work will be separated by trade. See Attachment B, Revisions to the Bid Booklet, for further information.

DDC PROJECT #: PV467IRT1

PROJECT NAME: Irish Repertory Theater Renovation

ATTACHMENT B - REVISIONS TO THE BID BOOKLET

Bid Booklet: The Bid Booklet is amended as set forth below.

- Table of Contents: Delete Item #2, entitled "M/WBE Program: Subcontractor Utilization Plan", and replace it with "M/WBE Program: M/WBE Utilization Plan".

- Special Notice to Bidders: Bid Submission Requirements: Delete "M/WBE Subcontractor Utilization Plan (if participation goals have been established)", and replace it with "Schedule B: M/WBE Utilization Plan (if Participation Goals have been established)".

- Bid Forms: For each of the four contracts for the Project, delete the pages of Bid Form (pp. 15-1a, 15-1b, 15-2, 15-3, 15-4a, 15-4b) for insertion of the Total Bid Price, as well as signature by the bidder, and replace it with the new page for insertion of the Total Bid Price attached to this Addendum (pp. 15-1aR, 15-1bR, 15-2R, 15-3R, 15-4aR, 15-4bR).

- MWBE Program: Subcontractor Utilization Plan: Delete the section entitled "M/WBE Program: Subcontractor Utilization Plan" (pp.5,6a,6b,6c,6d,7,8,9), and replace it with the new section entitled "M/WBE Program: M/WBE Utilization Plan" attached to this Addendum (pp.5R, 6a-R, 6b-R, 6c-R, 6d-R, 7a, 7b, 7c, 7d, 8a, 8b, 8c, 8d, 9R, and 9a).

- Bid Breakdown: Delete pages 21-3, 21-4, 21-15, 21-16, 21-17, 21-18, 21-19, 21-20, 21-23, and 21-24, and replace with revised pages 21-3R, 21-4R, 21-15R, 21-16R, 21-17R, 21-18R, 21-19R, 21-20R, 21-23R, and 21-24R, attached to this Addendum.

M/WBE PROGRAM

M/WBE UTLIZATION 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) calendar

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.

Tax ID #: _____

APT E-PIN#: 85013B0108

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 #	85013B0108	**FMS Project ID#:**	PV467IRT1
Project Title/Agency	Renovation of the Irish Repertory Theater		
PIN #	8502013PV0014C		
Bid/Proposal Response Date:	July 24, 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	Norma Negrón **Title** MWBE Liaison & Compliance Analyst		
Telephone #	(718) 391-1502 **Email** negronn@ddc.nyc.gov		

[illegible]

General Construction work for the interior alteration of the Irish Repertory Theater including the modification of the auditorium to include a double height space, balcony seating and stair and the reorganization of second floor office spaces. Related HVAC systems and structural modifications are also included.

[illegible]

Prime Contract Industry: **Construction**

Group	Percentage		
Unspecified	**25**	%	
or			
Black American	**Unspecified**	%	
Hispanic American	**Unspecified**	%	
Asian American	**Unspecified**	%	
Women	**Unspecified**	%	
Total Participation Goals	**25**	%	**Line 1**

Tax ID #: _____

APT E-PIN#: 85013B0109

SCHEDULE B - M/WBE Utilization Plan

Contract # 2 - Plumbing Work

Part I: M/WBE Participation Goals

Part I to be completed by contracting agency

Contract Overview

APT E-Pin #	85013B0109	**FMS Project ID#:**	PV467IRT1
Project Title/Agency	Renovation of the Irish Repertory Theater		
PIN # Bid/Proposal	8502013PV0014C		
Response Date:	July 24, 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	Norma Negrón	**Title** MWBE Liaison & Compliance Analyst	
Telephone #	(718) 391-1502	**Email** negronn@ddc.nyc.gov	

Project Description

Plumbing work for the interior alteration of the Irish Repertory Theater including the modification of the auditorium to include a double height space, balcony seating and stair and the reorganization of second floor office spaces. Related HVAC systems and structural modifications are also included.

Prime Contract Industry: Construction

Group	Percentage	
Unspecified	5	%
or		
Black American	Unspecified	%
Hispanic American	Unspecified	%
Asian American	Unspecified	%
Women	Unspecified	%
Total Participation Goals	5	% Line 1

Tax ID #: _____

APT E-PIN#: 85013B0110

Contract # 3 - HVAC 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 #	85013B0110	**FMS Project ID#:**	PV467IRT1
Project Title/Agency	Renovation of the Irish Repertory Theater		
PIN #	8502013PV0014C		
Bid/Proposal Response Date:	July 24, 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	Norma Negrón	**Title**	MWBE Liaison & Compliance Analyst
Telephone #	(718) 391-1502	**Email**	negronn@ddc.nyc.gov

Project Description and Relevant Specifications

HVAC work for the interior alteration of the Irish Repertory Theater including the modification of the auditorium to include a double height space, balcony seating and stair and the reorganization of second floor office spaces. Related HVAC systems and structural modifications are also included.

M/WBE Participation Goals for Services

Prime Contract Industry: **Construction**

Group	Percentage	
Unspecified	**10**	**%**
or		
Black American	**Unspecified**	**%**
Hispanic American	**Unspecified**	**%**
Asian American	**Unspecified**	**%**
Women	**Unspecified**	**%**
Total Participation Goals	**10**	**%** Line 1

Tax ID #:

APT E-PIN#: 85013B0111

Contract # 4 - Electrical 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 #	85013B0111	**FMS Project ID#:**	PV467IRT1
Project Title/Agency	Renovation of the Irish Repertory Theater		
PIN #	8502013PV0014C		
Bid/Proposal Response Date:	July 24, 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	Norma Negrón **Title** MWBE Liaison & Compliance Analyst		
Telephone #	(718) 391-1502 **Email** negronn@ddc.nyc.gov		

Electrical work for the interior alteration of the Irish Repertory Theater including the modification of the auditorium to include a double height space, balcony seating and stair and the reorganization of second floor office spaces. Related HVAC systems and structural modifications are also included.

Prime Contract Industry: Construction

Group	Percentage	
Unspecified	5	%
or		
Black American	Unspecified	%
Hispanic American	Unspecified	%
Asian American	Unspecified	%
Women	Unspecified	%
Total Participation Goals	5	% Line 1

Tax ID #: _____ APT E-

PIN#: 85013B0108

Contract #1 - General Construction Work

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

☐ **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 1)		Calculated M/WBE Participation Amount
$	X		=	$ Line 2

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

☐ **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

Tax ID #: _____ APT E-

PIN#: 85013B0108

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? % ____

✓ **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) assure, 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 registered 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 full 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 _____

Name _____ Title _____

Tax ID #: _____ APT E-

PIN#: 85013B0109

Contract #2 - Plumbing Work

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

☐ 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 1)		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 2

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

☐ 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

Tax ID #: _____ APT E-

PIN#: 85013B0109

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? % ____

✔ **Scopes of Subcontract Work**

[redacted]

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, if a portion 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 MBE's 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** _____

Name _____ **Title** _____

Tax ID #: _____ APT E-

PIN#: 85013B0110

Contract #3 - HVAC Work

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

☐ 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 1)		Calculated M/WBE Participation Amount
	$	X		=	$ Line 2

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

☐ 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

Tax ID #: _____ APT E-

PIN#: 85013B0110

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? % ____

✓ **Scopes of Subcontract Work**

[redacted]

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 exercise 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 a portion thereof, if a full waiver is obtained or such goals are modified by the Agency, to meet the modified Participation Goals by soliciting and considering the participation of certified MBE and/or WBE firms.

Signature _____ Date _____

Name _____ Title _____

Tax ID #: _____ APT E-

PIN#: 85013B0111

Contract #4 - Electrical Work

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 calculation.

PRIME CONTRACTOR ADOPTING AGENCY M/WBE PARTICIPATION GOALS

☐ 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 1)		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 2

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

☐ 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

Tax ID #: _____ APT E-

PIN#: 85013B0111

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? % ____

✓ **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 _____

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 or PIN # (for Req. procurement) _____ **Contracting Agency** _____

M/WBE Participation Goals provided in bid/solicitation documents

_____ % **Agency M/WBE Participation Goal**

Proposed M/WBE Participation Goal as anticipated by Vendor stating below

_____ % **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 of M/WBE services (if any). Include information for each subcontractor awarded a portion of work. Complete 1 set for each prime & 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** _____
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:

Signature: _____ Date: _____

Print Name: _____ Title: _____

Shaded area below is for agency completion only

BID FORM: BID ALTERNATE #1

PROJECT ID: PV467IRT1
Contract #1 - General Construction Work

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

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

Total Price For Labor		Total Price for Material Sold and Delivered		
$_____	+	$_____	Total Price for Item A	$_____

B. ALLOWANCE for Incidental Asbestos Abatement (Section 028013 of the Specifications) **$15,000.00**

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

BIDDER'S SIGNATURE AND AFFIDAVIT

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

* **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 ("Section 6-129"), and the rules promulgated thereunder; 2) affirm that the information supplied in support of the M/WBE Utilization Plan is true and correct; 3) agree, if awarded this Contract, to comply with the M/WBE participation requirements of this Contract, the pertinent provisions of Section 6-129, and the rules promulgated thereunder, all of which shall be deemed to be 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: Secretary of Corporate Bidder
(Corporate Seal)

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

BID FORM: BID ALTERNATE #2

PROJECT ID: PV467IRT1
Contract #1 - General Construction Work

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

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

Total Price For Labor		Total Price for Material Sold and Delivered		
$_____	+	$_____	Total Price for Item A	$_____

B. ALLOWANCE for Incidental Asbestos Abatement (Section 028013 of the Specifications) **$15,000.00**

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

BIDDER'S SIGNATURE AND AFFIDAVIT

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

* **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 ("Section 6-129"), and the rules promulgated thereunder; 2) affirm that the information supplied in support of the M/WBE Utilization Plan is true and correct; 3) agree, if awarded this Contract, to comply with the M/WBE participation requirements of this Contract, the pertinent provisions of Section 6-129, and the rules promulgated thereunder, all of which shall be deemed to be 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: _____ Secretary of Corporate Bidder
(Corporate Seal)

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

BID FORM

PROJECT ID: PV467IRT1
Contract #2 - Plumbing Work

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

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

Total Price For Labor		Total Price for Material Sold and Delivered		
$_____	+	$_____	Total Price for Item A	$_____

B. ALLOWANCE for Incidental Asbestos Abatement (Section 220013 of the Specifications) **$5,000.00**

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

BIDDER'S SIGNATURE AND AFFIDAVIT

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

* **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 ("Section 6-129"), and the rules promulgated thereunder; 2) affirm that the information supplied in support of the M/WBE Utilization Plan is true and correct; 3) agree, if awarded this Contract, to comply with the M/WBE participation requirements of this Contract, the pertinent provisions of Section 6-129, and the rules promulgated thereunder, all of which shall be deemed to be 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: _____ Secretary of Corporate Bidder
(Corporate Seal)

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

BID FORM

PROJECT ID: PV467IRT1
Contract #3 - HVAC + Fire Protection Work

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

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

Total Price For Labor		Total Price for Material Sold and Delivered		
$_____	+	$_____	Total Price for Item A	$_____

B. ALLOWANCE for Incidental Asbestos Abatement (Section 230013 of the Specifications) **$5,000.00**

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

BIDDER'S SIGNATURE AND AFFIDAVIT

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

* **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 ("Section 6-129"), and the rules promulgated thereunder; 2) affirm that the information supplied in support of the M/WBE Utilization Plan is true and correct; 3) agree, if awarded this Contract, to comply with the M/WBE participation requirements of this Contract, the pertinent provisions of Section 6-129, and the rules promulgated thereunder, all of which shall be deemed to be 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: _____ Secretary of Corporate Bidder
(Corporate Seal)

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

BID FORM: BID ALTERNATE #1

PROJECT ID: PV467IRT1
Contract #4 - Electrical Work

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

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

Total Price For Labor		Total Price for Material Sold and Delivered		
$_____	+	$_____	Total Price for Item A	$_____

B. ALLOWANCE for Incidental Asbestos Abatement (Section 260013 of the Specifications) **$5,000.00**

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

BIDDER'S SIGNATURE AND AFFIDAVIT

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

* **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 ("Section 6-129"), and the rules promulgated thereunder; 2) affirm that the information supplied in support of the M/WBE Utilization Plan is true and correct; 3) agree, if awarded this Contract, to comply with the M/WBE participation requirements of this Contract, the pertinent provisions of Section 6-129, and the rules promulgated thereunder, all of which shall be deemed to be 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: Secretary of Corporate Bidder
(Corporate Seal)

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

BID FORM: BID ALTERNATE #2

PROJECT ID: PV467IRT1
Contract #4 - Electrical Work

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

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

Total Price For Labor		Total Price for Material Sold and Delivered		Total Price for Item A
$_____	+	$_____		$_____

B. ALLOWANCE for Incidental Asbestos Abatement (Section260013 of the Specifications) **$5,000.00**

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

BIDDER'S SIGNATURE AND AFFIDAVIT

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

* **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 ("Section 6-129"), and the rules promulgated thereunder; 2) affirm that the information supplied in support of the M/WBE Utilization Plan is true and correct; 3) agree, if awarded this Contract, to comply with the M/WBE participation requirements of this Contract, the pertinent provisions of Section 6-129, and the rules promulgated thereunder, all of which shall be deemed to be 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

NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - GENERAL CONSTRUCTION WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	Structural:							
	Saw cut slab edge with electric saw		LF					
	Breakup slab with chipping hammer		LF					
	Temporary Supports at Floor		SF					
	Concrete Encasement, Chip		EA					
	Miscellaneous (including Regulatory Agency Requirements, General Protection and Dust Control)		LS					
	Disposal (including handling, loading, hauling and dump charge)		LS					
	Construction Waste Management Diversion		LS					
	Subtotal							

NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 1 - GENERAL CONSTRUCTION WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
03 0000	CONCRETE							
03 3000	CAST-IN-PLACE CONCRETE							
	Trench and repair slab for piping		LF					
	Subtotal							
03 5300	CONCRETE TOPPING							
	2" topping slab							
	Slab above grade:		SF					
	2"		SF					
	3 1/4"		SF					
	4 1/2"		SF					
	Reinforced slab at stair base and post bases		SF					
	Raised slab at staff office		SF					
	Stairs at staff office		LF					
	Curbs, slab elevations and depressions		LS					
	Subtotal							
04 0000	MASONRY							
04 2000	UNIT MASONRY							
	Infill Windows		EA					
	Subtotal							

NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 2 - PLUMBING WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	CONTRACT 2 - PLUMBING WORK							
22 0000	**PLUMBING**							
22 0503	**PIPES AND TUBES FOR PLUMBING PIPING AND EQUIPMENT**							
	Plumbing Demolition:							
	Hot water heater		EA					
	Lavatories		EA					
	Water closets		EA					
	Piping, fixtures, all types, uon		LF					
	Cut, remove and cap for rerouting (Riser)		LF					
	Cut, remove and cap for rerouting (Distribution)		LF					
	Drain and Cap		EA					
	Gas Meter		EA					
	Gas Piping		LF					
	Personnel Fixtures (cw/hw, vent, sanitary)		LF					
	House Fixtures (cw, vent, storm)		LF					
	Joints- Personnel Fixtures (cw/hw, vent, sanitary):							
	Couplings		EA					
	Elbows		EA					
	Tees		EA					
	Joints- House Fixtures (cw, vent, storm):							
	Couplings		EA					
	Elbows		EA					
	Tees		EA					
	Subtotal							
22 0523	**GENERAL-DUTY VALVES FOR PLUMBING PIPING**							
	General-Duty Valves for Plumbing Piping		LS					
	Subtotal							
22 0529	**HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT (included w/ 220503)**							

NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 2 - PLUMBING WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
22 0700	**PLUMBING INSULATION**							
	Personnel fixtures (cw/hw, vent, sanitary)		LF					
	Subtotal							
22 0800	**COMMISSIONING OF PLUMBING**							
	LEED Commissioning		LS					
	System sterilization and purity test		LS					
	Pumps, gages, meters, thermometers		LS					
	Rigging, Hoisting, and Scaffolding		LS					
	Subtotal							
22 1100	**FACILITY WATER DISTRIBUTION**							
	Sitework: connect to existing system		LS					
	HW heaters, gallon storage, gph recovery:							
	Direct vent gas		LS					
	Expansion tanks		LS					
	Circulating Pumps		LS					
	Piping including fittings		LS					
	Subtotal							
22 4000	**PLUMBING FIXTURES**							
	Lavatories, including faucets and waste fittings at Walls		EA					
	Kitchenette sink		EA					
	Drinking fountain, bi level ADA		EA					
	Water closets, floor mounted, in wall carrier, actuator flush:							
	ADA		EA					
	Standard		EA					
	3" Floor Drains		EA					
	Core drilling		EA					
	Subtotal							
	TOTAL CONTRACT 2 - PLUMBING WORK							

NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 3 - HEATING, VENTILATION AND AIR CONDITIONING WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	CONTRACT 3 - HEATING, VENTILATION AND AIR CONDITIONING WORK							
21 0000	**FIRE SUPRESSION**							
21 0500	**COMMON WORK RESULTS FOR FIRE SUPPRESSION**							
	Fire Protection Demolition:							
	Maintain existing system		EA					
	Piping (Remove Riser)		LF					
	Piping (Remove Distribution including heads)		LF					
	Vavle and Cap		EA					
	Temporary Main		LF					
	Taps		EA					
	OS & Y Valves		EA					
	Subtotal							
21 1313	**WET-PIPE SPRINKLER SYSTEMS**							
	Sprinkler Heads		EA					
	Piping schedule 40 black steel, typical:							
	2" and less, schedule 40, uon		LF					
	4"		LF					
	Fittings (clamps, ells, wyes, tees & couplings) and valves		LS					
	Testing		LS					
	Subtotal							
23 0000	**HEATING, VENTILATING AND AIR CONDITIONING**							
23 0503	**PIPES AND TUBES FOR HVAC PIPING AND EQUIPMENT**							
	HVAC Demolition:							
	Exhaust fan		EA					
	Condensing units		EA					
	Terminal units		EA					
	Radiators, cap		EA					
	Remove accessible heating and chilled water piping		LF					
	Ductwork		LF					

NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 3 - HEATING, VENTILATION AND AIR CONDITIONING WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	Disconnect and drain for removal		EA					
	Subtotal							
23 0513	**COMMON MOTOR REQUIREMENTS FOR HVAC EQUIPMENT (included w/ other Division 23 sections)**							
23 0516	**EXPANSION FITTINGS AND LOOPS FOR HVAC PIPING (included w/ other Division 23 sections)**							
23 0523	**GENERAL-DUTY VALVES FOR HVAC PIPING (included w/ other Division 23 sections)**							
23 0529	**HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT**							
	Hangers and Supports		LS					
	Subtotal							
23 0548	**VIBRATION AND SEISMIC CONTROLS FOR HVAC PIPING AND EQUIPMENT**							
	Vibration isolation and Seismic Controls		LS					
	Subtotal							
23 0553	**IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT (included w/ other Division 23 sections)**							
23 0593	**TESTING, ADJUSTING AND BALANCING FOR HVAC**							
	Code compliance test		LS					
	Balancing:							
	Indoor units		EA					
	Hydronic piping		EA					
	Water system		EA					
	Fans		EA					
	Registers & grilles		EA					
23 0700	**HVAC INSULATION** **Subtotal**							

NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 3 - HEATING, VENTILATION AND AIR CONDITIONING WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	Duct insulation, blanket type, typical		SF					
	Subtotal							
23 0800	**COMMISSIONING OF HVAC**							
	LEED Commissioning		LS					
	Subtotal							
23 0900	**INSTRUMENTATION AND CONTROL FOR HVAC**							
	Building Management System:							
	Direct digital display panel		EA					
	Programming of BMS		EA					
	Central System Control:							
	I/O points for fans		EA					
	Temperature Sensors		EA					
	Humidity Sensors		EA					
	Alarm Sensors		EA					
	Conduit		LF					
	Wire, plenum grade		LF					
	Terminal Equipment Control:							
	Conduit		LF					
	Wire, plenum grade		LF					
	Stand alone controls:							
	Thermostats to indoor units		EA					
	Carbon monoxide detection & monitor		LS					
	System testing		LS					
	Subtotal							
23 0993	**SEQUENCE OF OPERATIONS FOR HVAC CONTROLS (Included w/ 23 0900)**							
23 2213	**STEAM AND CONDENSATE HEATING PIPING**							
	Condensate drain piping:							
	3/4"		LF					

NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 3 - HEATING, VENTILATION AND AIR CONDITIONING WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	1"		LF					
	1 1/4"		LF					
	2"		LF					
	Funnel Drains		EA					
	Condensate Drains		EA					
	CIR (per schedule):							
	A		EA					
	B		EA					
	Miscellaneous Piping		LF					
	Subtotal							
23 2216	**STEAM AND CONDENSATE PIPING SPECIALTIES (included w/ 23 2213)**							
23 3100	**HVAC DUCTS AND CASINGS**							
	Supply and return:							
	Ductwork rectangular, galvanized, uon		LBS					
	Fittings		LBS					
	Subtotal							
23 3300	**AIR DUCT ACCESSORIES**							
	Dampers:							
	Volume 160 si, typical		EA					
	FSD, FD/AD, MD		EA					
	Subtotal							
23 3400	**HVAC FANS**							
	SF-1							
	TX		EA					
	TX-1-1		EA					
	TX-1-2		EA					
	TX-2-1		EA					
	TX-2-2		EA					
	Subtotal							

NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 4 - ELECTRIC WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
	CONTRACT 4 - ELECTRIC WORK							
26 0000	**ELECTRICAL**							
26 0405	**SPECIAL REQUIREMENTS FOR ELECTRICAL WORK (included w/ other Division 26 sections)**							
26 0410	**BASIC ELECTRICAL REQUIREMENTS**							
	Electrical Demolition:							
	Maintain alarm and reporting systems		LS					
	Disconnect and remove lights		EA					
	Cut feeders, remove and make safe for rerouting (Distribution)		LF					
	Cap feeders and make safe for demolition		EA					
	Temporary lighting		LS					
	Subtotal							
26 0415	**BASIC ELECTRICAL MATERIALS AND METHODS**							
	Data/ Telephone System:							
	Combination telephone/data wall outlets		EA					
	3/4" conduit with pull line		LF					
	Cat 6		LF					
	CTV Distribution System:							
	Combination telephone/data wall outlets		EA					
	3/4" conduit with pull line		LF					
	Subtotal							
26 0503	**EQUIPMENT WIRING CONNECTIONS (included w/ other Division 26 sections)**							
26 0519	**LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES**							
	Assorted wiring for branch circuit		LF					
	Assorted wiring for lighting		LF					
	Subtotal							

NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONTRACTOR'S BID BREAKDOWN FORM

CONTRACT 4 - ELECTRIC WORK

Project: Renovation of the Irish Repertory Theater
Location: 132 West 22nd Street, New York, NY 10011
Bidder: _____

DDC ID: PV467IRT1
Sponsor Agency: Dept of Cultural Affairs

CSI Number	Description	Quantity	Unit	Unit Cost of Material	Total Cost of Material	Unit Cost of Labor	Total Cost of Labor	Total Cost: Materials and Labor
26 0526	**GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS**							
	Grounding for branch circuit		LS					
	Grounding for lighting		LS					
	Subtotal							
26 0529	**HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS (included w/ other Division 26 sections)**							
26 0533	**RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS**							
	Branch circuit:							
	Backboxes		EA					
	Conduit assorted, including elbows, connectors, couplings and straps		LF					
	Junction boxes		EA					
	Lighting:							
	Lighting outlets		EA					
	Fixture tails		EA					
	Conduit assorted, including elbows, connectors, couplings and straps		LF					
	4" empty conduit for stage lighting		LF					
	Junction boxes		EA					
	Feeders		LS					
	Motor connections		EA					
	Subtotal							
26 0534	**FLOOR BOXES FOR ELECTRICAL SYSTEMS (included w/ other Division 26 sections)**							
26 0553	**IDENTIFICATION FOR ELECTRICAL SYSTEMS (included w/ other Division 26 sections)**							
26 0800	**COMMISSIONING OF ELECTRICAL**							
	LEED Commissioning		LS					
	Subtotal							

Attachment C
Addendum #2
July 19, 2013

DDC PROJECT #: PV467IRT1

PROJECT NAME: Irish Repertory Theater Renovation

ATTACHMENT C - REVISIONS TO VOLUME 2

Contract: The Contract is amended as set forth below:

- Delete Article 77, entitled "Participation by Minority-Owned and Women-Owned Business Enterprises in City Procurement", in its entirety, and replace it with new Article 77. New Article 77 is IDENTICAL in all respects to the section entitled "Notice to All Prospective Contractors: Participation by Minority-Owned and Women-Owned Business Enterprises in City Procurement," attached to this Addendum.

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 nonresponsive.

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

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

5. Where an **M/WBE** Utilization Plan has been submitted, the Contractor shall, within 30 days of issuance by Agency of a notice to proceed, submit a list of proposed persons or entities to which it intends to award subcontracts within the subsequent 12 months. In the case of multiyear contracts, such list shall also be submitted every year thereafter. The Agency may also require the Contractor to report periodically about the contracts awarded by its direct subcontractors to indirect subcontractors (as defined in Section 6-129(c)(22)). **PLEASE NOTE: If this Contract is a public works project subject to GML §101(5) (i.e., a contract valued at or below $3M for projects in New York City) or if the Contract is subject to a project labor agreement in accordance with Labor Law §222, and the bidder is required to identify at**

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

6. MBE and WBE firms must be certified by DSBS in order for the Contractor to credit such firms' participation toward the attainment of the **Participation Goals**. Such certification must occur prior to the firms' commencement of work. A list of MBE and WBE firms may be obtained from the DSBS website at www.nyc.gov/buycertified, 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.

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

ADDENDA CONTROL SHEET

BID OPENING DATE: **August 5, 2013**

PROJECT No. : **PV467IRT1**

TITLE: ***Irish Repertory Theater Renovation***

ADDENDA ISSUED	NO. OF DWG	DATE	APPROVED BY: ARCHITECTURE/ ENGINEERING	GENERAL COUNSEL
#1 Revisions to Volume 2		7/11/2013		
#2 Revised Bid Opening Date; Questions from Bidders and Responses to Questions; Revisions to the Bid Booklet; Revisions to Volume 2		7/19/2013		
#3 Questions from Bidders and Responses to Questions; Revisions to the Bid Booklet; Revisions to the Specifications; Revisions to the Drawings		7/31/2013	AA	KT. 7/31/13

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

July 31, 2013

ADDENDUM No. # 3

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

PV467IRT1
Irish Repertory Theater Renovation

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: _____

Attachment A
Addendum #3
July 31, 2013

DDC PROJECT #: PV467IRT1

PROJECT NAME: IRISH REPERTORY THEATER

ATTACHMENT A - BIDDERS QUESTIONS AND DDC RESPONSES

No.	Bidders Questions	DDC Responses
1	Please provide the contact information of the building's existing Fire Alarm vendor.	The building's existing Fire Alarm vendor is AFA. Their phone number is 516-496-2322.
2	Does the project require sign off from the Fire Department?	Yes. See Drawing Sheet FA-001, Fire Alarm Specification Note #12, as well as Attachment D, Revisions to the Drawings, for further information.
3	Has the existing Fire Alarm system been approved by the Fire Department?	No, the existing system at the Irish Repertory Theater is not approved by the Fire Department. This project will supersede all existing filings.
4	Who will be responsible to file the application for plan examination of the Fire Alarm?	The Engineer of Record shall be responsible for the application of the File Alarm.
5	Who will be responsible for the design of the Fire Alarm system?	The Engineer of Record shall be responsible for the design of the Fire Alarm System.
6	Regarding the Fire Alarm system, who will be responsible for the costs of any additional work requested by the Fire Department?	Any changes to the Bid Documents shall be made per Article 25 and 26 of the Contract.
7	Specification section 283100, "Fire Detection and Alarm System," Article 3.1K, indicates that the Fire Alarm cable be no less than No. 12 AWG in size for NAC circuits. Can we follow the fire alarm manufacturer's recommendation for the wire size instead of the specification?	Any substitutions can be submitted for approval per DDC General Conditions.
8	On Drawing Sheet E-001, under 'Low Voltage System Notes,' Note #5 refers to Drawing Sheets E-310, E-311, and E-312. Those drawings are not part of the Bid Documents. Please provide these drawings.	Drawing Sheets E-310, E-311, and E-312 have been re-numbered. See Attachment D, Revision to the Drawings, for further information.
9	In regards to Bid Alternate #2 for the Electrical Contract, can you clarify whether stage lighting distribution is part of the Base Bid or the Alternate?	Stage lighting distribution is part of both the base bid and Alternate 2 of the Electrical Contract. In the drawing set, bid alternate #2 work is bubbled and tagged as such. See pp.21-28 and 21-29 in the Bid Breakdown in Volume 1 of the Bid Documents.
10	On Drawing Sheet TS-103, General Note #2 states "Electrical Contractor to provide tagged drag lines in conduits as the Base Bid." However, p.21-30 of the Bid Breakdown includes the line item, "Conduit including fittings" as part of Bid Alternate #2. Is the conduit part of the Base Bid or Alternate #2 for the Electrical Contract?	Conduit is included in both the Base Bid and Bid Alternate #2 for the Electrical Contract. See pp.21-23 thru 21-29 as well as 21-29 thru 21-30 of the Bid Breakdown in Volume 1 of the Bid Documents.
11	Which Contractor will be responsible to provide scaffolding for the outdoor piping from the 1st floor to the roof?	Each Contractor shall be responsible to provide scaffolding as it applies to their Contract's scope of work. Each Contractor shall also be responsible for coordination with the other Contractors to complete their scope of work, per Article 12 of the Contract.

12	On Drawing Sheet E-101, there are (2) lighting fixtures with letter "J" inscribed in a circle shown in the theater lobby I-05 with circuit #DPA-9. However, this fixture is not in the fixture schedule. On the DPA panel schedule, circuit #9 is shown as spare. Please clarify.	"J" inscribed within a circle is a symbol for a "ceiling mounted junction box." See Symbol List on Drawing Sheet E-001 for further information. Refer to Attachment D, Revision to Drawings, for further clarification.
13	On Drawing Sheet E-101, the type of track in the theatre lobby 1-05 is not specified. Please clarify.	Refer to Attachment D, Revision to the Drawings, for this clarification.
14	Drawing Sheet E-103 specifies track type T2 in Gallery 2-03. However, there is no such track type in the fixture schedule. Please clarify.	Refer to Attachment D, Revision to the Drawings, for this clarification.
15	In reference to Note #5 on Drawing Sheet E-203, the scope of the work for telecom cabling is unclear. Please specify exactly where the telecom wires will run. Will they run from the existing interface in the cellar to each outlet, or from the server room to each outlet? If they run from the server room, what will be installed between the server and the existing interface in the cellar?	Refer to Drawing Sheet E-201, as well as revised Drawing Sheet E-203 in Attachment D, Revision to the Drawings.
16	Please clarify if the telecom wires can run exposed?	Refer to Specification Section 260410 "Basic Electrical Requirements," as well as Attachment D, Revision to the Drawings for this clarification.
17	Note #1 on Drawing Sheet S-101.00, as well as Note #3 on Drawing Sheet S-102.00, refers to a new 2" topping slab. Is there a detail of this slab in the Drawings?	Refer to Attachment D Revision to Drawings A-101.00, A-102.00, S-201.00, included with this Addendum.

Attachment B
Addendum #3
July 31, 2013

DDC PROJECT #: ***PV467IRT1***

PROJECT NAME: **IRISH REPERTORY THEATER**

ATTACHMENT B – REVISIONS TO THE BID BOOKLET

Delete pages 15-1aR, 15-1bR, 15-2R, 15-3R, 15-4, 15-4aR and 15-4bR and replace with revised sheets 15-1aRi, 15-1bRi, 15-2Ri, 15-3Ri, 15-4R, 15-4aRi and 15-4bRi, attached to this Addendum.

BID FORM: BID ALTERNATE #1

PROJECT ID: PV467IRT1
Contract #1 - General Construction Work

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

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

Total Price For Labor		Total Price for Material Sold and Delivered		
$_____	+	$_____	Total Price for Item A	$_____

B. ALLOWANCE for Incidental Asbestos Abatement (Section 028013 of the Specifications) **$15,000.00**

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

BIDDER'S SIGNATURE AND AFFIDAVIT

* **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 ("Section 6-129"), and the rules promulgated thereunder; 2) affirm that the information supplied in support of the M/WBE Utilization Plan is true and correct; 3) agree, if awarded this Contract, to comply with the M/WBE participation requirements of this Contract, the pertinent provisions of Section 6-129, and the rules promulgated thereunder, all of which shall be deemed to be 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: _____ Secretary of Corporate Bidder
(Corporate Seal)

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

BID FORM: BID ALTERNATE #2

PROJECT ID: PV467IRT1
Contract #1 - General Construction Work

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

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

Total Price For Labor		Total Price for Material Sold and Delivered		
$_____	+	$_____	Total Price for Item A	$_____

B. ALLOWANCE for Incidental Asbestos Abatement (Section 028013 of the Specifications) **$15,000.00**

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

BIDDER'S SIGNATURE AND AFFIDAVIT

* **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 ("Section 6-129"), and the rules promulgated thereunder; 2) affirm that the information supplied in support of the M/WBE Utilization Plan is true and correct; 3) agree, if awarded this Contract, to comply with the M/WBE participation requirements of this Contract, the pertinent provisions of Section 6-129, and the rules promulgated thereunder, all of which shall be deemed to be 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

BID FORM

PROJECT ID: PV467IRT1
Contract #2 - Plumbing Work

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

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

Total Price For Labor		Total Price for Material Sold and Delivered		
$_____	+	$_____	Total Price for Item A	$_____

B. ALLOWANCE for Incidental Asbestos Abatement (Section 220013 of the Specifications) **$5,000.00**

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

BIDDER'S SIGNATURE AND AFFIDAVIT

* **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.**

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Bidder: _____

By: _____
(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

PROJECT ID: PV467IRT1
Contract #3 - HVAC + Fire Protection Work

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

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

Total Price For Labor		Total Price for Material Sold and Delivered		
$_____	+	$_____	Total Price for Item A	$_____

B. ALLOWANCE for Incidental Asbestos Abatement (Section 230013 of the Specifications) **$5,000.00**

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

BIDDER'S SIGNATURE AND AFFIDAVIT

* **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 ("Section 6-129"), and the rules promulgated thereunder; 2) affirm that the information supplied in support of the M/WBE Utilization Plan is true and correct; 3) agree, if awarded this Contract, to comply with the M/WBE participation requirements of this Contract, the pertinent provisions of Section 6-129, and the rules promulgated thereunder, all of which shall be deemed to be 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: _____ Secretary of Corporate Bidder
(Corporate Seal)

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

Alternate Bids

Bidder is advised that the City is requesting the submission of two (2) alternate bids for **Contract #4 – Electrical Work** (Bid Alternate 1 and Bid Alternate 2). Each of these Bid Alternates addresses a different specific Scope of Work, as described below. Bid prices for these two (2) different Scopes of Work for General Construction Work shall be submitted on BID FORM - Bid Alternate 1 and BID FORM - Bid Alternate 2 in this Bid Booklet.

Bid Alternate 1 (Project Base Bid):	Requires a Total Lump Sum Price for all labor and material necessary to perform all required work described in the Contract Documents, **excluding** the scope of work for Alternate #2, as described below. Bid Alternate #1 work is the Project Base Bid.
Bid Alternate 2: (Project Base Bid + Alternate #2 work):	Requires a Total Lump Sum Price for the following: (1) all required work for Bid Alternate #1 (Project Base Bid), **plus** (2) all required work for the scope of work for Alternate #2. The scope of work for Alternate #2 is to provide additional stage lighting distribution and sound system infrastructure as described in the following Contract Documents: Drawings E-202, E-301, E-302, E-402, E-501, TS-102, and TS-103; and Specification Sections 265561 and 274100.

Bidders are requested to submit prices on the Bid Forms for alternate Bids described above. Following the receipt of Bids, the Department of Design and Construction will determine, in the best interest of the City, whether to award a contract based upon the Total Bid Price for Bid Alternate 1 or Bid Alternate 2.

BID FORM: BID ALTERNATE #1

PROJECT ID: PV467IRT1
Contract #4 - Electrical Work

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

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

Total Price For Labor		Total Price for Material Sold and Delivered		Total Price for Item A
$_____	+	$_____		$_____

B. ALLOWANCE for Incidental Asbestos Abatement (Section 260013 of the Specifications) **$5,000.00**

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

BIDDER'S SIGNATURE AND AFFIDAVIT

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Bidder: _____

By: _____
(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: BID ALTERNATE #2

PROJECT ID: PV467IRT1
Contract #4 - Electrical Work

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

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

Total Price For Labor		Total Price for Material Sold and Delivered		
$_____	+	$_____	Total Price for Item A	$_____

B. ALLOWANCE for Incidental Asbestos Abatement (Section260013 of the Specifications) **$5,000.00**

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

BIDDER'S SIGNATURE AND AFFIDAVIT

* **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.**

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Bidder: _____

By: _____
(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

DDC PROJECT #: PV467IRT1

PROJECT NAME: IRISH REPERTORY THEATER

ATTACHMENT C – REVISIONS TO THE SPECIFICATIONS

REFER TO SPECIFICATION SECTION 066000 RESIN PANELS

Delete Article 2.1B and replace with the following text:

B. Basis of Design: Subject to compliance with requirements, provide Varia Ecoresin which contains 40% pre-consumer recycled content, as manufacturer by 3Form, or acceptable product from one of the following:

1. 3Form.
2. Lumicor.
3. Ridout Plastics, Div of Duraglas, Inc.

REFER TO SPECIFICATION SECTION 283100 FIRE DETECTION AND ALARM SYSTEM

Add the following text to Article 1.1:

E. Contractor must coordinate with the building's current fire alarm vendor for alarm connection and location of devices between the client and base building, as well as arrange for the client's fire alarm system to be connected to the base building, in order to conform to building standards.

DDC PROJECT #: PV467IRT1

PROJECT NAME: IRISH REPERTORY THEATER

ATTACHMENT D – REVISIONS TO THE DRAWINGS

REFER TO DRAWING DM-100.00

1. Key Note #4 Revised to read: Condensing Units to be removed together with all associated support, piping, etc. by Mechanical Contractor.

REFER TO DRAWING A-101.00

1. Add Key Note #26: 2" Topping slab to provide a level surface for new finishes placed above existing slab. This excludes areas of new slab construction and areas where existing finishes are to remain. Refer to Architectural details and S-201.00.

REFER TO DRAWING A-102

1. Add Key Note #18: 2" Topping slab to provide a level surface for new finishes placed above existing slab. This excludes areas of new slab construction and areas where existing finishes are to remain. See Note #7. Refer to Architectural details and S-201.00.

REFER TO DRAWING S-201.00

1. See SK-01 "Typical Detail Non-Structural Topping Slab on Existing Slab" to supplement typical details provided on S-201.00, included with this Addendum.

REFER TO DRAWING E-001.00

1. Low voltage system and AV Control Note #5 Revised to read: Refer to Drawing Sheets E-301, E-302, and E-303 for details, requirements, and specifications of the AV/performance systems.
2. Note #14 Added to General Notes: All conduit must be concealed in finished portions of the building.
3. Low voltage system and AV Control Note #5 Revised to read: Refer to Drawing Sheets E-301, E-302, and E-303 for details, requirements, and specifications of the AV/performance systems.
4. Bubble with Δ2 shall be removed from Low Voltage System and AV Control Note #6. Note to remain.

REFER TO DRAWING E-101.00

1. Note #3 Revised to read: Refer to Drawing Sheet E-303 for lighting fixture schedule, fixture location, and types.
2. Note #5 Revised to read: Refer to Drawing Sheets E-301, E-302, and E-303 lighting fixture schedule and controls in theater space.
3. Lighting track located in Theater Lobby 1-05 shall be revised to refer to fixture type "T".
4. Bubble with Δ2 shall be removed from Note #7. Note to remain.

REFER TO DRAWING E-102.00

1. Note #3 Revised to read: Refer to Drawing Sheet E-303 for lighting fixture schedule, fixture location, and types.
2. Note #5 Revised to read: Refer to Drawing Sheets E-301, E-302, and E-303 lighting fixture schedule and controls in theater space.
3. Bubble with Δ2 shall be removed from Note #6. Note to remain.

REFER TO DRAWING E-103.00

1. Note #4 Revised to read: Refer to Drawing Sheets E-301, E-302, and E-303 lighting fixture schedule and controls in theater space.
2. Lighting track located in Gallery 2-03 labeled as "T2" shall be revised to read "TR".

3. Lighting track located in the corridor shall be revised to refer to fixture type "T".
4. Bubble with Δ2 shall be removed from Note #5. Note to remain.

REFER TO DRAWING E-104.00

1. Note #4 Revised to read: Refer to Drawing Sheets E-301, E-302, and E-303 lighting fixture schedule and controls in theater space.
2. Bubble with Δ2 shall be removed from Note #5. Note to remain.

REFER TO DRAWING E-201.00

1. Existing Telecom / IT interface (not shown on drawings) is located in cellar opposite egress staircase and to remain.
2. Existing Telecom server is currently located in Workshop under staircase and is to be relocated to Storage Room 2-06. Fixture not shown on drawings.

REFER TO DRAWING E-203.00

1. Bubble with Δ2 shall be removed from the Second Floor Plan and Note #5. Note to remain.
2. Existing internet server currently located in existing second floor storage room against the east wall (fixture not shown on drawings) is to be relocated to Storage Room 2-06.
3. Note #5 Revised to read: Electrical Contractor will run Telecom from existing interface in cellar to the relocated telecom server rack in Storage Room 2-06. From this location, electrical contractor will pull telecom wiring to outlets indicated. All existing Tel/Data ports (in walls not disturbed) are to remain and maintain existing functionality (not labeled). Telecom server and server rack to be relocated to Storage Room 2-06. All faceplates, jacks, tagging, termination, and head end equipment by telecom vendor.

REFER TO DRAWING E-501.00

1. Bubble with Δ2 shall be removed from the schedule for NEW PANEL "LP2". Note that bubble with Δ2 shall remain in the schedule for EXISTING PANEL "SSP".
2. Refer to Schedule for NEW PANEL "DPA": CKT No. 9 shall be revised to read: "Junction Box Flash Lighting" instead of "Spare".

REFER TO DRAWING FA-001.00

1. Fire Alarm Specifications Note #11 shall be removed in its entirety.

2. Fire Alarm Specifications Note #12 Items A-E shall be removed in their entirety.

3. Fire Alarm Specifications Note #9D:

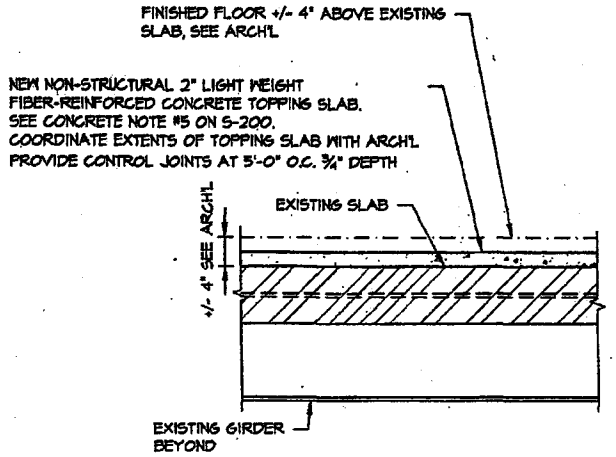
   Delete: "Obtain building fire alarm vendor approval for locations of all devices to conform to building standards."

   Replace with: "Coordinate with the building's current fire alarm vendor for alarm connection and location of devices between the client and base building, as well as arrange for the client's fire alarm system to be connected to the base building, in order to conform to building standards.

4. Fire Alarm Specifications Note #10:

   Delete: "F.A. Vendor approved catalog cuts are required for the following:"

   Replace with: "FA Vendor approved catalog cuts are required for the new IRT Fire Alarm system and must be submitted for the following items (see FA-002.00, FA-100.00, FA-101.00, FA-102.00):"



TYPICAL DETAIL
NON-STRUCTURAL TOPPING SLAB ON EXISTING SLAB

ADDENDUM #3

Title: TYPICAL DETAIL NON-STRUCTURAL TOPPING SLAB ON EXISTING SLAB	Date: 07/29/2013
	Scale:
	Job Number: 13602
Job Title: IRISH REPERTORY THEATRE	SK-01
Reference Number: S-201	

ROBERT SILMAN ASSOCIATES
STRUCTURAL ENGINEERS
88 University Place
New York, NY 10003
P 212.620.7970 F 212.620.8157

THE CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF STRUCTURES

ADDENDUM TO THE GENERAL CONDITIONS

The General Conditions are hereby amended in accordance with the terms and conditions set forth in this Addendum.

I. PROJECT DESCRIPTION

FMS #: ***PV467IRT1***

PROJECT NAME: ***Renovation of the Irish Repertory Theater***

PROJECT DESCRIPTION: This Project consists of ***the interior alteration of the Irish Repertory Theater including the modification of the auditorium to include a double height space, balcony seating and stair, and the reorganization of second floor office spaces. Related HVAC systems and structural modifications are also included.***

PROJECT LOCATION: ***132 West 22nd Street***
BOROUGH: ***Manhattan***
CITY OF NEW YORK
ZIP CODE: ***10011***
COMMUNITY BOARD #: ***4***

PROJECT MANAGEMENT:

[X] 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 (April 2006) entitled "The Resident Engineer".

[ ] DDC has entered into CM/Build Contract for the Project. The CM/Build Contractor shall be responsible for conducting a competitive bid process and entering into all contracts for the Project.

II. CM / BUILD CONTRACT: REVISIONS TO THE GENERAL CONDITIONS

Not Used

III. CONTRACTS FOR THE PROJECT

The separate Contracts pertaining to this Project are set forth below:

Contract No. 1 - Contract for General Construction Work
Contract No. 2 – Contract for Plumbing Work
Contract No. 3 – Contract for Heating, Ventilating, and Air Conditioning and Fire Safety Work
Contract No. 4 – Contract for Electrical Work

IV. 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.

V. APPLICABILITY OF ARTICLES AND AMENDED ARTICLES

The Contractor is advised that various Articles in the General Conditions may not apply to this Project or may apply as amended. Such Articles advise the Contractor to "Refer to the Addendum to the General Conditions for the applicability of this Article." Such Articles are set forth below. A check mark indicates whether the Article (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 Article, as set forth in the General Conditions, applies to the Project. Amended Articles, if any, are set forth following this list of Articles.

Article No.	Article		Sub-Article or PART (if applicable)	Applies	Does not Apply	Applies as Amended
1.04	Contract Drawings	C)	PRINTS	X		
1.05	Shop Drawings and Record Drawings	B)	INTEGRATED DRAWINGS	X		
1.09	Surveys				X	
1.13	Sleeves and Hangers			X		
1.15	Temporary Heat				X	
1.20	Progress Photographs			X		
1.26	Security Guards/Fire Guards on the Site				X	
1.29	Sleeve and Penetration Drawings			X		
1.30	Location of Partitions			X		
1.34	Temporary Services		PART A		X	
			PART B	X		
1.35	Temporary Use, Operation and Maintenance of Elevators during Construction		PART A – For New Buildings Up to 15 Stories		X	
			PART B – For New Buildings Over 15 Stories		X	
			PART C – Existing Buildings	X		

Article No.	Article		Sub-Article or PART (if applicable)	Applies	Does not Apply	Applies as Amended
1.36	General Mechanical Requirements			X		
1.37	General Electrical Requirements		PART B – Section A) Temporary Lighting	X		
			PART B – Section B) Site Security Lighting (New Construction)		X	
			PART D – Electrical Conduit System Including Boxes	X		
			PART E – Electrical Wiring Devices	X		
			PART F – Electrical Conductors and Terminators	X		
			PART G – Circuit Protective Devices	X		
			PART H – Distribution Centers	X		
			PART I – Motors	X		
			PART J – Motor Control Equipment	X		
1.40	Separation Between Trades			X		
1.42	Specific Requirements	C)	BORINGS		X	
		E)	WORK FENCE ENCLOSURE		X	
		G)	RESIDENT ENGINEER'S OFFICE			
			1. OFFICE SPACE IN EXISTING BUILDING		X	
			2. TRAILER OFFICE	X		
		H)	ADDITIONAL EQUIPMENT FOR THE RESIDENT ENGINEER	X		
		I)	PUBLIC TELEPHONE		X	
		Q)	PROJECT SIGN AND RENDERING			
			PART B – PROJECT RENDERING		X	

COMPUTER WORKSTATIONS

H) Number of Computer Workstations to be provided as outlined in Article 1.42 H, item 4: 1

AMENDED ARTICLES

Not Used

VI. ADDITIONAL ARTICLES

Not Used

VII. SPECIAL EXPERIENCE REQUIREMENTS FOR THE PROJECT

(1) **GENERAL**: The following are set forth below: (a) Special Experience Requirements applicable to the contractor or subcontractor that will perform specific areas of work, and (b) Special Experience Requirements applicable to the manufacturer that will provide specific material or equipment.

(2) **REVISION OF SPECIFICATIONS AND DRAWINGS**: In the event the Specifications and/or the Contract Drawings contain any Special Experience Requirement that is not set forth below, such Special Experience Requirement is deemed deleted, except as otherwise expressly provided in Section VIII of this Addendum.

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

(a) Special Experience Requirement #1: The contractor or subcontractor performing the work of this section must, within the last five (5) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least three (3) projects similar in scope and type to the required work. This Special Experience Requirement applies to the contractor or subcontractor that will perform specific areas of work specified in the sections set forth below.

General Construction

- Section 057300: Decorative Metal Railings
- Section 078123: Interior Intumescent Fireproofing

(4) **SPECIAL EXPERIENCE REQUIREMENTS FOR MANUFACTURERS**: The special experience requirements set forth below apply to the manufacturer that will supply or fabricate specific material or equipment. Compliance with such experience requirements will be evaluated after an award of contract. Within two (2) weeks of award, the contractor will be required to submit the qualifications of the proposed manufacturer(s). Once approved, no substitution will be permitted, unless the qualifications of the proposed replacement have been approved in writing in advance by the City

(a) Special Experience Requirement #2: The manufacturer providing the material or equipment specified in this section must, for the past five (5) years, have been regularly engaged in the manufacture of material or equipment similar in type to that required for this Project. Such similar material or equipment provided by the manufacturer must have been in satisfactory service for not less than five (5) years. This Special Experience Requirement applies to the manufacturer that will provide material or equipment specified in the section(s) set forth below.

General Construction

- Section 057300: Decorative Metal Railings
- Section 066000: Resin Panels

VIII. 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 / Construction Manager: Wherever the words "Architect," "Engineer," "Architect / Engineer," "Architect and/or Engineer," or "Construction Manager" 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	CONTRACT #2	CONTRACT #3	CONTRACT #4
Article 14 Contract	Time of Completion	Consecutive Calendar Days	488	183	275	275
Article 15 Contract	Liquidated Damages	For each consecutive calendar day over completion time	**$600**	**$120**	**$300**	**$300**
Article 17 Contract	Sub-contracts	Not to exceed percent of Contract Price	**60%**	**25%**	**60%**	**25%**
Article 21 Contract	Retainage	Percent of voucher	If 100% bonds are required			**5%**
			If 100% bonds are not required, and Contract Price is less than $1,000,000			**10%**
			If 100% bonds are not required, and Contract Price is more than $1,000,000			**10%**
Article 24 Contract	Maintenance & Guaranty	Percent of Contract Price	**1%**	**1%**	**1%**	**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
■ Commercial General Liability Art. 22.1.1	$ 1,000,000 per occurrence $ 2,000,000 aggregate (applicable separately to this **Project**) Additional Insureds: 1. City of New York, including its officials and employees, and 2. The Irish Repertory Theater 132 W 22nd St. NY, NY
■ Workers' Compensation Art. 22.1.2 ■ Disability Benefits Insurance Art. 22.1.2 ■ Employers' Liability Art. 22.1.3 □ Jones Act Art. 22.1.4 □ U.S. Longshoremen's and Harbor Workers Compensation Act Art. 22.1.4	Workers' Compensation: Statutory per New York State law without regard to jurisdiction Disability Benefits Insurance: Statutory per New York State law without regard to jurisdiction Employers' Liability: $1,000,000 each accident
■ Builders' Risk Art 22.1.5 □ Installation Floater	Applicable to Builders' Risk or Installation Floater: 100 % of total value of **Work** City of New York and the **Contractor** named as Loss Payee for the **Work** in order of precedence, as their interests may appear

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
■ Comprehensive Business Auto Coverage Art. 22.1.6	$ 1,000,000 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
☐ 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. _____
☐ 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.

☐ Ship Repairers Legal Liability Art. 22.1.8(b)	$_____ each occurrence [Contracting agency to fill in total value of City vessels involved]
☐ 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. _____
☐ 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 ☐ 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.

[OTHER] □ Asbestos Liability	Art. 22.1.9	Only required of the Contractor or Subcontractor performing any required asbestos removal. $1,000,000 each occurrence, $2,000,000 aggregate (Combined Single Limit); Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____
[OTHER] □ Boiler Insurance	Art. 22.1.9	$200,000; only required of the Contractor for Heating, Ventilating, and Air Conditioning Work.
[OTHER] ■ Professional Liability 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.	Art. 22.1.9	$1,000,000 per occurrence 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. 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.

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 _____, 201_

_____

NOTARY PUBLIC

SCHEDULE A (FOR PUBLICLY BID PROJECTS)

Relating to Article 22 - Insurance

PART III. Address oof 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: Article 1.22 of the 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:

Specification Number	Material or Equipment	Warranty Period
078123	*Intumescent Fireproofing*	*2*
079200	*Joint Sealants*	*5*
083473	*Sound Control Hollow Metal Door Assemblies*	*5*
087100	*Door Hardware*	*1*
	mortise locks and latches	*10*
	extra heavy duty cylindrical (bored) locks & latches	*10*
	heavy duty cylindrical (bored) locks & latches	*7*
	standard duty cylindrical (bored) locks & latches	*5*
	exit hardware	*5*
	manual door closers	*10*
	electromechanical door hardware	*2*
088000	*Glazing*	*5*
088300	*Mirrors*	*5*
089000	*Louvers – Metal Finishes*	*20*
096516	*Linoleum Flooring*	*5*
096816	*Sheet Carpeting*	*Life*

Specification Number	Material or Equipment	Warranty Period (years)
098436	*Sound Absorbing Ceiling Units*	*2*
101400	*Identifying Devices*	*1*
112600	*Unit Kitchens*	*5*
126100	*Fixed Audience Seating*	*5*
210500	*Fire Suppression Materials*	*5*
211313	*Wet Pipe Sprinklers*	*5*
220523	*Plumbing Gen. Duty Valves*	*5*
220529	*Plumbing Hangers and Supports*	*5*
220700	*Plumbing Insulation*	*10*
224000	*Plumbing Fixtures*	*5*
221100	*Facility Water Distribution – Domestic water piping*	*5*
223400	*Fuel-Fired Domestic Water Heaters*	*5*
230516	*HVAC Exp. Fittings and Loops*	*5*
230523	*HVAC Gen. Duty Valves*	*5*
230529	*HVAC Hangers and Supports*	*5*
230548	*HVAC Vibration and Seismic Controls*	*5*
230700	*HVAC Insulation*	*5*
230900	*Instrumentation and Controls*	*5*
232213	*Steam and Condensate Valves*	*5*
232216	*Steam and Condensate Specialties*	*5*
232300	*Refrigerant Piping: Valves*	*3*
233100	*HVAC Ducts and Casings*	*5*
233300	*Air Duct Accessories*	*5*
233400	*HVAC Fans*	*5*
233700	*Air Outlets and Intakes*	*5*
235100	*Breechings, Chimneys and Stacks*	*5*
236313	*Air-Cooled Refrigerant Condensers (Compressors)*	*5*
238126	*Split-System Air Conditioners*	*1*
260933	*Architectural Dimming Controls*	*2*
265561	*Stage Lighting Distribution*	*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: Article 1.04(A) of the General Conditions)

The Schedule set forth below lists all Contract Drawings for the Project.

Contract #1: General Construction

Architectural

A-000	Title Sheet
A-001	Drawing List
A-002	General Notes, Demolition Notes
A-003	Code/ Zoning Analysis
A-004	Symbols and Abbreviations
A-005	Egress Diagrams
A-006	Topographical and Property Line Map
PA-100	Public Assembly Plan
DM-100	Cellar Demolition Plan
DM-101	First Floor Demolition Plan
DM-102	Second Floor Demolition Plan
DM-103	Demolition Section
A-100	Cellar Plan
A-101	First Floor Plan
A-102	Second Floor Plan
A-103	Roof Plan
A-110	Cellar Reflected Ceiling Plan
A-111	First Floor Reflected Ceiling Plan
A-112	Second Floor Reflected Ceiling Plan
A-113	First and Second Floors Step Lighting Plans
A-200	Longitudinal Section
A-201	Longitudinal Section
A-202	Longitudinal Section
A-203	Transverse Sections
A-204	Exterior Elevation/ Roof Section
A-300	Interior Elevations – Offices
A-301	Interior Elevations
A-302	Interior Elevations – Bathrooms
A-303	Interior Elevations
A-304	Interior Elevations
A-400	Enlarged Plans – Stair
A-401	Enlarged Sections – Stair
A-402	Enlarged Sections – Stair
A-403	Enlarged Plan and Sections – Balcony
A-404	Enlarged Plan and Sections – Catwalk and Column Lights
A-405	Enlarged Sections
A-500	Stair Details
A-501	Stair Details
A-502	Balcony Rail Details
A-600	Details
A-601	Details
A-602	Details
A-603	Details
A-604	Details
A-605	Details
A-606	Details

Contract #1: General Construction (cont.)

Architectural (cont.)

A-607	Details
A-608	Details
A-609	Details
A-610	Details
A-700	Partition Schedule
A-701	Finish, Door, Fixture Schedules
A-702	Door Details

Structural

S-101	First Floor Framing Plan
S-102	Second Floor Framing Plan
S-103	Third Floor Framing Plan
S-104	Roof Dunnage Plan
S-200	General Notes and Typical Details
S-201	Schedules and Typical Details
S-400	Sections
S-401	Sections and Details
S-402	Stair Details
S-403	Sections

Contract #2: Plumbing

P-001	Plumbing Notes, Symbols and Risers
P-100	Plumbing Demolition Cellar Plan
P-101	Plumbing Demolition First Floor Plan
P-102	Plumbing Demolition Second Floor Plan
P-103	Plumbing Cellar Plan
P-104	Plumbing First Floor Plan
P-105	Plumbing Second Floor Plan
P-200	Plumbing Details

Contract #3: Heating, Ventilating, and Air Conditioning and Fire Protection

Mechanical

EN-001	Mechanical Energy Code Compliance
M-001	Mechanical General Notes, NYC Building Notes, Symbols and Abbreviations
M-002	Legend for Control Type and Schedule F
M-100	Mechanical Demolition Plan – Cellar
M-101	Mechanical Demolition Plan – First Floor
M-102	Mechanical Demolition Plan – Second Floor
M-200	Mechanical HVAC Plan – Cellar
M-201	Mechanical HVAC Plan – First Floor
M-202	Mechanical HVAC Plan – Second Floor
M-203	Mechanical HVAC Plan – Roof
M-300	Cellar Condensate Piping Plan
M-301	First Floor Condensate Piping Plan
M-302	Second Floor Condensate Piping Plan
M-400	Mechanical Details I
M-401	Mechanical Details II
M-402	Mechanical Details III
M-403	Mechanical Details IV

Contract #3: Heating, Ventilating, and Air Conditioning and Fire Protection (cont.)

Mechanical (cont.)

M-500	Mechanical HVAC Sections
M-501	Mechanical HVAC Sections
M-600	HVAC Schedules

Sprinkler

SP-001	Sprinkler Notes and Symbols
SP-002	Sprinkler Riser Diagram
SP-100	Sprinkler Demolition First Floor and Mezzanine Plans
SP-101	Sprinkler Demolition Second Floor Plan
SP-102	Sprinkler Cellar Floor Plan
SP-103	Sprinkler First Floor Plan
SP-104	Sprinkler Second Floor Plan
SP-200	Sprinkler Details

Contract #4: Electrical

Electrical

EN-100	Lighting Energy Code Compliance
E-001	General Notes and Symbols
E-101	Lighting First Floor Ceiling Plan
E-102	Step Lighting First Floor Plan
E-103	Lighting Second Floor Plan
E-104	Step Lighting Second Floor Plan
E-201	Power Basement Plan
E-202	Power First Floor Plan
E-203	Power Second Floor Plan
E-204	Roof Electrical Plan
E-301	Stage Lighting Plans
E-302	Stage Lighting Details
E-303	Architectural Lighting Riser Diagrams and Schedules
E-401	Single Line Diagram
E-402	Power Riser Diagrams
E-501	Panel Schedules and Details

Fire Alarm

FA-001	General Notes and Symbols
FA-002	Fire Alarm Riser Diagram
FA-100	Fire Alarm Basement Plan
FA-101	Fire Alarm First Floor and Mezzanine Plan
FA-102	Second Floor Fire Alarm Plan

Sound System

TS-101	Sound System Part Plans
TS-102	Sound System Part Plans
TS-103	Sound System Details

SCHEDULE D

Electrical Motor Control Equipment

(Reference: Article 1.37, Part K of the General Conditions)

Requirements for electrical motor equipment may be included in one or more of the Specifications for the separate Contracts for the Project. Schedule D set forth below delineates the responsibilities of each separate Contractor 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.

Legend for Control Type

DB Disconnect Circuit Breaker (Switch)
TS Thermal Switch
MS Magnetic Starter
CMS Comb. Mag. Starter
P Pilot Light
F Firestat
T Thermostat
AL Alternator
BG Break Glass Station
HOA Hand-Off Auto.
PB Push Button Station
RO Remote "off"

Legend for Notes:

Note 1. Starter integral with equipment, control wiring, if any, by Contractor for Electrical Work.
Note 2. Starter integral with equipment, control and interlock wiring by Contractor for H.V.A.C. Work.
Note 3. Starter, alternator, etc., furnished by Contractor for H.V.A.C. Work, to be installed and wired by the Contractor for Electrical Work. Control and interlock wiring by Contractor for H.V.A.C. Work.
Note 4. Starter integral with equipment. Mounting of push-button stations, takeup reels, disconnect switches and circuit breakers, etc., and all wiring by Contractor for Electrical Work.
Note 5. Remote "off" switch to be furnished, installed and connected by Contractor for Electrical Work.
Note 6. Firestat furnished and installed by Contractor for H.V.A.C. Work, to be wired by Contractor for Electrical Work.

Equip. Ident.	Location	Furnished by Contract #	# of Units	HP or KW	Volts and Phase	Control Type: See legend above	Notes: See legend above
Cu-1	roof	26 63 13	12	10.2	208-3	CMS	Note 1
Cu-2	roof	26 63 13	36	30.7	208-3	CMS	Note 1

SCHEDULE E

Separation of Trades

(Reference: Article 1.40 of the General Conditions)

Requirements for various items of work are included in the Specifications for the separate Contracts for the Project and in the General Conditions. Schedule E set forth below delineates the responsibilities of each separate Contractor for various items of work, as well as the extent to which certain items involve coordination between trades. The delineation set forth in this Schedule E shall be taken as specific instruction to the Contractor that it is responsible for the listed items of work. Schedule E is not intended to limit the Contractor's responsibility for supervision and coordination. In the event of any conflict between the Specifications, the General Conditions and this Schedule E, Schedule E shall take precedence; provided, however, in the event of an omission from Schedule E (i.e., Schedule E omits either a reference to or information concerning an item of work which is set forth in the Specifications or the General Conditions), such omission from Schedule E shall have no effect and the Contractor's obligation to perform the work, as set forth in the Specifications or the General Conditions, shall remain in full force and effect.

Legend: "F" = Furnished "I" = Installed "P" = Provided (Furnished and Installed)
Contractor designation (#1, #2, #3 and #4) is as indicated in Section II of this Addendum.

ITEM	Contr #1	Contr #2	Contr #3	Contr #4	Notes
Temporary Heat	P				
Temporary Water		P			
Temporary Light and Power				P	
Temporary Toilets – Enclosures	P				
Temporary Toilets – Fixtures		P			
Rubbish removal from project site	P				
Hoisting and Rigging	P				

ITEM	Contr # 1	Contr # 2	Contr # 3	Contr # 4	Notes
Excavation and Backfill					NA
Utility Trenches – inside building	P				
Utility Trenches – outside building	P				
Keeping site, excavations, and building, free from water during construction	P				
Access doors in finished walls and ceilings, panels and ceilings, panels and supporting frames	P				
Field touch-up painting of damaged shop coats	P				
Prime coating hangers and supports	P				
Rust proofing field cut and assemble iron supporting frames and racks	P				
Finished painting of exposed equipment or piping or ductwork on walls and ceilings where adjacent surfaces are painted	P				
Concrete foundations, housekeeping pads or bases for floor mounted equipment not indicated on the contract drawings	P				
Concrete foundations pads and bases, as indicated on contract drawings, for floor mounted equipment	P				
Framed slots and openings in walls, decks, slabs and/or precast concrete planks	P				

ITEM	Contr # 1	Contr # 2	Contr # 3	Contr # 4	Notes
Sleeves and core drilling thru slabs, decks and walls whether waterproofed or not	P				
Waterproof sealing of pipes passing thru sleeves and/or slots	P				
Waterproof sealing of sleeves thru membraned and waterproofed slabs, roofs, and decks	P				
Sleeves thru walls with no core drilling required		P			
Roof openings	P				
Louvers – exterior	P				
Louvers – interior			P		
Roof curbs and roof equipment supports	P				
Pitch pockets	P				
Roof cap flashing for all supports, penetrations and roof curbs	P				
Fireproof sealing of slab openings at duct or pipe shafts	P				
Fire extinguishers	P				
Prefabricated chimneys			P		
Domestic make-up water piping for heating and air conditioning systems		P			

ITEM	Contr #1	Contr #2	Contr #3	Contr #4	Notes
Pit frames and covers	P				
Drywells	P				
Gas service piping to heating boiler and equipment			P		
Bathroom accessories	P				
Precast and/or molded receptors (mop basins, shower bases, etc.)	P				
Sprinkler water service from street main including meter, to capped OS&Y valve connection inside building		P			
Motors for mechanical equipment			P		
Convector enclosures			P		For encl. by equip. Mfg. only
Electric duct heaters (heaters installed in air ducts) and electric unit heaters			P		
Fire and smoke dampers with motors			P		
Control Wiring – General Construction			P		
Control Wiring – Plumbing		P			
Control Wiring – Sprinkler		P			
Control Wiring – HVAC for temperature control			P		
Door Monitoring Systems – Power Wiring				P	

ITEM	Contr # 1	Contr # 2	Contr # 3	Contr # 4	Notes
Door Monitoring Systems – Control Wiring				P	
Motor starters and motor controls for equipment requiring power wiring				P	
Power wiring for motorized equipment and motor controls				P	
Electric heating cables for pipe tracing				P	
Concrete encasement of conduits	P				
Electric manholes and handholes	P				
Opening frames for ceiling recessed lighting fixtures and other electrical items	P				

SCHEDULE F

Shop Drawing and Material Samples Schedule
(Reference: Article 1.41 of the General Conditions)

The Schedule set forth below lists all submittal requirements for each separate 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: *Garrison Architects* DATE:
TELEPHONE NUMBER: 718-596-8300
DDC PROJECT MANAGER: Alyssa Gerber APPROVED: _____
TELEPHONE NUMBER: 718-391-1404 (DDC RESIDENT ENGINEER/CPM)

REPORT DATE		FMS ID #/PROJECT ID #: CONTRACT REGISTRATION #: PROJECT NAME:							CONTRACT #: TRADE: SHOP DRAWING LOG SHEET #					USE SEPARATE SHEET FOR EACH TRADE				
SPEC. SECT. #	DESCRIPTION	COORD. WITH CONTR.	SUBMITTAL			SUB. DATE	REQ'D DEL.	FABRIC. TIME	SUBMISSIONS									
			SHOP DWG.	SAMPLE	CAT. CUTS				REC'D	RET'D	ACTION	REC'D	RET'D	ACTION	REC'D	RET'D	ACTION
Contract #1																		
03 53 00	Concrete Toppings		X		X													
04 20 00	Unit Masonry		X	X	X													
05 50 00	Metal Fabrications		X		X													
05 51 00	Metal Stairs		X		X													
05 73 00	Decorative Metal Railings		X	X	X													
05 75 00	Decorative Formed Metal		X	X	X													
06 10 00	Rough Carpentry				X													
06 40 23	Interior Architectural Woodwork		X	X	X													
06 60 00	Resin Panels		X	X	X													
07 62 00	Sheet Metal Flashing And Trim		X	X	X													

07 81 23	Interior Intumescent Fireproofing		X	X	X												
07 84 13	Penetration Firestopping		X		X												
07 92 00	Joint Sealants			X	X												
08 11 13	Hollow Metal Doors And Frames		X	X	X												
08 31 13	Access Doors And Frames		X	X	X												
08 34 73	Sound Control Hollow Metal Door Assemblies		X	X	X												
08 71 00	Door Hardware			X	X												
08 80 00	Glazing		X	X	X												
08 83 00	Mirrors		X	X	X												
08 90 00	Louvers		X	X	X												
09 29 00	Gypsum Board Assemblies		X	X	X												
09 31 00	Tiling		X	X	X												
09 64 00	Wood Flooring		X	X	X												
09 65 13	Resilient Wall Base			X	X												
09 65 16	Linoleum Flooring			X	X												
09 68 16	Carpeting		X	X	X												
09 84 36	Sound Absorbing Ceiling Units		X	X	X												
09 91 00	Painting			X	X												
10 14 00	Identifying Devices		X	X	X												
10 28 00	Toilet Accessories			X	X												
10 44 00	Fire Protection Specialties		X		X												
11 26 00	Unit Kitchens		X	X	X												
12 22 00	Roll Down Curtains		X	X	X												

12 61 00	Fixed Audience Seating		X	X	X												
Contract #2																	
22 05 23	Plumb. Gen. Duty Valves				X												
22 05 29	Plumb. Hangers and Supports		X		X												
22 07 00	Plumbing Insulation				X												
22 40 00	Plumbing Fixtures				X												
Contract #3																	
21 05 00	Fire Suppression Materials		X		X												
21 13 13	Wet Pipe Sprinkler		X		X												
23 05 29	HVAC Hangers and Supports		X														
23 05 48	HVAC Vibration and Seismic Controls		X	X													
23 07 00	HVAC Insulation				X												
23 09 00	Instrument and Controls		X														
23 22 13	Steam and Condensate Valves		X		X												
23 22 16	Steam and Condensate Specialties				X												
23 31 00	HVAC Duct Casings		X		X												
23 33 00	Air Duct Accessories				X												
23 34 00	HVAC Fans				X												
23 37 00	Air Outlets and Inlets		X		X												
23 51 00	Breaching Chimneys, Stacks		X		X												
Contract #4																	
26 04 15	Basic Electrical Materials and Methods				X												

26 05 03	Equipment Wiring Connections				X												
26 05 19	Low-Voltage Electrical Power Conductors and Cables				X												
26 05 26	Grounding and Bonding For Elec. Systems				X												
26 05 29	Hangers and Supports For Elec. Systems				X												
26 05 33	Raceway and Boxes For Elec. Systems				X												
26 05 34	Floor Boxes For Elec. Systems				X												
26 05 53	Identification For Elec. Systems				X												
26 09 23	Lighting Control Devices				X												
26 09 33	Architectural Dimming Controls		X		X												
26 24 13	Switchboards		X		X												
26 24 16	Panelboards		X		X												
26 27 16	Electrical Cabinets and Enclosures		X		X												
26 27 26	Wiring Devices				X												
26 28 13	Fuses				X												
26 28 19	Enclosed Switches				X												
26 29 13	Enclosed Controllers				X												
26 51 00	Interior Lighting				X												
26 52 00	Emergency Lighting				X												
26 55 61	Stage Lighting Distribution		X														
27 41 00	Sound System Infrastructure		X	X													
28 31 00	Fire Detection and Alarm System		X		X												

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015050 Construction Waste Management
015150 Construction IAQ Requirements
019100 General Commissioning Requirements

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028013 General Contractor Work -- Allowance for Incidental Asbestos Abatement

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035300 Concrete Toppings

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053100 Steel Decking
055000 Metal Fabrications
055100 Metal Stairs
057300 Decorative Metal Railings
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064023 Interior Architectural Woodwork
066000 Resin Panels

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079200 Joint Sealants

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126100 Fixed Audience Seating

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220503 Pipes and Tubes for Plumbing Piping and Equipment
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CONTRACT # 1

GENERAL CONSTRUCTION WORK

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SECTION 010150 - VOLATILE ORGANIC COMPOUND (VOC) LIMITS FOR ADHESIVES, SEALANTS, PAINTS AND COATINGS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes requirements for volatile organic compound (VOC) content in adhesives, sealants, paints and coatings used for the project

1.2 RELATED SECTIONS

A. All sections in the Specifications with adhesive, sealant or sealant primer applications. "LEED BUILDING Submittal Requirements" shall be followed.

B. Division 1 Section "Construction IAQ Management" for requirements for the Construction IAQ Management Plan.

C. Division 9 Section "Painting".

1.3 GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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 environmental goals.

1.4 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

1.5 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. Unless otherwise specified below, the VOC content of all adhesives, adhesive bonding primers, or adhesive primers shall not be in excess of 250 grams per liter.

D. For specified building construction related applications, the allowable VOC content is as follows:

1. Architectural Applications:

Indoor carpet adhesive	50
Carpet pad adhesive	50
Wood flooring adhesive	100
Subfloor adhesive	50
Ceramic tile adhesive	65
Drywall and panel adhesive	50
Cove base adhesive	50
Multipurpose construction adhesive	70

2. Specialty Applications:

PVC welding	510
CPVC welding	490
ABS welding	325
Plastic cement welding	250
Adhesive primer for plastic	550
Contact Adhesive	80
Special Purpose Contact Adhesive	250
Structural Wood Member Adhesive	140
Sheet Applied Rubber Lining Operations	850
Top & Trim Adhesives	250

3. Substrate Specific Applications:

Metal to metal	30
Plastic foams	50
Porous material (except wood)	50
Wood	30
Fiberglass	80

1.6 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:

Architectural	250
Other (including duct)	420

2. Sealant Primer:

Architectural – Nonporous	250
Architectural – Porous	775
Other	750

1.7 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.

1.8 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	
	Varnish	350
	Sanding Sealers	350
	Lacquer	550
2.	Shellac	
	Clear	730
	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

PART 2 - PRODUCTS – Not Used

PART 3 - EXECUTION – Not Used

END OF SECTION 010150

SECTION 013520 – SUSTAINABLE DESIGN REQUIREMENTS (LEED BUILDING)

PART 1 - GENERAL

1.1 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 DEFINITIONS

A. Chain-of-Custody Certificates: Certificates signed by manufacturers certifying that wood used to make products was obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship." Certificates shall include evidence that manufacturer is certified for chain of custody by an FSC-FSC-accredited certification body.

B. LEED: The Leadership in Energy & Environmental Design rating system developed by the United States Green Building Council. LEED for New Construction (NC), Version 2.2, is the rating system used for this project.

C. 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.

D. 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.

E. Regionally Extracted, Harvested, or Recovered Materials: Materials that are extracted, harvested, or recovered and manufactured within a radius of 500 miles from the Project site.

F. 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 are pre-consumer recycled materials.

1.3 LEED PROVISIONS

A. The provisions to achieve a LEED rating are integrated within the project construction documents and specifications. Contractors are specifically directed to the "LEED BUILDING Performance Criteria" and "LEED BUILDING Submittals" sections within each 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.

B. A LEED Scorecard, which summarizes the targeted LEED points for this project, is included as an attachment to this section. The scorecard is provided for the contractor's reference only.

1.4 LEED BUILDING SUBMITTALS

A. Scope: LEED BUILDING Submittals are required for all installed materials included under Divisions 2 through 14 of this specification. For specification Division 26, LEED BUILDING Submittals are only required for field-applied adhesives, sealants, paints and coat-ings.

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 section. The detailed requirements for the LEED BUILDING Submittals are defined in Item C below.

C. Detailed Requirements: Items 1-11 below define the information and documents to be provided for each type of LEED BUILDING Submittal.

1. ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM (EBMCF): Information to be supplied for this form (blank copy attached at end of this Section) 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).

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.

d) Volatile Organic Compound (VOC) content of all field-applied adhesives, sealants, paints, and coatings, listed in grams/liter or lbs./gallon.

e) The amount of "FSC Certified" wood product(s) used.

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. 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.

3. PRODUCT CUT SHEETS: Provide product cut sheets with the Contractor's or subcontractor'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 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 that the adhesive products do not contain urea-formaldehyde.
7. 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. Topcoat paints: 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)

8. 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.
    d. In addition, provide the total number of each lamp type installed in the project.

D. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review. Incomplete or inaccurate LEED BUILDING submittals may be used as the basis for the Commissioner's rejection of products or assemblies. Incomplete or inaccurate LEED BUILDING Submittals may be used as the basis for rejecting the submitted products or assemblies.

E. LEED Action Plans

1. Construction Waste Management Plan- Refer to Section 015050, Construction Waste Management for detailed submittal requirements.
2. Construction IAQ Management Plan- Refer to Section 015150, Construction IAQ Requirements, for detailed submittal requirements.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013520

SECTION 015050 - CONSTRUCTION WASTE MANAGEMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide construction waste management in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following.

1. Waste Management Goals.
2. Waste Management Plan.
3. Progress Reports.
4. Project Meetings.
5. Management Plan Implementation.

1.2 WASTE MANAGEMENT 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 inevitable waste that is generated, 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.

C. The City of New York will seek LEED (Leadership in Energy and Environmental Design) certification for this Project, 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 50% of total Project demolition and construction waste (by weight) shall be diverted from landfill. The following waste categories are likely candidates to be included in the diversion plan for this project:

1. Concrete.
2. Masonry.
3. Metals (e.g. banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized, stainless steel, aluminum, copper, zinc, brass, bronze).
4. Cardboard, packaging.
5. Reuse items indicated on the Drawings and/or elsewhere in the Specification.
6. Other categories are acceptable and might include:

    a. Clean dimensional wood
    b. Asphalt shingles or roofing
    c. Drywall
    d. Carpet and pad
    e. Ceiling tiles
    f. Glass

E. 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.

1.3 DEFINITIONS

A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk or the like.

B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash debris and rubble resulting from construction, remodeling repair and demolition operations. Hazardous materials are not included.

C. 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. Diversion from Landfill does not include using the material as alternative daily cover at a landfill site, nor does it include burning, incinerating or thermally destroying waste.

D. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product.

E. 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.

F. Return: To give back reusable items or unused products to vendors.

G. Reuse: To reuse excess or discarded construction material in some manner on the Project site.

H. Salvage: To remove a waste material from the Project site for resale or reuse.

I. 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.

J. 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.

1.4 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. Outlets. For assistance in finding outlets for specific materials on specific projects, one possible source is New York Wa$teMatch. Email: wastematch@itac.org Telephone: 212-442-5219.

2. DDC's Sustainable Design web site: http://www.nyc.gov/html/ddc/html/ddcgreen This includes a manual on Construction and Demolition Waste Reduction and Recycling, a Sample Waste Management Plan and a list of internet resources.

3. Directory of Construction and Demolition Waste Processors. A list of local recycling processors is available from New York City Department of Design and Construction, Office of Sustainable Design. DDC's consultants and contractors can request this list by contacting greeninfo@ddc.nyc.gov. This list is provided for information only and is not necessarily comprehensive; other haulers and markets are acceptable.

4. Web Resources (Information only; no warranty or endorsement is implied):

   a. www.wastematch.org Site of New York Wa$te Match, a materials exchange database and service.
   b. 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.
   c. http://www.epa.gov/epaoswer/non-hw/debris-new Site of the U.S. Environmental Protection Agency that discusses construction and demolition waste issues, and links to other resources.

1.5 SUBMITTALS

A. The Contractor for General Construction Work shall be responsible for the development and implementation of a Waste Management Plan for the Project. All Prime Contractors shall assist in the development of that Plan, and collect, sort and deposit their waste and recyclable materials in accordance with the approved Plan.

B. Draft Waste Management Plan. Within 7 days after receipt of Notice to Proceed, or prior to any waste removal, whichever occurs sooner, the Contractor for General Construction Work shall submit to the Commissioner a Draft Waste Management Plan. The Draft Plan shall contain the following:

1. Estimate of the total proposed jobsite waste to be generated, including types and quantities.
2. Proposed alternatives to Landfilling: A list of each material proposed to be salvaged, reused, or recycled during the course of the Project, the proposed destination for each material, and the projected amount (by weight or cu.-yd).

C. Final Waste Management Plan. Within 7 days of Commissioner's approval of the Draft Plan, the Contractor for General Construction Work shall submit a Final Waste Management Plan. It shall contain the following:

1. Estimate of the total proposed jobsite waste to be generated, including types and quantities.
2. Proposed alternatives to Landfilling: A list of each material proposed to be salvaged, reused, or recycled during the course of the Project, the proposed destination for each material, and the projected amount (by weight or cu.-yd).
3. Materials handling procedures. A description of the means by which any waste materials identified in item (2) above will be protected from contamination, and a description of the means to be employed in recycling the above materials consistent with the requirements for acceptance by recycling processors to be utilized.
4. List of documentation to be provided in Progress Reports.

1.6 PROGRESS REPORTS

A. The Contractor for General Construction Work shall submit a montly 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, including:

a. Recycled materials. For each material, provide the following:

1) Amount (in tons or cubic yards).
2) Dates removed from the jobsite.
3) Receiving Party.

b. Reused or salvaged materials. For each material, provide the following:

1) Amount (in tons or cubic yards).
2) Description of intended or actual use.

c. Landfilled materials. Provide the following:

1) Amount (in tons or cubic yards).
2) Dates removed from the jobsite.
3) Identity of the transfer station or landfill.

B. Include legible copies of on-site logs, weight tickets and receipts. Receipts shall be from recycling and/or disposal site operators who can legally accept the materials for the purpose of reuse, recycling or disposal. If mixed construction and demolition waste is sorted off-site, provide a letter from the processor stating the average percentage of mixed C&D waste they recycle. Contractor shall save such original documents (as above) for the life of the project plus number of years as agreed upon by the Contractor and DDC.

1.7 PROJECT MEETINGS

A. Waste management plans and implementation shall be discussed at the following meetings:

1. Pre-demolition meeting.
2. Pre-construction meeting.
3. Regular job-site meetings.
4. Contractor toolbox meetings.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 WASTE MANAGEMENT PLAN EXECUTION

A. The Contractor for General Construction Work 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 Waste Management Plan. The Contractor for General Construction Work shall oversee and document the results of the Plan. The Prime Contractors shall be responsible for collecting, sorting, and depositing in designated areas, their waste, non-returned surplus materials, and rubbish, as per the Waste Management Plan. Monies received for recycling materials shall remain with the Contractor for General Construction Work. Monies received for salvaged materials shall remain with the Contractor for General Construction Work, except for those items specifically identified in the specifications, Division 02-Existing Conditions, or indicated on the drawings.

B. Distribution. The Contractor for General Construction Work shall distribute copies of the Waste Management Plan to each Prime Contractor, Subcontractor, Commissioner, Construction Manager, and Commissioner.

C. Instruction. The Contractor for General Construction Work shall provide on-site instruction of appropriate separation, handling and recycling, salvage, reuse and return methods to be used by all parties in appropriate stages of the Project.

D. Separation facilities. The Contractor for General Construction Work shall lay out a specific area(s) to facilitate separation of materials for potential recycling, salvage, reuse and return. Each potential material shall be collected and stored to avoid being mixed with other materials. Recycling and waste bin areas are to be kept neat and clean, and clearly marked.

END OF SECTION 015050

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SECTION 015150 - CONSTRUCTION IAQ REQUIREMENTS

PART 1 - GENERAL

1.1 CONSTRUCTION IAQ MANAGEMENT GOALS FOR THE PROJECT

A. The City of New York has established 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.

1.2 SUMMARY

A. This Section includes requirements for the development of a Construction Indoor Air Quality Management Plan (alternately referred to as "the Plan"). Develop the Plan for approval by the Commissioner. The Plan shall be implemented throughout the duration of the project construction, and shall be documented as outlined in the Submittal Requirements of Item 1.7 below. The Plan is included as part of the LEED BUILDING requirements for the project.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. All sections of the Specifications related to interior construction, MEP systems, and items affecting indoor air quality.
3. Division 09 Section Painting.

1.3 DEFINITIONS

A. 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.

B. Materials that act as "sinks" for VOC contamination: Absorptive materials, typically dry and soft (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.

C. 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 flooring coverings with plasticizers and engineered wood with formaldehyde)

1.4 REFERENCES AND 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

1.5 LEED BUILDING GENERAL REQUIREMENTS

A. Implement practices and procedures to meet the project's environmental performance goals, which include achieving LEED Certification. 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.

1.6 CONSTRUCTION IAQ MANAGEMENT PLAN

A. The Contractor shall prepare and submit a Construction IAQ Management Plan to the Commissioner for approval. 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 with a Minimum Efficiency Reporting Value (MERV) of 8 must be 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.

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 through the duration of the construction process, and documented in accordance with the Submittal Requirements of Item 1.08 below.

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) Central Filtration
      2) Supply Side
      3) Duct Cleaning.

b. Source Control:

1) Product Substitution
2) Modifying Equipment Operation
3) Changing Work Practices
4) Local Exhaust
5) Air Cleaning
6) Cover or Seal

c. Pathway Interruption:

1) Depressurize Work Area
2) Pressurize Occupied Space
3) Erect Barriers to Contain Construction Areas
4) Relocate Pollutant Sources
5) Temporarily Seal the Building

d. Housekeeping
e. Scheduling

2. Protect 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. 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, 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.

1.7 SUBMITTALS

A. The Construction IAQ Representative shall submit the following LEED-required records and documents:

1. A copy of the Construction IAQ Management Plan as defined in this Section.

2. 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.

3. Provide the Commissioner with a minimum of 18 photographs comprising 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.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 BUILDING AIR PURGING (FLUSH OUT)

A. Purging must be conducted after construction and immediately prior to initial occupancy, for a period of at least two weeks, as follows.

1. After construction ends and with all interior finishes installed, new MERV 13 filtration media is installed and the building is flushed out by supplying 100% outside air for a total air volume of 14,000 ft3 of outdoor air per ft2 of floor area while maintaining an internal temperature of at least 60°F and, where mechanical cooling is operated, relative humidity no higher than 60%.

2. After flush-out, new MERV 13 filters must replace all filters except those solely processing outside air.

END OF SECTION 015150

SECTION 019100 – GENERAL COMMISSIONING REQUIREMENTS

PART 1 – GENERAL

1.1 SUMMARY

A. A Commissioning Agent (CxA), Dome-Tech, Inc., has been contracted to provide building system Commissioning (Cx) services for this project.

B. The intent of this Specification is to:

1. Familiarize the contractor with the Cx process and differences between a commissioned and "non-commissioned" project.
2. Specify what labor / tasks are required by the contractor (and subcontractors) to support the commissioning effort, so the contractor (and subcontractors) can properly estimate the costs for this work. This specification should not be treated as an isolated document and must be read in conjunction with other related specifications as identified in section 1.4 of these specifications.

1.2 DESCRIPTION

A. Commissioning: Commissioning is a systematic process of ensuring that the building systems, including the mechanical and electrical systems, have been installed in the prescribed manner, are functionally checked and capable of being operated and maintained to perform with the design intent and have documentation to support proper installation and operation. The Commissioning Agent (CxA) shall provide the Commissioner with an unbiased, objective view of the system's installation, operation and performance. This process does not eliminate or reduce the responsibility of each system designer to provide a complete design or installing subcontractors to provide a finished product. Commissioning is intended to enhance the quality of each system installation, startup and transfer to beneficial use by the City.

B. Commissioning during the construction phase is intended to achieve the following specific objectives, according to the Contract Documents:

1. Verify that applicable equipment and systems are installed according to the design, contract specification, manufacturer's recommendations and to industry accepted minimum standards and that they receive adequate operational checkout by installing contractors.
2. Verify and document proper performance of equipment and systems.
3. Verify that Operation & Maintenance documentation is complete and transferred to City.
4. Verify that the City's operating personnel are adequately trained.
5. Verify a contract is in place for a post occupancy review with O&M staff within 10 months after Substantial Completion.

C. The Commissioning process shall be a team effort and encompass, as well as coordinate, the traditionally separate functions of system documentation, system installation, equipment startup, control system calibration, testing, balancing and verification and performance checkouts.

D. The CxA will work closely with the construction team, cooperating on and coordinating all Cx activities with the Commissioner's representative, Trade Contractors, subcontractors, manufacturers and equipment suppliers.

E. The Cx process shall not reduce the responsibility of the construction management group (CM/GC) to comply with the Contract Documents.

1.3 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, including 'LEED Requirement' apply to this Section.

1.4 RELATED SPECIFICATION SECTIONS INCLUDE

A. Division 21 : Fire Suppression specifications

B. Division 22 : Plumbing specifications

C. Division 23: HVAC specifications

D. Division 26: Electrical Specifications

1.5 DEFINITIONS

A. The following is a list of definitions utilized with this specification. Other definitions outlined in the General Conditions, Supplementary Conditions, Technical Specifications or other Contract Documents shall remain in effect.

1. Acceptance Phase: Phase of construction after installation completion, startup and initial checkout when functional performance tests, operation and maintenance documentation review and training occur.

2. Approval: Acceptance that a piece of equipment or system has been properly installed and is functioning in the tested modes according to the Contract Documents.

3. Architect/Engineer (A/E): The consultants who comprise the design team, generally the Architect, the HVAC Mechanical Engineer, the Plumbing Engineer and the Electrical Engineer. These consultants shall be identified as "Commissioner" within the specifications, unless otherwise indicated.

4. Basis of Design (BOD): A document that records the concepts, calculations, decisions and product selections used to meet the City's Project Requirements 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. The Designer of Record produces this document.

5. Check Sheets: The step by step process that must be executed to fulfill the test requirements. The CxA shall develop the check sheets.

6. Commissioning Agent (CxA): The Commissioning Agent is an independent authority, not otherwise associated with the A/E team members, the CM or Trade Contractor. The CxA directs and coordinates day to day commissioning activities. The CxA does not take an project oversight role.

7. Commissioning Plan (CxP): An overall plan developed by the CxA before or after bidding that provides the structure, schedule and coordination planning for the Cx process.

8. Construction Manager (CM): The Construction Manager or their authorized representative appointed by the Commissioner.

9. Pre-functional / Installation Checklists (ICs): A list of items to inspect and elementary component tests to conduct to verify proper installation of equipment, provided by the CxA to the Subcontractors. Installation checklists are primarily static inspections and procedures to prepare the equipment or system for initial operation (e.g., belt tension correct, oil levels, labels affixed, gages in place, sensors calibrated, etc.). The word installation refers to pre functional testing. Installation checklists augment and are combined with the manufacturer's startup checklist.
10. Contract Documents: The documents binding all concerned involved in the construction of this Project (Drawings, Specifications, Bulletins, Change Orders, Amendments, other Contracts, Commissioning plans, etc.) as defined in the General Conditions of the Contract.
11. Control System: The central building management control system. (BAS or BMS system)
12. Data Logging: Monitoring flows, currents, status, pressures, etc. of equipment, using standalone data loggers separate from the control system.
13. Design Intent (DI): An explanation of the ideas, concepts and criteria that are considered to be very important to the City. It is initially the outcome of the programming and conceptual design phases. The design intent is developed from the OPR and BOD.
14. Functional Performance Checks or Functional Checks (FCs): Test of the dynamic function and operation of equipment and systems using manual (direct observation) or monitoring methods. Functional testing is the dynamic testing of systems (rather than just components) under full operation (e.g., the chiller pump is tested interactively with the chiller functions to see if the pump ramps up and down to maintain the differential pressure setpoint). Systems are tested under various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied, varying outside air temperatures, fire alarm, power failure, etc. The systems are run through all the control system's sequences of operation, and components are verified to be responding as the sequences state. Traditional air or water test and balancing is not functional testing, in the commissioning sense of the word. The Commissioning Authority develops the functional test procedures in a sequential written form. The FCs are generally developed from the approved sequence of operation and control logic in conformance to City's project requirement and contract documents. CxA coordinates, oversees, witnesses and documents the actual testing, which is usually performed by the installing Contractor or vendor. Function tests are performed after installation checklists and startup are complete.
15. Indirect Indicators: Indicators of a response or condition, such as a reading from a control system screen reporting a damper to be 100% closed.
16. Installing Contractor / Subcontractor: Contractor / Subcontractor who installs specific equipment and / or systems.
17. Issue: A condition in the installation or function of a component, piece of equipment or system that is not in compliance or conformance with the Contract Documents.
18. Issues Database: A formal and ongoing record of problems, deficiencies or concerns – and their resolution – that have been raised by members of the Commissioning Team during the course of Cx. 'Issues database' is the primary tracking tool to address all commissioning issues by the concerned parties. All issues must be addressed / closed by the concerned parties before close-out.

19. Manual Test: A test using handheld instruments, immediate control system readouts or direct observation to verify performance (as opposed to analyzing monitored data taken over time to make the "observation").
20. Master Equipment List (MEL): A complete listing of all commissioned building equipment, including detail such as make, model, etc., that is taken from submittals and is the basis from which check sheets will be generated.
21. Monitoring: The recording of parameters (flow, current, status, pressure, etc.) of equipment operation using data loggers or the trending capabilities of control systems.
22. Overwritten Value: Writing over a sensor value in the control system to see the response of a system (e.g., changing the outside air temperature value to verify economizer operation). See also "Simulated Signal".
23. City: City of New York.
24. City Contracted Tests: Tests paid for by the City outside of the CM's Contract and for which the CxA does not provide oversight. These tests will not be repeated during functional tests if properly documented.
25. City's Project Requirements (OPR): The City's Project Requirements is the documentation of the primary thought processes and assumptions behind design decisions that were made to develop the Basis of Design (BOD and meet the design intent. The OPR describes the systems, components, conditions and methods chosen to meet the intent. Some reiterating of the design intent may be included.
26. Phased Commissioning: For projects that are anticipated to be completed in phases, commissioning that is completed in stages due to the size of the structure or other scheduling issues to minimize total construction time.
27. Sampling: Functional testing for a percent / fraction of the total number of identical or near identical pieces of equipment.
28. Seasonal Performance Tests: Functional tests that are deferred until or performed again when the system(s) will experience climate conditions closer to their design conditions.
29. Startup: The initial starting or activating of equipment, including executing construction checklists.
30. Subcontractors: The subcontractors that provide building components and systems under the General Construction Contractor.
31. Test Requirements: Requirements specifying what modes and functions, etc. shall be tested on any given piece of equipment or any given system (integrated and/or stand-alone). The test requirements are not the detailed test procedures. The test requirements for each system are specified in the respective section of the Contract Documents.
32. Testing, Adjust, Balance (TAB): Primary work is setting up the system flows and pressures as specified whereas functional testing is verifying that which has already been set up.
33. Trending: Monitoring using the building control system.
34. Vendor: Supplier of equipment.

1.6 REFERENCES

A. General: Comply with the applicable provisions and recommendations of references, except as modified by governing codes and by the Contract Documents. Where a recommendation or suggestion occurs in the references, such recommendation or suggestion shall be considered mandatory. In the event of conflict between references, this specification or within themselves, the more stringent standard or requirement shall govern.

1. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE): "ASHRAE Guideline 1.1-2007 ASHRAE Guideline HVAC&R Technical Requirements for The Commissioning Process
2. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE): "ASHRAE Guideline 0-2005 ASHRAE Guideline 'The Commissioning Process".

1.7 COMMISSIONING TEAM

A. Commissioning Team: The members of the commissioning team consist of the CxA, USER, CM, the Architect and MEP Engineers, the Mechanical Trade Contractor, the Electrical Trade Contractor, the TAB representative (if independently retained), the Temperature Controls Contractor, as well as any other installing subcontractors or suppliers of equipment. The City's building or plant operator / engineer shall also be a member of the commissioning team.

B. Members Appointed by CM: 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 each Contractor, including Project superintendent and subcontractors, installers, suppliers and specialists deemed appropriate by the CxA.

C. Members Appointed by Commissioner:

1. Commissioning Agent (CxA): The designated person, company or entity that plans, schedules and coordinates the commissioning team to implement the commissioning process. City will engage the CxA under a separate contract.
2. Construction Manager (CM)
3. Representatives of the facility user and operation and maintenance personnel.
4. Architect and engineering design professionals.

1.8 CITY'S RESPONSIBILITIES

A. Provide the OPR & BOD documentation to the CxA and design team members 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 including, but not limited to, the following:

1. Coordination meetings.
2. Training in operation and maintenance of systems, subsystems, and equipment.
3. Testing meetings.
4. Demonstration of operation of systems, subsystems, and equipment.

C. Provide the approved Contract Documents to the CxA and CM for use in developing the commissioning plan, systems manual, and operation and maintenance training plan.

1.9 CONSTRUCTION MANAGER'S (CM) RESPONSIBILITIES

A. Provide utility services and any consumable required for the commissioning process.

B. The CM shall assign representatives with expertise and authority to act on behalf of the CM and schedule them to participate in and perform commissioning team activities including, but not limited to, the following:

1. Participate in design and construction phase coordination meetings.
2. Insert Cx requirements into the master schedule.
3. Participate in maintenance orientation and inspection.
4. Participate in operation and maintenance training sessions.
5. Participate in final review at acceptance meeting.
6. Certify that Work is complete and systems are operational according to the Contract Documents, including calibration of instrumentation and controls. Notify the CxA when issues have been resolved.
7. Schedule testing, training, and provide a minimum of 48 hours notice to CxA for witnessing the testing.
8. Evaluate performance deficiencies identified in test reports and, in collaboration with entity responsible for system and equipment installation, recommend corrective action.
9. Review and approve final commissioning documentation.
10. For enhanced commissioning, forward submittals to CxA for comment.

1.10 GC/SUB CONTRACTOR'S RESPONSIBILITIES

A. Subcontractors shall assign representatives with expertise and authority to act on behalf of subcontractors and schedule them to participate in and perform commissioning team activities including, but not limited to, the following:

1. Participate in construction phase coordination meetings.
2. Demonstrate all sequences to CxA.
3. Participate in maintenance orientation and inspection.
4. Participate in procedures meeting for testing.
5. Execute Installation check sheets.
6. Support functional testing with qualified technicians.
7. Respond to Cx Issues Database within seven days of publication of issue.
8. Participate in final review at acceptance meeting.
9. Provide schedule for operation and maintenance data submittals, equipment startup, and testing to CxA for incorporation into the commissioning plan. Update schedule on a weekly basis throughout the construction period.
10. Provide information to the CxA for developing construction phase commissioning plan.

11. Co-ordinate / Conduct training sessions for City's operation and maintenance personnel.
12. Provide updated Project Record Documents to the CxA on a daily / weekly basis.
13. Gather and submit operation and maintenance data for systems, subsystems and equipment to the CxA 45 days after acceptance.
14. Provide technicians who are familiar with the construction and operation of installed systems and who shall develop specific test procedures and participate in testing of installed systems, subsystems and equipment.

1.11 COMMISSIONING AGENT'S (CxA) RESPONSIBILITIES

A. The functions and responsibility of the CxA shall include:

1. Organization and leadership of the Commissioning team with primary responsibility to inform the Commissioner and CM on the status, integration, and performance of systems within the facility.
2. Preparation of construction-phase commissioning plan and collaboration with CM and appropriate subcontractors and suppliers to develop testing and inspection procedures including design changes and scheduled commissioning activities coordinated with overall Project schedule.
3. Scheduling: The CxA shall work with the CM according to established protocols to schedule the commissioning activities. The CxA shall provide INPUTS to the CM for scheduling commissioning activities. The CM shall integrate all commissioning activities into the master schedule. All parties shall address scheduling problems and make necessary notifications in a timely manner to expedite the commissioning process.
4. Identification of commissioning team member responsibilities by name, firm and trade specialty for performance of each commissioning task.
5. Convene commissioning team meetings for the purpose of coordination, communication and conflict resolution; discuss progress of commissioning processes. Responsibilities include arranging for facilities, preparing agenda and attendance lists and notifying participants. The CxA shall prepare and distribute minutes to commissioning team members and attendees.
6. At the beginning of the construction phase, 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; testing, adjusting and balancing work; and Project completion.
7. Observe and inspect construction and report progress and deficiencies. In addition to compliance with the OPR, BOD and Contract Documents, inspect systems and equipment installation for adequate accessibility for maintenance and component replacement or repair.
8. Observation of Tests: CxA shall prepare, schedule (with the CM), coordinate, direct, witness and document Project specific tests, inspections, checkout and startup procedures (performed by the contractors) as required to ensure equipment and system installation, operation and performance meets the design intent. The CxA shall provide technical inputs to oversee and verify the correction of open issues found during the commissioning process.
9. Compile test data, inspection reports and certificates and include them in the commissioning report.

10. Acceptance: The CxA shall recommend acceptance to the Commissioner for each component and system for start of the warranty period.
11. Review Project Record Documents for accuracy. Request revisions from CM to achieve accuracy.
12. Review and comment on operation and maintenance documentation and systems manual outline for compliance with the OPR, BOD and Contract Documents.
13. Review subcontractor submitted O&M & training documentation.
14. Prepare commissioning reports.
15. Assembly of the final commissioning documentation.
16. For enhanced commissioning, review and comment on submittals from CM for compliance with the OPR, BOD, Contract Documents and construction phase commissioning plan. Review and comment on performance expectations of systems and equipment and interfaces between systems relating to the OPR and BOD.

B. The CxA is referred to as an independent contractor in this Section and shall work under a separate contract directly for the City. The CxA shall not be financially associated with any of the work of the contractors or subcontractors on this project to avoid potential conflicts of interest.

1.12 COMMISSIONING DOCUMENTATION (the definitions are already covered under 1.5)

A. City's Project Requirements.

B. Basis of Design (BOD)

C. Commissioning Plan: The commissioning plan is a living document that will evolve over the course of the project and ultimately include,:

1. Description of the organization, layout and content of commissioning documentation and a detailed description of documents to be provided along with identification of responsible parties.
2. Identification of systems and equipment to be commissioned.
3. Description of schedules for testing procedures along with identification of parties involved in performing and verifying tests.
4. Identification of items that must be completed before the next operation can proceed.
5. Description of responsibilities of commissioning team members.
6. Description of observations to be made.
7. Schedule for commissioning activities

D. Pre-functional check / Installation Checks (IC):

E. Functional Checks (FC): The end goal is that all associated equipment and components are verified simultaneously to ensure that all elements operate as per the contract documents. Each checklist, regardless of system, subsystem or equipment being tested, shall include, but not limited to, the following:

1. Name and tag of tested item.
2. Date of test.

3. Indication of whether the record is for a first test or retest following correction of a problem or issue.
4. Dated signatures of the person performing test and of the witness if applicable.
5. Deficiencies.
6. Issues, if any, generated as the result of test in the note section

F. Test and Inspection Reports: CxA shall record test data, observations and measurements on test checklists.

G. Corrective Action Documents: CxA shall document corrective action taken for systems and equipment that fail tests. Include required modifications to systems and equipment and revisions to test procedures, if any. Retest systems and equipment requiring corrective action and document retest results.

H. Issues Database: CxA shall prepare and maintain an issues database that describes design, installation and performance issues that are at variance with the OPR, BOD and Contract Documents. Identify and track issues as they are encountered, documenting the status of unresolved and resolved issues.

1. Documenting Issue Resolution:
   a. Log date correction is completed or the issue is resolved.
   b. Describe corrective action or resolution taken. Include description of diagnostic steps taken to determine root cause of the issue if any.
   c. Identify changes to the City's Project Requirements, Basis of Design, or Contract Documents that may require action.
   d. State that correction was completed and system, subsystem and equipment is ready for retest if applicable.
   e. Identify person(s) who corrected or resolved the issue.
   f. Identify person(s) documenting the issue resolution.

I. Commissioning Report: CxA shall document results of the commissioning process including unresolved issues and performance of systems, subsystems and equipment. The commissioning report shall indicate whether systems, subsystems and equipment have been completed and are performing according to the City's Project Requirements, Basis of Design and Contract Documents. The commissioning report shall include the following:

1. Lists and explanations of substitutions; compromises; variances in the City's Project Requirements, Basis of Design and Contract Documents; record of conditions; and, if appropriate, recommendations for resolution. It may also include a recommendation for accepting or rejecting systems, subsystems, and equipment.
2. City's Project Requirements and Basis of Design documentation.
3. Commissioning plan.
4. Testing plans and reports.
5. Corrective modification documentation.
6. Issues database.
7. Completed functional check sheets.
8. Listing of any seasonal test(s) remaining and a schedule for their completion.

J. Systems Manual: CxA shall gather required information and compile a systems manual. Systems manual shall include the following:

1.13 SUBMITTALS

A. Commissioning Plans: Submit to Commissioner.

B. Testing: Submit to Commissioner

1. Functional Checklists and Report Forms: CxA shall submit Prefunctional and functional test procedures to CM, A/E for review and comment.

2. Test and Inspection Reports: Submit for Commissioner's information. CxA shall submit test and inspection reports.

C. Corrective Action Documents: CxA shall submit corrective action documents in the form of 'Issues Log'

1.14 SYSTEMS TO BE COMMISSIONED

A. All parties associated with the design, installation and / or testing of these systems shall comply with commissioning requirements specified in this section, in the individual Division commissioning sections and in the Commissioning Plan.

B. Participate in and perform commissioning team activities including, but not limited to, the following:

1. Chiller
2. HVAC units
3. HVAC controls
4. System Testing and Balancing
5. Fire alarm and sprinkler system
6. Electrical distribution
7. Lighting and controls
8. Fire suppression system including fire pumps

1.15 COORDINATION

A. The Commissioner will furnish copies of all construction documents, addenda, change orders and appropriate approved submittals and shop drawings to the CxA.

B. The CxA shall coordinate directly with the Commissioner on the project specific to their responsibilities and contractual obligations. If the contractor is a subcontractor to another contractor, the CxA shall disseminate written information to all responsible parties relative to the nature and extent of the communication.

C. The CxA is primarily responsible to the City, and therefore shall regularly apprise the Commissioner of progress, pending problems and / or disputes, as well as provide regular status reports on progress with each system.

D. The CxA shall coordinate the schedule of commissioning activities with the construction schedule. It is possible that some procedures will be completed before the entire mechanical or electrical system is completed.

1.16 SCHEDULE

A. Commissioning of systems shall proceed per the criteria established with activities to be performed on a timely basis. The CxA shall be available with a 48 hour notice to respond promptly and avoid construction delays.

B. Startup and testing of systems may proceed prior to final completion of systems to expedite progress. However, the CxA shall not schedule testing and checkout services that are the primary responsibility of the contractor / vendor in advance of their testing and checkout.

C. Open issues observed shall be addressed immediately, responsible parties notified, and corrective actions coordinated in a timely manner.

D. Construction schedules and scheduling are the responsibility of the CM. The CxA shall provide commissioning scheduling information to the Commissioner's Representative and CM for review and planning activities.

1.17 OTHER REQUIREMENTS

A. Commissioning requires support from the CM, GCC, Trade Contractors and subcontractors. The commissioning process does not relieve any contractors from their obligations to complete all portions of work in a satisfactory manner.

B. Commissioning requirements in this section should not be confused with "commissioning" requirements at the end of various technical specification sections. Those requirements that are at the end of various technical specification sections are part of the quality control procedures and are to be completed by the respective contractor before the commissioning process begins.

C. Refer to the Commissioning plan submitted by the CxA for a detailed description of all commissioning requirements and responsibilities for all involved parties including: Commissioner's Representative, Architect, Design Engineer, CM, GCC, Trade Contractors, and Subcontractors.

PART 2 – PRODUCTS

2.1 TEST EQUIPMENT

A. All industry standard test equipment required for performing the specified tests shall be provided by the appropriate party responsible for the testing. Any proprietary vendor specific test equipment shall be provided by that vendor or manufacturer.

B. Special equipment, tools and instruments (only available from vendor, specific to a piece of equipment) required for testing equipment, according to these Contract Documents, shall be included in the base bid price to the Trade Contractor and left on site, except for standalone data logging equipment that may be used by the CxA.

C. If data logging equipment is required, the loggers and the necessary software shall be provided by the CxA but not become the property of the City.

D. Any portable or handheld setup / calibration devices required to initialize the control system shall be made available by the control vendor (at no additional cost) to the CxA.

E. The instrumentation used in the commissioning process shall comply with the following:

1. Be of sufficient quality and accuracy to test and / or measure system performance within the tolerances required.

2. Be calibrated at the manufacturer's recommended intervals with calibration tags permanently affixed to the instrument.
3. Be maintained in good repair and operating condition throughout use duration on this project.
4. Be immediately recalibrated or repaired if dropped and / or damaged in any way during use on this project.

PART 3 – EXECUTION

3.1 COMMISSIONING PLAN AND SCHEDULE

A. The CxA shall develop and submit a schedule identifying the commissioned system and commissioning process which is integrated by the CM with the construction schedule. The required work by all team members (CxA, Trade Contractors and the City) shall be included. Overlay with the construction schedule, and include time for test and balance, Installation checkouts, as well as Functional testing.

B. Commissioning Plan: The Commissioning Plan provides guidance in the execution of the Commissioning process. Just after the initial Commissioning kickoff meeting, the CxA will update the plan, which is then considered the "final" plan (though it will be a living document that continues to evolve and expand as the project progresses). The Specifications will take precedence over the Commissioning Plan.

3.2 COMMISSIONING PROCESS

A. Commissioning Process: The following provides an overview of the Commissioning tasks during design and construction and the general order in which they occur.

1. Design Phase
    a. Commissioning during the design phase begins with a Commissioning kickoff meeting, chaired by the CxA, which the Commissioning process is set forth.
    b. Commissioning shall include the design review (usually 75% DD, 75% CD and 100% CD), provide comments from commissioning perspective.
2. Construction Phase
    a. Commissioning during construction begins with a Commissioning orientation meeting, conducted by the CxA, where the Commissioning process is reviewed with the other Commissioning team members.
    b. Additional meetings may be required throughout construction, scheduled by the CxA with necessary parties attending, to plan, scope, coordinate and schedule future activities and resolve open issues.
    c. Equipment documentation for commissioned systems/equipment is submitted to the CxA for review, concurrent with normal submittals, including detailed startup procedures.
    d. The CxA works with the CM, Trade Contractors and subcontractors in developing IC/FC documentation formats.
    e. In general, the checkout and performance verification proceeds from simple to complex; from component level to equipment to systems and

intersystem levels with Installation checklists being completed before Functional Performance Checklists.

f. The Subs, with guidance from the CxA, execute and document the Installation checklists and perform startup and initial checkout. The CxA documents that the checklists and startup were completed according to the approved plans. This may include the CxA witnessing portions of the startup of selected equipment and spot checking the Installation check sheets.

g. The CxA develops specific equipment and system Functional check sheets. The Subs receive copies of the procedures. The CxA may request additional design narrative from the A/E and Controls Contractor, depending on the completeness of the design intent documentation and sequences provided with the Specifications.

h. The Functional and/or system performance check sheets are executed by the subs, witnessed by the CxA.

i. Items of non-compliance in material, installation or setup are corrected and the system rechecked not to exceed one additional time.

j. The CxA reviews the Operation & Maintenance documentation for completeness.

k. Commissioning is completed before Substantial Completion.

l. The CxA reviews the training documentation. The training schedules are provided by the Subs and CxA verifies that training was completed.

m. Deferred testing / checkouts are conducted, as specified or required.

3.3 INSTALLATION / FUNCTIONAL PERFORMANCE

A. Personnel experienced in the technical aspects of each system to be commissioned shall develop and document the commissioning procedure to be used. Include a performance checklist and performance checkout data sheets for each system based on actual system configuration. These procedures shall be reviewed by the Commissioner for technical depth, clarity of documentation and completeness. Special emphasis shall be placed on checkout procedures that shall conclusively determine actual system performance and compliance with the design intent.

B. The majority of mechanical equipment requires safety devices to stop and / or prevent equipment operation unless minimum safety standards or conditions are met. These may include adequate oil pressure, proof-of-flow, non-freezing conditions, maximum static pressure, maximum head pressure, etc. The party responsible for checkout procedures shall observe the actual performance of safety shutoffs in a real or closely simulated condition of failure.

C. Systems may include safety devices and components that control a variety of equipment operating as a system. Interlocks may be hard-wired or operate from software. The party responsible for commissioning checkout procedures shall verify operation of these interlocks.

D. The CxA shall determine the acceptance procedures for each system within disciplines. The acceptance procedures shall incorporate the commissioning standards and successful testing results as referred to throughout specifications.

As guidance for HVAC system acceptance, the following should be considered

1. The temperature control system shall have all I/O points individually verified for proper function, calibration, and operation. The CxA shall review proposed testing procedures and report formats, and observe sufficient field testing to confirm that all I/O points have been properly tested.
2. All control sequence of operation strategies, alarm generation and reporting shall also be reviewed and proper operation verified by the CM and Trade Contractors with oversight by the CxA.
3. The central work station graphics, point assignments, alarm messages, and logging functions shall be verified.

E. The appropriate contractor and vendor(s) shall be informed of what tests are to be performed and the expected results. Whereas some test results and interpretations may not become evident until the actual tests are performed, all parties shall have a reasonable understanding of the requirements. The commissioning plan shall address those requirements and be distributed to all parties involved with that particular system.

F. Acceptance procedures shall confirm the performance of systems to the extent of the design intent. When a system is recommended to be accepted, the City shall be assured that the system is complete, works as intended, is correctly documented, and operator training has been performed.

3.4 FUNCTIONAL PERFORMANCE TESTS – OBSERVATION / WITNESS

A. The Functional Performance tests shall be performed by the contractors and vendors with oversight by the CxA. The CxA shall witness, verify and document these tests.

B. Check sheets shall be completed comprehensively and to the extent necessary to enable the CxA to assure the City that the systems do perform per the City's requirement.

3.5 SOFTWARE DOCUMENTATION REVIEW

A. Review software documentation for all DDC control systems. This includes review of vendor documentation and specific software routines applied to this project. Discrepancies in sequences shall be reported and coordinated to provide the City with the most appropriate, simple and straightforward approach to software routines.

3.6 TESTING PREPARATION

A. Prerequisites for Testing:

1. Certify that commissioned systems, subsystems and equipment have been completed, calibrated and started; are operating according to the OPR, BOD and Contract Documents; and that Certificates of Readiness are signed and submitted.
2. Certify that all relevant instrumentation and control systems have been completed and calibrated; are operating according to the OPR, BOD and Contract Documents; and that pretest set points have been recorded.
3. Certify that testing, adjusting and balancing (TAB) procedures have been completed, and that TAB report have been submitted, discrepancies corrected and corrective work approved.
4. Test systems and intersystem performance after approval of testing check sheets for systems, subsystems and equipment.
5. Set systems, subsystems and equipment to operating mode to be tested (e.g., normal shut down, normal auto position, normal manual position, unoccupied cycle, emergency power and alarm conditions).
6. Verify each mode of operation once it is operating in a steady state condition.

7. Inspect and verify the position of each device and interlock identified on checklists. Sign off each item as acceptable or failed. Repeat this test for each operating cycle that applies to system being tested.
8. Check safety cutouts, alarms and interlocks with smoke control and life safety systems during each mode of operation when applicable.
9. Annotate checklist or data sheet when a deficiency is observed.
10. Verify equipment interface with monitoring and control system and the TAB

B. Testing Instrumentation: Install measuring instruments and logging devices to record test data for the required test period. Instrumentation shall monitor and record full range of operating conditions and shall allow for calculation of total capacity of system for each mode of operation. For individual room cooling tests, Operational modes generally include the following:

1. Occupied and unoccupied.
2. Warm up and cool down.
3. Economizer cycle.
4. Emergency power supply.
5. Life safety and safety systems.
6. Smoke control.
7. Fire safety.
8. Temporary upset of system operation.
9. Partial occupancy conditions.

3.7 TESTING

A. Test systems and intersystem performance as per the test procedures. Perform tests using design conditions whenever possible.

1. Simulate conditions by imposing an artificial load when it is not practical to test under design conditions and when written approval for simulated conditions is received from CxA. Before simulating conditions, calibrate testing instruments. Set and document simulated conditions and methods of simulation. After tests, return settings to normal operating conditions.
2. Alter setpoints when simulating conditions is not practical and when written approval is received from CxA.
3. If a test is failed for reason and retesting is required, the concerned agency (contractor, equipment manufacturer) shall provide the service on an agreed upon date at no cost to the City.
4. Alter sensor values with a signal generator when design or simulating conditions and altering set points are not practical. Do not use sensor to act as signal generator to simulate conditions or override values.

3.8 COST OF RETESTING

A. The cost for the GC/trade contractor to retest a prefunctional or functional test, if they are responsible for the deficiency, shall be theirs.

B. The time for the CxA to direct any retesting required because a specific prefunctional checklist or start-up test item, reported to have been successfully completed, but determined during functional testing to be faulty will be charged to the contractor.

C. Any required retesting by any contractor shall not be considered a justified reason for a claim of delay or for a time extension by the prime contractor or GC.

3.9 OPERATION & MAINTENANCE MANUALS

A. The CxA shall review the Operation & Maintenance manuals provided by Trade Contractors or subcontractors. The review process shall verify that Operation & Maintenance instructions meet specifications and are included for all equipment furnished by the Trade Contractor.

B. Published literature shall be specifically oriented to the provided equipment, indicating required operation and maintenance procedures, parts lists, assembly / disassembly diagrams and related information.

C. The Trade 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 and edit these documents as necessary for final corrections by the Trade Contractor.

D. The Operation & Maintenance Manual review and coordination efforts shall be completed prior to City training sessions, as these documents are to be utilized in the training sessions.

3.10 SYSTEMS MANUAL

A. Per Contract Documents and as part of LEED enhanced commissioning, the CxA shall prepare and deliver the documents that are required to periodically "tune up" building systems. The contractors will confirm the proper documents are onsite and readily available. Typically, the manual includes the following:

1. As built sequences of operation for all equipment and control drawings.
2. List of programmed operation schedules and frequency for their review.
3. Engineering narratives for all energy and water saving methods and equipment (supplied by the Engineer of Record).
4. Benchmarks for energy use tracking and guidelines for future additions. (Based on Energy Modeling Conducted)
5. Narrative of seasonal operational issues, including seasonal startup and shutdown, manual and restart operation procedures, recommendations regarding seasonal operational issues that affect energy use.
6. List of all user adjustable setpoints and reset schedules with a brief discussion of the purpose of each and the range of reasonable adjustments with energy implications.
7. Recommendations for recalibration frequency for sensors and actuators.
8. Recommendations for user adjustable setpoints and frequency of checking.
9. Recommended frequency of Recommissioning.

10. List of diagnostic tools and directions for use.

3.11 TRAINING

A. The CM shall schedule and coordinate training sessions for the City's staff for each system. Training shall be held per Contract Documents, along with the appropriate schematics, handouts and visual / audio training aids onsite with equipment.

B. The appropriate installing Trade Contractor shall provide training on all the major systems per specifications, including peculiarities specific to this project.

C. The equipment vendors shall provide training on the specifics of each major equipment item including philosophy, troubleshooting and repair techniques.

D. The automatic control and fire alarm vendors shall provide training on the control system and fire alarm system per their specification section.

E. For additional prescription pertinent to training, refer to other specific divisions for training requirements.

3.12 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 Commissioner, 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.

3.13 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.

3.14 EXCLUSIONS

A. Responsibility for construction means and methods: The CxA is not responsible for construction means & methods, job safety or any construction management functions on the job site.

B. Hands on work by the CxA: The Trade Contractors shall provide all services requiring tools or the use of tools to startup, test, adjust or otherwise bring equipment and systems into a fully operational state. The CxA shall coordinate and observe these procedures (and may make minor adjustments) but shall not perform any construction, field or technician services other than verification of testing, adjusting, balancing and control functions.

END OF SECTION 019100

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SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide selective demolition in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Selective demolition and removal of selected portions of a building, to the extent indicated on the Drawings, and as required to accommodate the new construction.
2. Protection of existing site work and portions of building adjacent to or affected by selective demolition.
3. Vibration control and dust control noise control.
4. Disconnection, capping, and removal abandoned utilities and wiring systems.
5. Removal and legal disposal of materials.
6. Temporary supports and facilities.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and reinstalled.

B. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.

C. Existing to Remain: Existing items of construction that are not to be removed.

1.4 MATERIALS OWNERSHIP

A. Except for items or materials indicated to remain the City of New York's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.

1.5 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure City of New York's on-site operations are uninterrupted.
2. Interruption of utility services. Indicate how long utility services will be interrupted.
3. Coordination for shutoff, capping, and continuation of utility services.
4. Use of elevator and stairs.
5. Locations of proposed dust- and noise-control temporary partitions and means of egress.
6. Coordination of City of New York's continuing occupancy of portions of existing building and of City of New York's partial occupancy of completed Work.
7. Means of protection for items to remain and items in path of waste removal from building.

C. Predemolition Photographs or Videotapes: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by selective demolition operations.

D. Contractor shall provide shop drawings and calculations for all temporary supports, shoring and bracing required. Comply with the State of New York Building Code requirements for preparation of submittals and do all required filing. Drawings and calculations for shoring and bracing shall be signed and sealed by a New York State licensed Professional Engineer responsible for their preparation.

1.6 QUALITY ASSURANCE

A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.

B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

1. Statement of Refrigerant Recovery: Signed by 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.

C. Standards: Comply with ANSI A10.6 and NFPA 241.

D. Predemolition Conference: Conduct conference at Project site. Review methods and procedures related to selective demolition including, but not limited to, the following:

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

1.7 PROJECT CONDITIONS

A. Structures and portions of buildings to be demolished will be vacated and their use discontinued before start of Work.

B. Conditions existing at time of inspection for bidding purpose will be maintained by City of New York as far as practical.

C. Notify Commissioner of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work. A report regarding asbestos and other hazardous materials is on file for review and use.

1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Commissioner and City of New York. City of New York will remove hazardous materials under a separate contract. Refer to the following Sections for additional asbestos requirements:

a. Section 028013 - Allowance for Incidental Asbestos.
b. Section 220013 - Allowance for Incidental Asbestos for Plumbing Work.
c. Section 230013 - Allowance for incidental Asbestos for HVAC Work.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

1.8 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Commissioner.

D. Engage a Professional Engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.

E. Survey of Existing Conditions: Record existing conditions by use of measured drawings, preconstruction photographs or preconstruction videotapes.

1. Comply with requirements specified in DDC General Conditions.
2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

F. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY SERVICES

A. Maintain existing utilities indicated to remain in service and protect them against damage during demolition operations.

1. Do not interrupt existing utilities serving occupied or operating facilities, except when authorized in writing by City of New York and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to City of New York and to governing authorities.

a. Provide not less than 72 hours' notice to City of New York if shutdown of service is required during changeover.

B. Utility Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services serving structures to be demolished.

1. Contractor will arrange to shut off indicated utilities when approved by Commissioner.
2. Where applicable, arrange to shut off indicated utilities with utility companies.
3. Utility Requirements: Refer to Division 22 and 26, Sections for additional requirements.

3.3 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Comply with requirements for access and protection specified in DDC General Conditions.

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Cover and protect furniture, furnishings, and equipment that have not been removed.

C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

9. Dispose of demolished items and materials promptly.

B. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the Commissioner, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

D. Refer to the Drawings for the full extent and scope of selective demolition work required for this Project.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals, using power-driven saw, then remove concrete between saw cuts.

B. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.

1. Provide and maintain interior and temporary shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of portions of the masonry and adjoining structures to be selectively demolished.
2. Strengthen or add new supports when required during progress of selective demolition.
3. Provide temporary supports and facilities of the size, type, strength and design as recommended by a State of New York licensed Professional Engineer.
4. Cease operations and notify the City of New York immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operation

C. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.

D. Existing Air-Conditioning Equipment: Remove, store and reinstall AC equipment after new pouring in place refrigerants have been reclaimed and recharged

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be recycled, or otherwise indicated to remain City of New York's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off City of New York's property and legally dispose of them.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

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SECTION 028013 – GENERAL CONTRACTOR WORK

ALLOWANCE FOR INCIDENTAL ASBESTOS ABATEMENT

1.01 SCOPE FOR ASBESTOS ABATEMENT WORK

A. The "General Conditions" apply to the work of this Section.

B. The Asbestos abatement contractor shall remove asbestos containing materials as needed to perform the other work of this Contract when discovered during the course of work. When required, the Asbestos abatement contractor shall replace the ACM with non-asbestos containing materials. An allowance of **$15,000.00** for the **General Contractor** is herein established for this incidental work when so ordered and authorized by the Commissioner.

C. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE RULES AND REGULATIONS OF THE ASBESTOS CONTROL PROGRAM AS PROMULGATED BY TITLE 15 CHAPTER I OF RCNY AND NEW YORK STATE DEPARTMENT OF LABOR INDUSTRIAL CODE RULE 56 CITED AS 12 NYCRR, PART 56 WHICHEVER IS MORE STRINGENT AS PER LATEST AMENDMENTS TO THESE LAWS AND AS MODIFIED HEREIN BY THESE SPECIFICATIONS.

D. ALL DISPOSAL OF ASBESTOS CONTAMINATED MATERIAL SHALL BE PER LOCAL LAW 70/85.

E. THE ASBESTOS ABATEMENT CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT CERTAIN METHODS OF ASBESTOS ABATEMENT ARE PROTECTED BY PATENTS. TO DATE, PATENTS HAVE BEEN ISSUED WITH RESPECT TO "NEGATIVE PRESSURE ENCLOSURE" OR "NEGATIVE-AIR" OR "REDUCED PRESSURE" AND "GLOVE BAG".

F. THE ASBESTOS ABATEMENT CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR AND SHALL HOLD THE DEPARTMENT OF DESIGN AND CONSTRUCTION AND THE CITY HARMLESS FROM ANY AND ALL DAMAGES, LOSSES AND EXPENSES RESULTING FROM ANY INFRINGEMENT BY THE ASBESTOS ABATEMENT CONTRACTOR OF ANY PATENT, INCLUDING BUT NOT LIMITED TO THE PATENTS DESCRIBED ABOVE, USED BY THE ASBESTOS ABATEMENT CONTRACTOR DURING PERFORMANCE OF THIS AGREEMENT.

G. "Asbestos" shall mean any hydrated mineral silicate separable into commercially usable fibers, including but not limited to chrysotile (serpentine), amosite (cumingtonite-grunerite), crocidolite (riebeckite), tremolite, anthrophyllite and actinolite.

H. Prior to starting, the Asbestos abatement contractor must notify the Commissioner of the Department of Design and Construction if he/she anticipates any difficulty in performing the Work as required by these Specifications. The Asbestos abatement contractor is responsible to prepare and submit all filings, notifications, etc. required by all City, State and Federal regulatory agencies having jurisdiction.

The Asbestos abatement contractor is responsible for submitting the Asbestos Project Notification Form (ACP-7 Form) to the Department of Environmental Protection, Asbestos Control Program, as per Title 15, Chapter I of RCNY and to the NYSDOL as per Industrial Code Rule 56.

The Asbestos abatement contractor is responsible for preparing, and submitting Asbestos Variance Application (ACP-9). If a Variance is required, the Asbestos abatement contractor is responsible to retain a NYSDOL Asbestos Project Designer, as defined in Title 15, Chapter 1 of the RCNY to prepare and submit the required variance.

The Asbestos abatement contractor is responsible for preparing and submitting an Asbestos Abatement Permit and/or Work Place Safety Plans (WPSP) that may be required for the completion of the Contract or incidental work. If such plans are required, the Asbestos abatement contractor is responsible to retain a NYSDOL Licensed Design Professional as defined in Title 15, Chapter 1 of the RCNY to prepare and submit the required plans.

The Asbestos abatement contractor is responsible for the submission of all required documents to the NYCDEP to acquire the appropriate Asbestos Project Conditional Closeout (ACP-20) and/or Asbestos Project Completion Forms (ACP-21) on a timely basis for the completion of the incidental work encountered under this contract.

The Asbestos abatement contractor will be required to attend an on-site job meeting with the Construction Project Manager prior to the start of work to examine conditions and plan the sequence of operations, etc.

The Asbestos abatement contractor shall have a NYSDOL/NYCDEP Asbestos Supervisor onsite to oversee the work and conduct a final visual inspection as required by both Title 15, Chapter 1 of the RCNY and NYSDOL Industrial Code Rule 56.

I. All work shall be done during regular working hours unless the Asbestos abatement contractor requests authorization to work in other then regular working hours and such authorization is granted by the Commissioner. (Regular work hours are those hours during which any given facility, in which work is to be done, is customarily open and functioning, normally between the hours of 8:00 A.M. and 4:00 P.M. Monday - Friday.) If such work schedule is authorized by the Commissioner, the work shall be done at no additional cost to the City.

J. The Commissioner may order that work be done in other than regular working hours as herein by defined and this order may require the Asbestos abatement contractor to pay premium or overtime wages to complete the work. If the Commissioner orders work in other than regular working hours, the Asbestos abatement contractor shall multiply the unit price for that portion of the work requiring premium wages by 1.50 when computing payment in accordance with Paragraph 1.09. All requests for premium payment must be supported by certified payroll sheets and field sheets approved by the Construction Project Manager.

1.02 QUALIFICATIONS OF ASBESTOS ABATEMENT CONTRACTOR

A. Requirements: The asbestos abatement contractor must demonstrate compliance with the special experience requirements set forth in subparagraphs (1) through (5) below. The asbestos abatement contractor must, submit documentation demonstrating compliance with all listed requirements. Such documentation shall include without limitation, all required licenses, certificates, and documentation.

1. The asbestos abatement contractor must, whether an individual, corporation, partnership, joint venture or other legal entity, must demonstrate for the three year period prior to the work, that it has been licensed by the New York State Department of Labor, as an "Asbestos abatement contractor".

2. The asbestos abatement contractor must, for the three year period prior to the work, have been in the business of providing asbestos abatement services as a routine part of its daily operations.

3. The asbestos abatement contractor proposing to do asbestos abatement work must be thoroughly experienced in such work and must provide evidence of having successfully performed and completed in a timely fashion at least five (5) asbestos abatement projects of similar size and complexity. The aggregate cost of these projects must be at least $250,000.00 in each of the three years.

4. For each project submitted to meet the experience requirements set forth above, the asbestos abatement contractor must submit the following information for the project; name and location of the project; name title and telephone number of the owner or the owner's representative who is familiar with the asbestos abatement contractor's work, brief description of the work completed as a prime or sub-asbestos abatement contractor; amount of contract or subcontract and the date of completion.

5. The asbestos abatement contractor must demonstrate that it has the financial resources, supervisory personnel and equipment necessary to carry out the work and to comply with the required performance schedule, taking into consideration other business commitments. The asbestos

abatement contractor must submit such documentation as may be required by the Department of Design and Construction to demonstrate that it has the requisite capacity to perform the required services of this contract.

B. Insurance Requirements: The asbestos abatement contractor must provide asbestos liability insurance in the following amount: 1 million dollars per occurrence, 2 million dollars aggregate (combined single limit). The City of New York shall be named as an additional insured on such insurance policy.

C. Throughout the specifications, reference is made to codes and standards which establish qualities and types of workmanship and materials, and which establish methods for testing and reporting on the pertinent characteristics thereof.

1.03 ASBESTOS ABATEMENT CONTRACTOR RESPONSIBILITIES

The Asbestos abatement contractor will visit the subject location within one (1) working day of notification to ascertain actual work required. If the project is identified as being "urgent", then work shall commence no later than 48 hours from the time of notification. In this event, the asbestos abatement contractor shall immediately notify when applicable EPA NESHAPS Coordinator, NYSDOL Asbestos Control Bureau and NYCDEP Asbestos Control Program of start of the work and file the necessary Asbestos Notifications and any applicable Variance Applications with the regulatory agencies cited above..

In the event that the project is not classified as "urgent" the Asbestos abatement contractor shall notify the EPA NESHAPS Coordinator, NYSDOL and NYCDEP by submitting the requisite asbestos project notification forms, postmarked 10 days before activity begins if 260 linear feet or more and/or 160 square feet or more of asbestos containing material will be disturbed.

The following information must be included in the notification:

A. Name and address of building City or operator;

B. Project description:

1. Size - square feet, number of linear feet, etc;

2. Age - date of construction and renovations (if known);

3. Use - i.e., office, school, industrial, etc.

4. Scope - repair, demolition, cleaning, etc.

C. Amount of asbestos involved in work and an explanation of techniques used to determine the amount;

D. Building location/address, including Block and Lot numbers;

E. Work schedule including the starting and completion dates;

F. Abatement methods to be employed;

G. Procedures for removal of asbestos-containing material;

H. Name, title and authority of governmental representative sponsoring project.

1.04 WORK INCLUDED IN UNIT PRICE

The Asbestos abatement contractor will be paid a basic unit price of **$25.00** per square feet for the removal and disposal of asbestos containing material and replacement of the same with non-asbestos containing materials.

Unit price shall include all costs necessary to do the work of this Contract, including but not limited to: labor, materials, equipment, utilities, disposal, insurance, overhead and profit.

1.05 AIR MONITORING – ASBESTOS ABATEMENT CONTRACTOR

A. "Air Sampling" shall mean the process of measuring the fiber content of a known volume of air collected during a specific period of time. The procedure utilized for asbestos follows the N1OSH Standard Analytical Method 7400 or the provisional transmission electron microscopy methods developed by the USEPA and/or National Institute of Standard and Technology which are utilized for lower detectability and specific fiber identification.

B. Air monitoring of Asbestos abatement contractor's personnel will be performed in conformance with OSHA requirements, (All costs associated with this work are deemed included in the unit price.).

C. Qualifications of Testing Laboratory:

The industrial hygiene laboratory shall be a current proficient participant in the American Industrial Hygiene Association (AIHA) PAT Program. The laboratory identification number shall be submitted and approved by the City. The laboratory shall be accredited by the AIHA and New York State Department of Health Environmental Laboratory Approval Program (ELAP).

Note: Work area air testing and analysis before, during and upon completion of work (clearance testing) will be performed by a Third Party Air Monitor under separate Contract with the City.

1.06 THIRD PARTY MONITORING AND LABORATORY

A. The NYCDDC, at its own expense, will employ the services of an independent Third Party Air Monitoring Firm and Laboratory. The Third Party Air Monitor will perform air sampling activities and project monitoring at the Work Site.

B. The Laboratory will perform analysis of air samples utilizing Phase Contrast Microscopy (PCM) and/or Transmission Electron Microscopy (TEM).

C. The Third Party Air Monitoring Firm and the designated Project Monitor shall have access to all areas of the asbestos removal project at all times and shall continuously inspect and monitor the performance of the Asbestos abatement contractor to verify that said performance complies with this Specification. The Third-Party Air Monitor shall be on site throughout the entire abatement operation.

D. The NYCDDC will be responsible for costs incurred with the Third Party Air Monitoring Firm and laboratory work. Any subsequent additional testing required due to limits exceeded during initial testing shall be paid for by the Asbestos abatement contractor.

1.07 PAYMENT REQUEST DOCUMENTATION

B. The following information shall be included for each payment request:

1. Description of work performed.
2. Linear footage and pipe sizes involved.
3. Square footage for boiler & breaching insulation removed.
4. Square footage of non pipe and boiler areas removed, patched, enclosed, sealed, or painted.
5. Square footage of encapsulation, sealing, patching, and painting involved.
6. Total cost associated with compliance with the assigned task.
7. Architectural, Electrical, HVAC, Plumbing, etc. work incidental to the Asbestos Abatement Work.
8. A certified copy (in form 4312-39) to the Comptroller or Financial Officer of the New York City to the effect that the financial statement is true.
9. A signed copy (in form 6506q-6) of certificate of compliance with non-discriminatory provisions of the Contract.
10. Attach a copy of valid workmen compensation insurance.

11. Valid asbestos insurance per occurrence.

12. General liability insurance when required.

C. Each payment request shall include a grand total for all work completed that billing period, the landfill waste manifests and a copy of waste transporter permit. The Department of Design and Construction will inspect the work performed, review the cost and approve or disapprove requests for payment.

D. EXPOSURE LOG: With this final payment, the Asbestos abatement contractor shall submit a listing of the names and social security numbers of all employees actively engaged in the abatement work of this Contract. This list shall include a summary showing each part of the abatement work in which the employee was engaged and the dates thereof.

1.08 QUANTITY CALCULATIONS

In order to determine the square footage involved for the various pipe sizes of pipe insulation that might be encountered, the following table is to be used.

PIPE INSULATION SIZE O.D.	PIPE SIZE O.D.	SQUARE FOOTAGE PER LINEAR FOOT
2-1/2"	1/2"	0.65
2-3/4"	3/4"	0.72
3"	1"	0.79
3-1/4"	1-1/4"	0.85
3-1/2"	1-1/2"	0.92
4"	2"	1.05
4-1/2"	2-1/2"	1.18
5"	3"	1.31
6"	3-1/4"	1.57
7"	3-1/2"	1.83
8"	4"	2.09
9"	5"	2.36
10"	6"	2.62
12"	8"	3.14
14"	10"	3.67
16"	12"	4.19
18"	14"	4.71

1.09 METHOD OF PAYMENT

Payment shall be made in accordance with Items A through R below. Payment shall be calculated based on the actual quantity of the item performed by the asbestos abatement contractor, times the unit price specified below. Credits may apply to certain times, as specified below.

A. **REMOVAL, DISPOSAL AND REPLACEMENT OF ASBESTOS CONTAINING PIPE INSULATION:** Actual linear footage, multiplied by the square footage factor listed for the respective pipe size in Section 1.09, multiplied by the unit price in Section 1.05.

EXAMPLE: 100 lin.ft. of 1/2" pipe and 100 lin.ft. of 6" pipe, including elbows, tees. Flanges, etc.

100 X 0.65 = 65 sq.ft. 65 x unit price = Payment

100 X 2.62 = 262 sq.ft. 262 x unit price = Payment

B. **REMOVAL, DISPOSAL AND REPLACEMENT OF BOILER INSULATION:** (all types including Silicate Block and including the removal/replacement of metal jacketing) Payment shall be made at 1.5 times the unit price per square foot.

EXAMPLE: Item B. removal and replacement of 1000 S.F. of boiler insulation (incl. Silicate block)

1000 S.F. X (1.5) X the Unit Price = Payment

C. **REMOVAL, DISPOSAL AND REPLACEMENT OF TANK INSULATION:** (all types including removal/replacement of metal jacketing) Payment shall be made at 1.5 times the unit price per square foot.

D. **REMOVAL, DISPOSAL AND REPLACEMENT OF BOILER UPTAKE, & BREACHING INSULATION:** (all types including stiffening angles and wire lath) Payment shall be made at 2.0 times the unit price per square foot.

E. **REMOVAL, DISPOSAL AND REPLACEMENT OF DUCT INSULATION:** Payment shall be made at 1.0 times the unit price per square foot.

F. **REMOVAL, DISPOSAL AND REPLACEMENT OF SOFT ASBESTOS CONTAINING MATERIAL:** (Including sprayed-on fire proofing and sound proofing) Payment shall be made at 1.0 times the unit price per square foot of surface area. Area of irregular surfaces must be calculated and confirmed with DDC representative.

G. **ACOUSTIC PLASTER REPAIR AND/OR ENCAPSULATION:** Payment shall be made at 0.5 times the unit price per square foot.

H. **PATCHING OR REPAIR** of items listed in A through F will be paid at 0.33 times the unit price per square foot.

I. **REMOVAL, DISPOSAL AND REPLACEMENT OF WATERPROOFING ASBESTOS CONTAINING MATERIAL:** (including friable and non-friable waterproofing material from interior and exterior walls, floors, foundations, penetrations, louvers, vents and openings other than windows, doors and skylights) Payment shall be made at 0.5 times the unit price per square foot.

J. **REMOVAL, DISPOSAL AND REPLACEMENT OF ASBESTOS CONTAINING ELECTRICAL WIRING INSULATION:** (including friable and non-friable wiring insulation) Payment shall be made at 0.33 times the unit price per square foot.

K. **PAINTING:** Payment shall be made at 0.05 times the unit price per square foot.

L. **REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING PLASTER:** from ceilings and walls, including any wire lath and disposal as asbestos containing waste. Payment shall be made at 0.80 times the unit price per square foot.

M. **REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING FLOOR TILES, CEILING TILES, TRANSITE PANELS:** (including any adhesive, glue, mastic and/or underlayment) and disposal as asbestos containing waste. Payment shall be made at 0.40 times the unit price per square foot. If multiple layers are discovered, each additional layer shall be paid at 0.20 times the unit price per square foot.

N. **ADDITIONAL CLEAN UP/HOUSEKEEPING OF WORK AREA:** (excluding pre-cleaning of work area required by regulations) HEPA vacuuming and wet cleaning of asbestos contaminated surface. Payment shall be made at 0.20 times the unit price per square foot. When GLOVE BAG is employed to remove ACM, cost of HEPA vacuuming and wet cleaning of floor area up to 3 feet on each side of glove-bag shall be included in unit price and no extra payment will be made.

O. **REMOVAL, DISPOSAL OF ASBESTOS-CONTAINING ROOFING MATERIAL:** including mastic, flashing and sealant compound and provide temporary asbestos-free roof covering consisting of one layer of rolled roofing paper sealed with asphaltic roofing compound. Payment shall be made at 0.8 times the unit price per square foot. Credit at a rate of 0.33 times the unit price will be taken for each square foot of temporary roof covering which the Asbestos abatement contractor is directed not to install.

P. **PICK-UP AND DISPOSAL OF GROSS DEBRIS:** (excluding any waste generated from abatement under Item A-R) at a rate of $150 per cubic yard for asbestos contaminated waste and $75 per cubic yard for non-asbestos

contaminated waste. This cost includes all labor and material cost associated with work.

Q. **REMOVAL OF ASBESTOS-CONTAINING BRICK, BLOCK, MORTAR, CEMENT OR CONCRETE:** along with all surfacing materials including wire lath and/or other supporting structures and disposal as ACM waste. Payment shall be made at a rate of $25.00 per cubic foot of material removed.

R. **REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING WINDOW/DOOR CAULKING:** including friable and non-friable caulking, weather-stripping, glazing, sealants or other waterproofing materials applied to windows, doors, skylights, etc. Payment shall be made at the rate of $400.00 per opening regardless of size or configuration. This cost includes labor, consumable materials, set-up/breakdown, removal and disposal, as required.

Note 1: CREDIT: For items listed in A through F, a credit at a rate of 0.33 times the unit price, times the respective multiplier (for each item) will be taken for each square foot of insulation which the asbestos abatement contractor is not directed to reapply.

Note 2: MINIMUM PAYMENT: The minimum payment per call at any individual job sites or various job sites during the same day will be eight hundred dollars ($800.00).

Note 3: All payments shall be made as described in paragraph 1.09 herein.

Note 4: WORKING HIGHER THAN 12 FEET ABOVE FLOOR LEVEL OR WORK REQUIRING COMPLEX SCAFFOLDING OR CONSTRUCTION WORK PLATFORMS: Provisions are made in this Contract to compensate the Asbestos abatement contractor for work performed in locations that are difficult to access due to work at elevations that are significantly higher than the normal work level. The unit price for these items will be paid at 1.20 times the unit price described in Paragraphs 1.09, A through R for those portions of the work that are more than twelve (12) feet above the grade for that would be judged as the normal working level.

1.10 GUARANTEE

A. Work performed in compliance with each task shall be guaranteed for a period of one year from the date the completed work is accepted by the Department of Design and Construction.

B. The Commissioner of The Department of Design and Construction will notify the Asbestos abatement contractor in writing regarding defects in work under the guarantee.

1.11 OCCUPANCY OF SITE NOT EXCLUSIVE

Attention is specifically drawn to the fact that contractors, performing the work of other Contracts, may be brought upon any of the work sites of this Contract. Therefore, the

Asbestos abatement contractor shall not have exclusive rights to any site of his work and shall fully cooperate and coordinate his work with the work of other contractors who may be brought upon any site of the work of this Contract. This paragraph applies to those areas outside the regulated Work Area as defined by Title 15, Chapter I of RCNY.

1.12 SUBMITTALS

A. Pre-Construction Submittals:

1. Attend a pre-construction meeting scheduled by the City of New York Department of Design and Construction. This meeting shall also be attended by a designated representative of the City of New York third party air monitoring firm, facility manager and the Construction Project Manager. At this meeting, the Asbestos abatement contractor shall present three copies of the following items:
   a. Asbestos abatement contractor's scope of work, work plan and schedule.

   b. Asbestos project notifications, approved variances and plans to Government Agencies.

   c. Copies of Permits, clearance and licenses if required.

   d. Schedules: the Asbestos abatement contractor shall provide to the Construction Project Manager a copy of the following schedules for approval. Once approved, schedules shall be maintained and updated as received. Asbestos abatement contractor shall post a copy of all schedules at the site:

      (1) A construction schedule stating critical dates of the project including, but not limited to, mobilization, Work Area preparation, demolition, gross removal, fine cleaning, encapsulation, inspections, clearance monitoring, and phase of refinishing and final inspections. The schedule shall be updated biweekly, at a minimum.

      (2) A schedule of staffing stating number of workers per shift per activity, name and number of supervisor(s) per shift, shifts per day, and total days to be worked.

      (3) Submit all changes in schedule or staffing to the Construction Project Manager prior to implementation.

e. Written description of emergency procedures to be followed in case of injury or fire. This section must include evacuation procedures, source of medical assistance (name and telephone number to nearest hospital) and procedures to be used for access by medical personnel (examples: first aid squad and physician). NOTE: Necessary Emergency Procedures Shall Take Priority Over All Other Requirements of These Specifications.

f. Material Safety Data Sheets (MSDS) for encapsulants, sealants, firestopping foam, cleaners/disinfectants, spray adhesive and any and all potentially hazardous materials that may be employed on the project. No work involving the aforementioned will be allowed to proceed until MSDS are reviewed.

g. Worker Training and Medical Surveillance: The Asbestos abatement contractor shall submit a list of the persons who will be employed by him /her to perform the removal work. Present evidence that workers have received proper training required by the regulations and the medical examinations required by OSHA 29 CFR 1926.1101.

h. Logs: Specimen copies of daily progress log, visitor's log, and disposal log.

(1) The Asbestos abatement contractor shall provide a permanently bound log book of minimum 8-1/2" x 11" size at the entrance to the Worker and Waste Decontamination enclosure system as hereinafter specified. Log book shall contain on title page the project name, name, address and phone number of the Asbestos abatement contractor; name, address and phone number of Asbestos abatement contractor and City's third party air monitoring firm; emergency numbers including, but not limited to local Fire/Rescue Department. Log book shall contain a list of personnel approved for entry into the Work Area.

(2) All entries into the log shall be made in non-washable, permanent ink and such pen shall be strung to or otherwise attached to the log to prevent removal from the log-in area. Under no circumstances shall pencil entries be permitted. Any significant events occurring during the abatement project shall be entered into the log. Upon completion of the job, the Asbestos abatement contractor shall submit the logbook containing a day-to-day record of personnel log entries countersigned by the Construction Project Manager every day.

i. Worker's Acknowledgments: Submit statements signed by each employee that the employee has received training in the proper handling of ACM, understands the health implications and risks involved; and understands the use and limitations of the respiratory equipment to be used.

B. During Construction Submittals:

1. Security and safety logs showing names of person entering workspace, date and time of entry and exit, record of any accident, emergency evacuation, and any other safety and/or health incident.

2. Progress logs showing the number of workers, supervisors, hours of work and tasks completed shall be submitted daily to the Construction Project Manager.

3. Floor plans indicating Asbestos abatement contractor's current work progress shall be submitted for review by the Construction Project Manager.

4. All Asbestos abatement contractors' air monitoring and inspection results.

C. Project Closeout Submittals:

Upon completion of the project and as a condition of acceptance, the Asbestos abatement contractor shall present two copies of the following items, bound and indexed:

1. Lien Waivers from Asbestos abatement contractor, Sub-Asbestos abatement contractors and Suppliers,

2. Daily OSHA air monitoring results,

3. All Waste Manifests (Asbestos and Construction Debris), seals and disposal logs,

4. Field Sign-In/Sign-Out Logs for every shift,

5. Copies of all Building Department Forms and Permits,

6. A Letter of Compliance stating that all the work on this project was performed in accordance with the Specifications and all applicable Federal, State and Local regulations,

7. All Warranties as stated in the Specifications,

a. Fully executed disposal certificates and transportation manifest.

8. Project Record: The Asbestos abatement contractor shall maintain a project record for all small and large asbestos projects. During the project, the project record shall be kept on site at all times. Upon completion of the project, the project record shall be maintained by the City of New York. The project record shall be submitted to DDC as part of the close out documents. The project record shall consist of:

   a. Copies of licenses of all asbestos abatement contractors involved in the project;

   b. Copies of NYCDEP and NYSDOL supervisor and handler certificates for all workers engaged in the project;

   c. Copies of all project notifications and reports filed with NYCDEP, NYSDOL and USEPA for the project, with any amendments or variances;

   d. Copies of all asbestos abatement permits, including associated approved plans and work place safety plan;

   e. A copy of the air sampling log and all air sampling results;

   f. A copy of the abatement asbestos abatement contractor's daily log book;

   g. Copies of all asbestos waste manifests;

   h. A copy of all Project Monitor's Reports (ACP-15).

   i. A copy of each ATR-1 Form completed for the asbestos project (if required).

   j. A copy of each Asbestos Project Conditional Closeout Report (ACP-20) if required.

   k. A copy of the Asbestos Project Completion Form (ACP-21).

1.13 PROTECTION OF FURNITURE AND EQUIPMENT

Cover all furniture and equipment that cannot be removed from Work Areas. Movable furniture and equipment will be removed from Work Areas by the Asbestos abatement contractor prior to start of work. At the conclusion of the work (after final air testing), the Asbestos abatement contractor will remove all plastic covering on walls, floors, furniture, equipment and reinstall furniture and equipment. He shall remove and store all sheaths, curtains and drapes, and reinstall same following final clean up.

1.14 UTILITIES

A. General:

All temporary facilities shall be subject to the approval of the Commissioner. Prior to starting work at any site, locations and/or sketches (if required) of temporary facilities must be submitted to the Construction Project Manager for the required approval.

B. Water:

The Department of Design and Construction will furnish all water needed for construction, at no cost to the Asbestos abatement contractor in buildings under their jurisdiction. However, it is the responsibility of the Asbestos abatement contractor to ensure that hot water is provided for showering in the decontamination unit. The Asbestos abatement contractor shall furnish, install and maintain any needed equipment to meet these requirements at his own expense.

C. Electricity:

The Department of Design and Construction will furnish all electricity needed for construction, at no cost to the Asbestos abatement contractor in a building, under their jurisdiction. The Asbestos abatement contractor is responsible for routing the electric power to the abatement Work Area.

All temporary lighting and temporary electrical service for Work Area shall be in weatherproof enclosures and be ground fault protected.

D. In leased spaces, arrangements for water supplies and electricity must be made with the landlord. However, all such arrangements must be made through and are subject to approval of the Department of Design and Construction. Utilities will be provided at no cost to the Asbestos abatement contractor. However, it is the Asbestos abatement contractor's (or the General contractor's) responsibility to furnish and install a suitable distribution system to the Work Area. This system will be provided at no cost to the City.

1.15 FEES

The Asbestos abatement contractor shall be responsible for any and all fees or charges imposed by Local, State or Federal Law, Rule and Regulation applicable to the work specified herein, including fees or charges which may be imposed subsequent to the date of the Bid opening.

END OF SECTION

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SECTION 03 30 00 - CAST IN PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to the work of this Section.

1.2 SUMMARY

A. Section includes but is not limited to the following as shown on the drawings and as specified herein:

1. Slabs on grade.
2. Structural slabs on grade.
3. Structural slabs on metal deck.
4. Cast-in-place slabs, beams, walls, and columns.
5. Topping slabs
6. Stair pan fills.
7. Furnishing and installing all required anchors and inserts.
8. Placing in the forms all inserts, anchors, anchor bolts, bearing plates and the like furnished by other trades for casting into the concrete and cleaning of same after stripping of forms.
9. Protection of all inserts, anchors, hangers, sleeves and supports furnished and set by others for the attachment of other work to the concrete, or required to permit the passage of other work through the concrete.
10. Supply, fabricate and place all required reinforcing bars, mesh and other reinforcement for concrete where shown, called for, and/or required complete with proper supporting devices.
11. Erection and removal of all formwork and waffle slab forms required to properly complete the work.
12. Finishing of all concrete work as hereinafter specified.
13. Curing and protection of all concrete work.
14. Site concrete consisting of curbs, walks, pads, boxes and the like as shown on the drawings.
15. Floor sealers and dust-proofing of all areas exposed and/or covered with carpet.
16. Cutting, patching, grouting, repairing and pointing up as required.
17. Grouting of all beam bearing plates and column base plates.
18. Equipment pads as required.
19. All other work and materials as may be reasonably inferred and needed to make the work of this section complete.
20. Waste Management

B. Related Requirements:

1. Division 01 Section "Construction Waste Management and Disposal"
2. Division 04 Section "Unit Masonry"
3. Division 05 Section "Structural Steel"
4. Division 05 Section "Metal Deck"
5. Division 05 Section "Metal Fabrications"

6. Division 06 Section "Rough Carpentry"
7. Division 07 Section "Joint Sealants"

1.3 SUBMITTALS

A. Product Data: Submit data for proprietary materials and items, including the following:

1. Reinforcement and forming accessories
2. Admixtures
3. Patching compounds
4. Waterstops
5. Joint systems
6. Curing compounds
7. Dry-shake finish materials
8. Others items as requested by Commissioner.

B. Shop Drawings; Reinforcement: Submit original shop drawings for fabrication, bending, and placement of concrete reinforcement. Comply with ACI 315 "Details and Detailing of Concrete Reinforcement" showing bar schedules, stirrup spacing, diagrams of bent bars, arrangement of concrete reinforcement. Include special reinforcement required for openings through concrete structures. The shop drawings shall be prepared only by competent detailers, checked by the contractor prior to submission.

1. The shop drawings shall show construction, contraction and isolation joint locations and the added reinforcement required at same.
2. Obtain and coordinate information for sleeves and openings in concrete, which are required for the work of other trades. Make coordinated drawings showing size and location of openings and sleeves and incorporate this information on the reinforcing drawings.
3. Only those splices indicated on the approved shop drawings will be permitted.
4. Provide elevations of all foundation walls and other structural elements to a minimum 1/4" scale.

C. Shop Drawings Formwork: Submit shop drawings for fabrication and erection of specific finished concrete surfaces. Show form construction including jointing, special form joint or reveals, location and pattern of form tie placement, and other items which affect exposed concrete visually. Commissioner's review is for general architectural applications and features only. Design of formwork for structural stability and efficiency is Contractor's responsibility, prepared by or under the supervision of a qualified professional engineer detailing fabrication, assembly, and support of formwork.

1. Shoring and Reshoring: Indicate proposed schedule and sequence of stripping formwork, shoring removal, and reshoring installation and removal.

D. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.

1. Location of construction joints is subject to approval of the Commissioner.

E. Contraction Joint Layout: Indicate proposed contraction joints required per applicable codes and drawings.

1. Location of contraction joints is subject to approval of the Commissioner.

F. Samples: Submit samples of materials as requested by Commissioner, including names, sources and descriptions.

G. Laboratory Test Reports: Submit laboratory test reports for concrete materials, mix design test and microwave test.

H. Material Certificates: Provide materials certificates in lieu of materials laboratory test reports when permitted by Commissioner. Manufacturer and Contractor, certifying that each material item complies with, or exceeds, specified requirements shall sign material certificates. Provide certification from admixture manufacturers that chloride content complies with specification requirements.

I. Cold Weather and Hot Weather Concreting Procedures: Submit written descriptions of contractor's proposed cold weather and hot weather concreting procedures, when applicable.

J. Certification that pozzolanic materials conforms to ASTM C 618-01 (noting class C or class F), ASTM C 989 or ASTM C1240.

K. Certified recycled steel content. Provide cut sheets clearly indicating whether the rebar used meets the minimums for post-consumer OR post-industrial recycled contents. Or, if cut sheets are not available, obtain a written affidavit from the manufacturer stating the recycled content percentage and if the recycled content is post-consumer or post-industrial.

L. Formwork: Specify whether reusable, permanent, salvaged or new wood forms are to be used.

M. Recycled Aggregate: Provide laboratory reports indicating that aggregate conforms to ASTM C33 for structural concrete or ASTM D1241-00 for sub-base material. Provide cut sheets clearly indicating the source, total weight and volume of the recycled aggregate. If aggregate provided is a mix of virgin and recycled aggregates obtain a written affidavit from the manufacturer stating the recycled content percentage

N. VOC content for curing compounds, sealants and release agents: Provide a cut sheet and a Material Safety Data Sheet (MSDS) for each curing compound, sealant, hardener and release agent used highlighting VOC contents. VOC content must be less than or equal to limits stated under "PRODUCTS".

1.4 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

B. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

C. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M, "Structural Welding Code - Reinforcing Steel."

D. Codes and Standards: Comply with provisions of following codes, specifications, and standards, except where more stringent requirements are shown or specified:

1. New York City Building Code, Latest Edition

2. ACI 117 "Standard Specifications for Tolerances for Concrete Construction and Materials and Commentary."
3. ACI 211.1 "Standard Practice for Selecting Proportions for Normal, Heavyweight and mass concrete."
4. ACI 211.2, "Standard Practice for Selecting Proportions for Structural Lightweight Concrete."
5. ACI 214R, "Evaluation of Strength Test Results of Concrete."
6. ACI 232.2R, "Use of Fly Ash in Concrete."
7. ACI 233R, "Guide to Use of Slag Cement in Concrete and Mortar."
8. ACI 234, "Guide for the Use of Silica Fume in Concrete."
9. ACI 301 "Specifications for Structural Concrete."
10. ACI 302.1R "Guide for Concrete Floor and Slab Construction."
11. ACI 304R, "Guide for Measuring, Mixing, Transporting and Placing Concrete."
12. ACI 308.1 "Standard Specification for Curing Concrete."
13. ACI 309R, "Guide for Consolidation of Concrete."
14. ACI 311.4R, "Guide for Concrete Inspections."
15. ACI 315, "Details and Detailing of Concrete Reinforcement."
16. ACI 318 "Building Code Requirements for Structural Concrete and Commentary."
17. ACI 347 "Guide to Formwork of Concrete."
18. Concrete Reinforcing Steel Institute, (CRSI) "Manual of Standard Practice."
19. CRSI-WCRSI, "Placing Reinforcing Bars."
20. AWS D1.4, "Structural Welding Code Reinforcing Steel."
21. The ACI Field Reference Manual, SP-15 shall be kept at the job site, and the practices set forth therein shall be strictly adhered to.
22. ASTM Standards as applicable in the building code of the local jurisdiction and as noted in this specification.

E. Concrete Testing Service: The City Of New York will engage a testing laboratory acceptable to Commissioner to perform material evaluation tests and to design concrete mixes.

F. 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 Dept. of Building requirements, for each concrete design mix.

G. Materials and installed work may require testing and retesting at anytime during progress of work. Tests, including retesting of rejected materials for installed work, shall be done at Contractor's expense.

H. Preconstruction Meeting:

1. At least 35 days prior to the start of the concrete construction schedule, the Contractor shall conduct a meeting to review the proposed mix designs and to discuss the required methods and procedures to achieve the required concrete construction. The Contractor shall send a pre-concrete conference agenda to all attendees 20 days prior to the scheduled date of the conference.
2. The Contractor shall require responsible representatives of every party who is concerned with the concrete work to attend the conference, including but not limited to the following:

    a. Contractor's superintendent
    b. Laboratory responsible for the concrete design mix
    c. Laboratory responsible for field quality control
    d. Concrete subcontractor

e. Ready-mix concrete producer
f. Admixture manufacturer(s)
g. Concrete pumping equipment manufacturer.

3. Minutes of the meeting shall be recorded, typed and printed by the contractor and distributed by him to all parties concerned within 5 days of the meeting. One copy of the minutes shall also be transmitted to the following for information purposes: The City Of New York or Commissioner.
4. The minutes shall include a statement by the concrete contractor indicating that the proposed mix design and placing can produce the concrete quality required by these specifications.
5. A minimum of a 4 cubic yard trial mixture containing all required admixtures shall be placed at the job site using the accepted methods of placing, finishing and curing. All applicable tests including slump, strengthen, air content, permeability, and air content will be performed. This shall occur at least four weeks before actual concreting operations with particular admixture begins. The admixture manufacturer(s) and inspectors shall be present. The same testing should be done in the laboratory at the same time for comparison. A test sample should be done for each condition that is to be placed.
6. The Commissioner will be present at the conference. The Contractor shall notify the Commissioner at least 10 days prior to the scheduled date of the conference.

1.5 PROJECT CONDITIONS

A. The Contractor, before commencing work, shall examine all adjoining work on which this work is in any way dependent for proper installation and workmanship according to the intent of this specification, and shall report to the Commissioner any condition which prevents this contractor from performing first class work.

B. Protection of Footings Against Freezing: Cover completed work at footing level with sufficient temporary or permanent cover as required to protect footings and adjacent subgrade against possibility of freezing; maintain cover for time period as necessary.

C. Protect adjacent finish materials against spatter during concrete placement.

D. Provide all barricades and safeguards at all pits, holes, shaft and stairway openings, etc., to prevent injury to workmen and others within and about the premises. Also provide all safeguards as required by the Building Code, OSHA, or any other departments having jurisdiction. Take full responsibility for all safety precautions and methods.

E. Procedure of Work: The contractor shall keep himself constantly informed as to the progress of the work in the field, materials and men ready to start work immediately when conditions of preceding work are available or ready, wholly or in part, so as not to delay the progress of building work or to interfere with the progress of work of other contractors, and in any event he shall, within 24 hours after notice from The City Of New York, proceed with such work as directed to maintain the uninterrupted progress of the work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage. Avoid damaging coatings on steel reinforcement.

B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

PART 2 - PRODUCTS

2.1 FORM MATERIALS

A. Forms for Exposed Finish Concrete: Unless otherwise indicated, construct of plywood, metal, metal-framed plywood faced, or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings. Provide form material with sufficient strength and thickness to withstand pressure of newly placed concrete without bow or deflection.

1. Use plywood complying with U.S. Product Standard PS-1 "B-B (Concrete Form) Plywood", Class I, Exterior Grade or better mill oiled and edge-sealed, with each piece bearing legible inspection trademark.

B. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or other acceptable material. Preference shall go to salvaged or re-used Dimensional Lumber. Provide lumber dressed on at least 2 edges and one side for tight fit.

2.2 REINFORCING MATERIALS

A. Reinforcing Bars: ASTM A 615, Grade 60.

B. Galvanized Reinforcing Bars: ASTM A 767, Class II (2.0 oz. zinc psf) Class I (3.0 oz. zinc psf) hot-dip galvanized, after fabrication and bending.

C. Epoxy-Coated Reinforcing Bars and Wire Welded Fabric: ASTM A 775 (as noted on plan and/or in section).

D. Steel Wire: ASTM A 82, plain, cold-drawn steel.

E. Structural fiber reinforcing shall be a patented coarse monofilament, self-fibrillating, polypropylene/polyethylene fiber. Provide "tuf strand sf" by the euclid chemical company or approved equal. Dosage shall be 5.0 pounds per cubic yard, unless otherwise noted.

F. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 , plain-steel bars, cut true to length with ends square and free of burrs.

G. Epoxy-Coated Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 , plain-steel bars, ASTM A 775/A 775M epoxy coated.

H. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating; compatible with epoxy coating on reinforcement and complying with ASTM A 775/A 775M.

I. Zinc Repair Material: ASTM A 780, zinc-based solder, paint containing zinc dust, or sprayed zinc.

J. Supports for Reinforcement: Bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Use wire bar type supports complying with CRSI specifications.

1. For epoxy coated reinforcement provide plastic protected chairs and plastic ties. All imperfections in the epoxy coating are to be repaired prior to placement of concrete.

a. Use recycled plastic rebar supports. Subject to compliance with requirements, provide one of the following:

1) International Plastics Group
2) Eclipse Plastic

2. For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with legs which are plastic protected (CRSI, Class I) or stainless steel protected (CRSI, Class 2), at a spacing not to exceed 4'-0" on center in either direction.

2.3 CONCRETE MATERIALS

A. Portland cement: ASTM C 150, Type I. Total percentage of Portland Cement is NOT to exceed 75% of the cementitious mix. Use one brand of cement throughout project, unless otherwise acceptable to Commissioner.

1. Fly Ash: Cast-in-place concrete shall incorporate fly ash as a replacement for at least 25% (by weight) of the Portland cement. All design mixes must be reviewed and approved by the Commissioner. Fly Ash shall not be used in conjunction with Ground Granulated Blast Furnace Slag.
2. Pozzolans and Slags: These must be completely accounted for in the design mix. Mix design must meet minimum design requirements set in the contract documents. Additional admixtures may be required to meet early strength requirements and alternative cementitious material goals. If a "blended cement" is used which already contains a certain percentage of Pozzolans or Slags this content may offset or entirely satisfy the minimum percentage required.

a. Coal Fly Ash: ASTM C 618 (Class C or Class F): ASTM C 618 (Note: Class F fly Ash will require higher amounts or air entraining ad-mixtures than class C).
b. Blast Furnace Slag: ASTM C989
c. Silica Fume: ASTM C 1240
d. Rice Hull (or "husk") Ash: ASTM C 618Blended hydraulic cement, as defined by ASTM C 595 or ASTM C 1157

B. Normal Weight Aggregates: ASTM C 33, and as herein specified. Provide aggregates from a single source for exposed concrete.

1. Local aggregates not complying with ASTM C 33 but which have shown by special test or actual service to produce concrete of adequate strength and durability may be used when acceptable to Commissioner.
2. Normal weight Fine Aggregate: washed, inert, natural or manufactured or combination thereof, sand conforming ASTM C33 gradation.
3. Normal weight Coarse Aggregate: well graded crushed stone or washed gravel conforming to ASTM C33, sizes 57 for foundations and 67 for slabs and structure.

a. Recycled crushed concrete aggregate in concrete mixes is only to be used with approval of Commissioner . Recycled aggregate shall be used only as a substitute for coarse aggregate and must also be washed and well-graded, conforming to ASTM C33.
b. For sub-base, slabs on grade and non-structural applications and Recycled Aggregate Materials are NOT required to meet the ASTM C 33 standard. In addition to concrete rubble, glass, porcelain, and tire chips can be used as filler material. Any inert material conforming to ASTM D1241 is acceptable for the applications described in this paragraph.

C. Lightweight Aggregates: Well-graded crushed expanded shale produced by rotary kiln method. Solite or equal, conforming to ASTM C330.

D. Water: Free from oils, acids, alkali, organic matter and other deleterious material to conform to ASTM C94. ASTM C94 for gray water use in the production of ready mixed concrete per approval by the Commissioner .

E. Air-Entraining Admixture: Any material proposed for use as an air-entraining admixture should be tested in conformance with ASTM C 260.

1. Liquid air-entrainment: Use only agents derived from salts of wood resins. Select from products listed below or approved equal conforming to ASTM C-260.

a.	"Airmix"	Euclid Chemical
b.	"Darex AEA"	W. R. Grace
c.	"MB-VR"	Master Builders

F. Water-Reducing Admixture: ASTM C 494.

1. Products: Subject to compliance with requirements, provide one of the following:

a.	"Polyheed 997"	Master Builders
b.	"Euclid MR"	Euclid Chemical
c.	"WRDA 64"	W. R. Grace.

G. High-Range Water-Reducing Admixture (Superplasticizer): ASTM C 494, Type F or Type G and containing not more than 0.05 percent chloride ions.

1. Products: Subject to compliance with requirements, provide one of the following:

a.	"Eucon 37, 1037 or Plastol 5000"	Euclid Chemical Co.
b.	"Rheobuild 1000"	Master Builders
c.	"Glenium 7500"	Master Builders
d.	"Daracem-100"	W. R. Grace

H. Water Reducing, Non-Corrosive Accelerating Admixture: The admixture shall conform to ASTM C 494, Type C or E, and not contain more chloride ions than are present in municipal drinking water. The admixture manufacturer must have long-term non- corrosive test data from an independent testing laboratory (of at least a year's duration) using an acceptable accelerated corrosion test method such as that using electrical potential measures. Accelerating admixtures are not to be used as antifreeze agents. Accelerating admixtures are permitted only upon review by Commissioner .

1. Products: Subject to compliance with requirements, provide the following:

a. "Accelguard 80" Euclid Chemical Co.
b. "Daraset" W. R. Grace
c. "Pozzutec 20" Master Builders.

I. Water-Reducing, Retarding Admixture: ASTM C 494, Type D, and contain not more than 0.05 percent chloride ions.

1. Products: Subject to compliance with requirements, provide one of the following:

a. "Eucon Retarder 75" Euclid Chemical Co.
b. "Pozzolith 100XR" Master Builders.
c. "Plastiment" Sika Chemical Co.
d. "Daratard" W.R. Grace.

J. Microsilica Admixture shall be dry densified or slurry formed. Microsilica shall come from the same source throughout the project. If a single source cannot be maintained, laboratory testing of each new source shall be required before acceptance by the Commissioner at no cost to The City Of New York.

1. Products: Subject to compliance with requirements, provide one of the following:

a. "Emsac F 100" Elkem Chemical, Inc.
b. "Eucon MSA" Euclid Chemical Co.
c. "Force 10,000" W. R. Grace

K. Prohibited Admixtures: Calcium chloride, thyocyanates or admixtures containing more than 0.05 percent chloride ions are not permitted.

L. Certification: Written conformance to the above-mentioned requirements and the chloride ion content of admixtures will be required from the admixture manufacturer prior to mix design review by the Commissioner .

M. Macro-Fibers: Engineered macro-synthetic fibers.

1. Products: Subject to compliance with requirements, provide one of the following:

a. "Tuf-Strand SF" Euclid Chemical Co.
b. "Fibermesh 650" Propex Concrete Systems
c. "Forta-Ferro" Forta

N. Micro-Fibers: Commissionered micro-synthetic fibers.

1. Products: Subject to compliance with requirements, provide the following:

a. "Fiberstrand N": Euclid Chemical Co.
b. "Fibermesh 150": Propex Concrete Systems
c. "Ultra-Net" Forta

O. Natural Fiber Reinforced Concrete: Natural fiber reinforced concrete is permitted only upon review by Commissioner . Refer to ACI 544.1R, chapter 5

P. Corrosion Inhibitor: 30% calcium nitrite (where called for in the specifications or on the drawings). Subject to compliance with requirements, provide the following at 3 gal/cy:

1. "Eucon CIA" Euclid Chemical
2. "DCI" W. R. Grace
3. "Rheocrete CNI" Master Builders.

Q. Contractor will be required to provide information demonstrating successful use in prior placement involving all admixtures.

2.4 GROUT

A. Non-Shrink, Non-Metallic Grout: The non-shrink grout shall be a factory pre-mixed grout and shall conform to ASTM C1107, "Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Non-Shrink)." In addition, the grout manufacturer shall furnish test data from an independent laboratory indicating that the grout when placed at a fluid consistency shall achieve 95% bearing under a 4' x 4' base plate.

1. Products: Subject to compliance with requirements, provide one of the following:

a. "Euco-NS" Euclid Chemical Co.
b. "Five Star Grout" U.S. Grout Corp.
c. "Masterflow 713" BASF

B. High Flow Grout: Where high fluidity and/or increased placing time is required, use high flow grout. The factory pre-mixed grout shall conform to ASTM C1107, "Standard Specification for Packages Dry, Hydraulic-Cement Grout (Non-shrink)." In addition, the grout manufacturer shall furnish test data from an independent laboratory indicating that the grout when placed at a fluid consistency shall achieve 95% bearing under a 18" x 36" base plate.

1. Products: Subject to compliance with requirements, provide one of the following:

a. "Euco Hi-Flow Grout" Euclid Chemical Co.
b. "Masterflow 928" BASF
c. "Five Star Fluid Grout 100" Five Star

2.5 RELATED MATERIALS

A. Granular Fill: Clean mixture of crushed stone or crushed or uncrushed gravel; ASTM D 1241, Size 57, with 100 percent passing a 1-1/2 inch sieve and 0 to 5 percent passing a No. 8 sieve.

B. Fine-Graded Granular Material: Clean mixture of crushed stone, crushed gravel, and manufactured or natural sand; ASTM D 1241, Size 10, with 100 percent passing a 3/8 inch sieve, 10 to 30 percent passing a No. 100 sieve, and at least 5 percent passing No. 200 sieve; complying with deleterious substance limits of ASTM C 33 for fine aggregates.

C. Non-slip Aggregate Finish: Provide fused aluminum oxide grits, or crushed emery, as abrasive aggregate for non-slip finish with emery aggregate containing not less than 40% aluminum oxide and not less than 25% ferric oxide. Use material that is factory-graded, packaged, rustproof and non-glazing, and is unaffected by freezing, moisture, and cleaning materials.

D. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz. per sq. yd., complying with AASHTO M 182, Class 2.

E. Moisture-Retaining Cover: One of the following, complying with ASTM C 171.

1. Products: Subject to compliance with requirements, provide one of the following:

   a. Waterproof paper
   b. Polyethylene film
   c. Polyethylene-coated burlap

F. Curing Compounds: The compound shall conform to ASTM C 309. Limit VOC content to 130 g/L. Use water-based curing compound. For surfaces receiving both a curing compound and additional flooring, verify that the curing compound and additional flooring are compatible.

1. Products: Subject to compliance with requirements, provide one of the following:

a.	SealTight 1100	W.R. Meadows
b.	Kurez W VOX	Euclid Chemical Co.
c.	Luster Seal WB STD	Euclid Chemical Co.
d.	VOCOMP-25	W.R. Meadows

G. Curing & Sealing Compounds: Only specify for slabs that will remain exposed, i.e. will not receive additional flooring. The compound shall conform to ASTM C1315. Limit VOC content to 130 g/L. Use water-based curing compound.

1. Products: Subject to compliance with requirements, provide one of the following:

a.	Luster Seal WB STD	Euclid Chemical Co.
b.	VOCOMP-25	W.R. Meadows

H. Sealers/Hardeners: For use on concrete surfaces that will remain exposed. Slabs that will receive additional flooring do not require sealing or hardening. Sealers and hardeners must conform to ASTM D1546, not yellow under ultra violet light after 500 hours of test in accordance with and have a maximum moisture loss of 0.039 grams per sq. cm. when applied at a coverage rate of 250 sq. ft. per gallon. Limit VOC content to 130 g/L. Use water- or vegetable-based product.

1. Products: Subject to compliance with requirements, provide one of the following:

a.	Kure-N-Harden	BASF

I. For concrete floors subjected to heavy vehicular traffic use a Liquid Sealer/Densifier: The product must be a high performance, deeply penetrating concrete densifier conforming to ASTMC836; odorless, colorless, VOC - compliant, non-yellowing siliconate based solution designed to harden, dustproof and protect and to resist black rubber tire marks on concrete surfaces. The compound must contain a minimum of 20% solids content of which 50% is siliconate

J. Evaporation Retardant:

1. Products Subject to compliance with requirements, provide one of the following:

a.	"Eucobar"	Euclid Chemical Co.
b.	"Confilm"	BASF

K. Certify that all curing compounds, sealers and hardeners are compatible with all adhesive products intended for attaching co-lateral floor material. In conformance with ASTM F 710,

coordination with flooring manufacturer is required to insure concrete coatings will not obstruct the bond between the concrete and the adhesive. Insure coatings and adhesives are "benignly compatible" -- in other words, do not combine substances whose constituents are reactive. Reactivity releases VOCs and /or other toxic fumes.

L. Crack Sealer: Elastomeric liquid crack sealer resistant to water, gasoline, oil and salts.

1. Products: Subject to compliance with requirements, provide one of the following:

a.	"Plasti-seal"	Euclid Chemical Co.

M. Underlayment Compound: Free flowing, self-leveling, pumpable cementitious base compound.

1. Products: Subject to compliance with requirements, provide the following:

a.	"Flo-Top 90 or Super Flo-Top"	Euclid Chemical Co.
b.	"Ardex"	Ardex Co.
c.	"Underlayment 110"	Master Builders

N. Bonding Admixture: The compound shall be a latex, non-rewettable type.

1. Products: Subject to compliance with requirements, provide one of the following:

a.	"Flex-Con"	Euclid Chemical Co.
b.	"Daraweld C"	W.R. Grace
c.	"SBR Latex"	Euclid Chemical Co.

O. High Strength Polymer Repair Mortar: For form and pouring or large horizontal repairs, provide the flowable on-part, high strength repair mortar.

1. Products: subject to compliance with requirements, provide the following:

a.	"Eucocrete"	The Euclid Chemical Co.
b.	"Euco Speed MP" (Cold Weather)	The Euclid Chemical Co.
c.	"Emaco R"	Master Builders.

P. Bonding Agent: ASTM C 1059/C 1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

Q. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:

1. Type IV for bonding hardened concrete to hardened concrete, and Type V for bonding freshly mixed concrete to hardened concrete.

R. Reglets: Fabricate reglets of not less than 0.022 inch thick, galvanized-steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.

S. Dovetail Anchor Slots: Hot-dip galvanized-steel sheet, not less than 0.034 inch thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.

T. Vapor Barrier: Provide vapor barrier which conforms to ASTM E 1745, Class A or B. The membrane shall have a water-vapor permeance rate no greater than 0.012 perms when tested in accordance with ASTM E 154, Section 7. The vapor barrier shall be placed over prepared base material where indicated below slabs on grade. Vapor barrier shall be no less than 10 mil thick in accordance with ACI 302.1R. Preferred vapor barriers will be manufactured from post-consumer recycled polymers.

1. Products: Subject to compliance with requirements, provide one of the following:

a.	"Stego Wrap (15 mil) Vapor Barrier"	Stego Industries LLC
b.	"Griffolyn Vaporguard"	Reef Industries
c.	"Premoulded Membrane with Plastmatic Core"	W.R. Meadows.

U. Expansion Joint Filler: ASTM D 1751.

1. Products: Subject to compliance with requirements, provide one of the following:

a.	"Homex 300"	Homasote Company
b.	"Standard Cork Expansion Joint Filler"	A.P.S. Cork
c.	"Fibre Expansion Joint"	W.R. Meadows

V. Water: Potable.

2.6 PROPORTIONING AND DESIGN OF MIXES

A. Preparation of Design Mixes

1. All mix designs shall be proportioned in accordance with Section 5.3, "Proportioning on the Basis of Field Experience and/or Trial Mixtures" of ACI 318 and prepared by a licensed testing laboratory approved by The City Of New York, but paid for by the contractor. Submit mix designs on each class of concrete for review.
2. If previously used mixes are submitted, all materials shall be from the same sources and with the same brand names as the previously utilized mix.
3. If trial batches are used, the mix design shall be prepared by an independent testing laboratory and shall achieve an average compressive strength 1200 psi higher than the specified strength. This over-design shall be increased to 1400 psi when concrete strengths of 5000 or more are used.
4. The proposed mix designs shall be accompanied by complete standard deviation analysis or trial mixture test data.

B. Submit each proposed mix to the Commissioner for review at least 5 days prior to the pre-concrete conference. Do not begin concrete production until Commissioner has reviewed and approved mixes.

1. Submit Test reports for any pozzolans or slags indicating compliance with ASTM C 618 or ASTM C 989, respectively.
2. Provide cut sheets clearly indicating the percentages of pozzolans or slags used in the mix design as replacement for Portland cement. Or, if cut sheets are not available, obtain a written affidavit from the manufacturer stating the percentage.
3. Test reports for recycled aggregate indicating compliance with ASTM C 33. Provide cut sheets clearly indicating the percentage of aggregates used that are recycled. Or, if cut

sheets are not available, obtain a written affidavit from the manufacturer stating the recycled content percentage and source or sources of the material.

4. Provide cut sheets clearly indicating the percentage of sub-base and filler aggregate materials that are recycled. Or, if cut sheets are not available, obtain a written affidavit from the manufacturer stating the recycled content percentage and source or sources of the material.

C. Design mixes to provide concrete with strength as indicated on drawings and schedules.

D. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant; at no additional cost to The City Of New York and as accepted by Commissioner. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Commissioner before using in work.

E. Admixtures:

1. Use water-reducing admixture or high range water-reducing admixture (superplasticizer) in all concrete as required for placement and workability.
2. Use non-corrosive, non-chloride accelerating admixture in concrete slabs placed at ambient temperatures below 50°F (10°C).
3. Use high-range water-reducing admixture in pumped concrete, Architectural concrete, parking structure slabs, fiber concrete, concrete required to be watertight, concrete with ultimate strength of 5,000 psi or more, and concrete with water/cement ratios below 0.50.
4. Use air-entraining admixture in exterior exposed concrete, unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content with a tolerance of plus-or-minus 1-1/2 percent within following limits:

   a. Concrete structures and slabs exposed to freezing and thawing or deicer chemicals.

      1) 4.5 percent (moderate exposure); 5.5 percent (severe exposure) 1-1/2" max. aggregate 4.5 percent (moderate exposure); 6.0 percent (severe exposure) 1" max. aggregate.
      2) 5.0 percent (moderate exposure); 6.0 percent (severe exposure) 3/4" max. aggregate.
      3) 5.5 percent (moderate exposure); 7.0 percent (severe exposure) 1/2" max. aggregate.

   b. Other Concrete: (not exposed to freezing, thawing, or hydraulic pressure): 2 percent to 4 percent air.
   c. Interior concrete subjected to vehicular traffic: 3 percent maximum.

5. Use admixtures for water-reducing and set-control in strict compliance with manufacturer's directions.

F. Water-Cement Ratio: Provide concrete for following conditions with maximum water-cement (W/C) ratios as follows:

1. Concrete for precast slabs, precast beams, structural topping slab, caisson caps, caissons, poured in place slabs and grade beams, columns and walls, over water, on ground or exposed to weather: W/C 0.40.
2. Concrete on metal deck:

a. With specified minimum compressive strength not greater than 5,000 psi: 0.40.
b. With specified minimum compressive strength not greater than 7,000 psi: 0.35.

3. "Quick Dry" Concrete: 0.40.
4. Subjected to freezing and thawing; W/C 0.50.
5. Subjected to deicers/watertight: W/C 0.45.
6. Reinforced concrete subjected to brackish water, salt spray or deicers; W/C 0.40.

G. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:

1. Ramp slabs and sloping surfaces: Not more than 3".
2. Reinforced foundation systems, including mud slabs below hydrostatic slabs: Not less than 1" and not more than 3".
3. Concrete containing HRWR admixture (superplasticizer): Not more than 9" unless otherwise approved by the Commissioner. The concrete shall arrive at the job site at a slump of 2" to 3" (3" to 4" for concrete receiving a "shake-on" hardener or lightweight concrete), be verified, then the high-range water-reducing admixture added to increase the slump to the approved level.
4. Other Concrete: Not less than 1" or more than 4".

H. Chloride Ion Level: Chloride ion content of aggregate shall be tested by the laboratory making the trial mixes. The total chloride ion content of the mix including all constituents shall not exceed the limitations set forth in Table 4.4.1 of ACI 318 for concrete subjected to deicers or exposed to chloride in service (0.15% chloride ions by weight of cement).

2.7 CONCRETE MIXING

A. Ready-Mix Concrete: Comply with requirements of ASTM C 94, and as herein specified.

B. Provide batch ticket for each batch discharged and used in work, indicating project identification name and number, date, mix type, mix time, quantity, and amount of water introduced.

C. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C 94 may be required. When air temperature is between 85°F (30°C) and 90°F (32°C), reduce maximum mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90°F (32°C), reduce maximum mixing and delivery time to 60 minutes.

D. No water shall be added after mixing to concrete containing HRWR (Superplasticizer). If loss of slump occurs, the concrete treated with HRWR may be redosed as long as a "flash set" has not occurred. Redosage procedures must be discussed and approved by the Commissioner and the manufacturer.

PART 3 - EXECUTION

3.1 GENERAL

A. Coordinate the installation of joint materials and vapor retarders with placement of forms and reinforcing steel.

3.2 INSPECTION

A. Examine all work prepared by others to receive work of this section and report any defects affecting installation to the Contractor for correction. Commencement of work will be construed as complete acceptance of preparatory work by others.

3.3 CONCRETE

A. Concrete shall develop the minimum compressive strengths shown on drawings at 28 days when sampled and tested in accordance with ASTM C 31 and C 39 with the maximum slump in accordance with the approved mix design.

B. Concrete shall be in accordance with the requirements and specifications of "Building Code Requirements for Structural Concrete" as modified by the building code noted above.

C. Fly Ash Concrete & Slag Concrete: Concrete mixes containing high volumes of fly ash or Slag have slower set times and may take up to 56 days to reach full strength. The Commissioner, agency responsible for concrete mix design, and the concrete subcontractor must coordinate to ensure that the form stripping schedule is consistent with the ability of the structure to support itself and all imposed construction loads.

3.4 FORMS

A. Design formwork to maximize its reusability, reduce resources devoted to formwork construction and minimize waste generated. Where appropriate choose alternative formwork systems (refer to sections listed above).

B. Design, erect, support, brace and maintain formwork to support vertical and lateral, static, and dynamic loads that might be applied until such loads can be supported by concrete structure. Construct formwork so concrete members and structures are of correct size, shapes, alignment, elevation and position. Maintain formwork construction tolerances complying with ACI 347. Provide Class A tolerances for concrete exposed to view. Provide Class C tolerances for other concrete surfaces.

C. Design formwork to be readily removable without impact, shocks or damage to cast-in-place concrete surfaces and adjacent materials.

D. Construct forms to size shapes, lines and dimensions shown, and to obtain accurate alignment, location, grades, level and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide back- up at joints to prevent leakage of cement paste.

E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, recesses, and the like, to prevent swelling and for easy removal.

F. Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace

temporary openings and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings on forms at inconspicuous locations.

G. Chamfer exposed corners and edges as indicated, using wood, metal, PVC or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.

H. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses and chases from trades providing such items. Accurately place and securely support items built into forms.

I. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt or other debris just before concrete is placed. Retightening forms and bracing after concrete placement is required to eliminate mortar leaks and maintain proper alignment.

3.5 PLACING REINFORCEMENT

A. Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars", for details and methods of reinforcement placement and supports, and as herein specified.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials, which reduce or destroy bond with concrete.

C. Accurately position, support and secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as required.

D. Place reinforcement to obtain at least minimum coverage's for concrete protection. Arrange, space and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

E. Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset end laps in adjacent widths to prevent continuous laps in either direction.

F. Micro-Fibers: All concrete where indicated on the drawings shall contain the specified micro-fibers. Length shall be per the manufacturer's specification. The dosage rate shall be 1.0 – 1.6 lbs per cubic yard per the manufacturer's specification. Submit proposed dosage rate to Commissioner for review prior to concrete placement.

G. Macro-Fibers: All concrete where indicated on the drawings shall contain the specified macro-fibers. Length shall be per the manufacturer's specification. The dosage rate shall be 3.0 – 5.0 lbs per cubic yard per the manufacturer's specification. Submit proposed dosage rate to Commissioner for review prior to concrete placement.

H. Epoxy-coated reinforcing bars supported from formwork shall rest on coated wire bar supports. Reinforcing bars used as support bars shall be epoxy-coated. In walls having epoxy-coated reinforcing bars, spreader bars where specified by the Commissioner, shall be epoxy-coated. Proprietary combination bar clips and spreaders used in walls with epoxy-coated reinforcing bars shall be made of corrosion-resistant material.

I. Epoxy-coated reinforcing bars shall be fastened with nylon- , epoxy- , or plastic-coated tie wire, or other acceptable materials.

J. Repair of damaged epoxy-coating: When required, damaged epoxy-coating shall be repaired with patching material conforming to ASTM A775. Repair shall be done in accordance with the patching material manufacturer's recommendations.

K. Unless permitted by the Commissioner , epoxy-coated reinforcing bars shall not be cut in the field. When epoxy-coated reinforcing bars are cut in the field, the ends of the bars shall be coated with the same material used for repair of coating damage.

3.6 JOINTS

A. Construction Joints: Locate and install construction joints as indicated, or if not indicated, locate so as not to impair strength and appearance of the structure, as acceptable to Commissioner.

B. Provide keyways at least 1-1/2" deep in construction joints in walls, slabs and between walls and footings; accepted bulkheads designed for this purpose may be used for slabs.

C. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints, except as otherwise indicated.

D. Waterstops: Provide waterstops in construction joints as indicated. Install waterstops to form continuous diaphragm in each joint. Make provisions to support and protect exposed waterstops during progress of work. Fabricate field joints in waterstops in accordance with manufacturer's printed instructions, using manufacturer's specified welding irons.

E. Isolation Joints in Slabs-on-Ground: Construct isolation joints in slabs-on-ground at points of contact between slabs-on-ground and vertical surfaces, such as column pedestals and elsewhere as indicated.

1. Joint filler and sealant materials are specified in the section for "Related Materials"

F. Contraction (Control) Joints in Slabs-on-Ground: Maximum joint spacing shall be 36 times the slab thickness unless otherwise noted on the drawings. The dry cut saw shall be used immediately after final finishing and to a depth of 1-1/4". A conventional saw shall be used as soon as possible without dislodging aggregate and to a depth of 1/4 slab thickness.

1. Joint sealant material is specified in the section for "Related Materials".

3.7 INSTALLATION OF EMBEDDED ITEMS

A. General: Set and build into work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions and directions provided by suppliers of items to be attached thereto.

B. Edge Forms and Screed Strips for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in finished slab surface. Provide and secure units sufficiently strong to support types of screed strips by use of strike-off templates or accepted compacting type screeds.

C. Embedded Plates at Foundation Walls: Install plate at top of forms so that exterior face of steel plate is level and plumb. Use construction documents for locations, sizes and elevations.

3.8 PREPARATION OF FORM SURFACES

A. Clean re-used forms of concrete matrix residue, repair and patch as required to return forms to acceptable surface condition.

B. If form-release compound is required, coat contact surfaces of forms with a form-coating compound *before* reinforcement is placed.

C. Thin form-coating compounds only with thinning agent of type, and amount, and under conditions of form-coating compound manufacturer's directions. Do not allow excess form-coating material to accumulate in forms or to come into contact with in- place concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.

D. Coat steel forms with a non-staining, rust-preventative form oil or otherwise protect against rusting. Rust-stained steel formwork is not acceptable.

3.9 CONCRETE PLACEMENT

A. Ready-mix concrete shall comply with the requirements of ASTM C 94 and ACI 304. All plant and transporting equipment shall comply with the concrete plant standards and truck mixer and agitator standards of the National Ready Mix Concrete Association.

B. Cold weather mixing procedures shall be submitted to the Commissioner for approval.

C. Notify Commissioner and The City Of New York's Inspector at least 36 hours (1 1/2 regular working days) before each pour so that forms and reinforcing may be examined. Do not place concrete until inspection has been made or waived.

D. Preplacement Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work. Moisten wood forms immediately before placing concrete where form coatings are not used.

1. Apply temporary protective covering to lower 2' of finished walls adjacent to poured floor slabs and similar conditions, and guard against spattering during placement.

E. General: Comply with ACI 304 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete," and as herein specified.

1. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation.

F. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 18" and in a manner to avoid inclined construction joints. Where placement consists of several

layers, place each layer while preceding layer is still plastic to avoid cold joints. Use internal vibrators penetrating both the top and preceding layers.

G. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI recommended practices.

H. Use and type of vibrators shall conform to ACI 309 "Recommended Practice for Consolidation of Concrete." Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least 6" into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.

I. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.

J. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.

K. Slabs: Bring slab surfaces to correct level with straightedge and strikeoff. Use highway straightedge, bull floats or darbies to smooth surface free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations. See also "MONOLITHIC SLAB FINISHES" below.

L. Maintain reinforcing in proper position during concrete placement operations.

M. Cold Weather Placing: Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as herein specified.

1. When air temperature has fallen to or is expected to fall below 40°F (4°C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50°F (10°C), and not more than 80°F (27°C) at point of placement.
2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Use only a non-corrosive, non-chloride accelerator. Calcium chloride, thiocyanates or admixtures containing more than 0.05% chloride ions are NOT permitted.
4. Care must be taken to store water-based curing and sealing compounds where they will not freeze. In most cases, they cannot be reconstituted after thawing.

N. Hot Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.

1. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90°F (32°C). Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated to total amount of mixing water. Use of liquid nitrogen to cool concrete is Contractor's option.
2. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
3. Fog spray forms, reinforcing steel and subgrade just before concrete is placed.

3.10 FINISH OF FORMED SURFACES

A. Concrete mixes containing pozzolans or slags do not set at the same rate or with the same bleed water characteristic as plain Portland cement. Therefore attention must be directed to the proper procedures. Refer to ACI 232.2R and ACI 301.

B. Rough Form Finish: For formed concrete surface not exposed-to- view in the finish work or by other construction, unless otherwise indicated. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4" in height rubbed down or chipped off.

C. Smooth Form Finish: For formed concrete surfaces exposed-to-view, or that are to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, damp-proofing, painting or other similar system. This is as-cast concrete surface obtained with selected form facing material, arranged orderly and symmetrically with a minimum of seams. Repair and patch defective areas with fins or other projections completely removed and smoothed. Follow all requirements in ACI 301, Chapter 10 for smooth form finish. Surface preparation for surfaces receiving waterproofing must be approved by the waterproofing manufacturer prior to construction.

3.11 FLOOR FLATNESS/LEVELNESS TOLERANCES

A. FF defines the maximum floor curvature allowed over 24 in. Computed on the basis of successive 12 in. (300 mm) elevation differentials, FF is commonly referred to as the "Flatness F-Number".

B. FL defines the relative conformity of the floor surface to a horizontal plane as measured over a 10 ft. (3.05 m) distance commonly referred to as the "Levelness F-Number".

C. All floors shall be measured within 72 hours of being poured and in accordance with ASTM E 1155 "Standard Test Method for Determining Floor Flatness and Levelness Using the "F Number" System (Inch-Pound Units).

D. All slabs shall achieve the specified overall tolerance. The minimum local tolerance (1/2 bay or as designated by the Commissioner) shall be 2/3 of the specified tolerances.

E. All elevated slabs shall achieve the specified FL tolerance before the removal of the forms.

F. All slabs on metal deck shall achieve the specified FF.

3.12 MONOLITHIC SLAB FINISHES

A. Float Finish: Apply float finish to slabs at crawl spaces, unless otherwise noted. After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating when surface water has disappeared or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats, or by hand-floating if area is small or inaccessible to power units. Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture. Surface shall achieve an FF 20 - FL 17 tolerance.

B. Trowel Finish: Apply trowel finish to monolithic slab surfaces to be exposed-to-view, and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint, or other thin

film finish coating system, unless otherwise noted. After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance and with a surface leveled to an FF 25/ FL 20 tolerance (FL17 for elevated slabs). Grind smooth surface defects, which would telegraph through applied floor covering system.

C. Trowel and Fine Broom Finish: Where ceramic or quarry tile is to be installed with thin-set mortar, and slab surfaces which are to be covered with membrane or elastic waterproofing, or sand-bed terrazzo, and as otherwise indicated, apply single trowel finish as specified, then immediately follow with slightly scarifying surface by fine brooming. Surface preparation for surfaces receiving waterproofing must be approved by the waterproofing manufacturer prior to construction

D. Sealers, Hardeners and Liquid Densifiers: Apply a coat of the specified compound to all EXPOSED interior concrete floors where indicated on the drawings. This surface must be continuously moist cured by a method satisfactory to the Commissioner. Apply and mechanically scrub compound into the floor in strict accordance with the manufacturer's printed instructions.

3.13 CONCRETE CURING AND PROTECTION

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

1. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.
2. Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least 7 days in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.
3. In order to avoid plastic or drying shrinkage cracks during warm, dry or windy weather, ACI 302 and ACI 308 shall be followed using wind breaks and sun shades when recommended. Evaporation retardant shall be as specified in Section 2.04.
4. Care must be taken to store water based curing and sealing compounds where they will not freeze. In most cases, they cannot be reconstituted after thawing.

B. Curing Methods: Perform curing of concrete by moisture curing, moisture-retaining cover curing, curing and sealing compound, and by combinations thereof, as herein specified.

1. Provide moisture curing by following methods.

   a. Keep concrete surface continuously wet by covering with water.
   b. Continuous water-fog spray.
   c. Covering concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4" lap over adjacent absorptive covers.

2. Provide moisture-retaining cover curing as follows:

   a. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3" and sealed by

waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

3. Provide curing and sealing compound to exposed interior slabs not receiving additional flooring. A clear curing and sealing compound shall be used on exterior slabs, sidewalks and curbs not receiving a penetrating sealer.
4. Use the specified curing compound on surfaces to be covered with finish or coating material applied directly to concrete, such as liquid densifier/sealer, waterproofing, dampproofing, membrane roofing, flooring, painting, and other coatings and finish materials. Apply compound in accordance with manufacturer's direction.

C. Curing Formed Surfaces: Cure formed concrete surfaces, including undersides of beams, supported slabs and other similar surfaces by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

D. Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces by application of the specified curing compound or a continuous moist curing method approved by the Commissioner.

E. Certify that all curing compounds, sealers and hardeners are compatible with all adhesive products intended for attaching co-lateral floor material. In conformance with ASTM F710, coordination with flooring manufacturer is required to insure concrete coatings will not obstruct the bond between the concrete and the adhesive. In addition, insure coatings and adhesives are "benignly compatible" – in other words, do not combine substances whose constituents are reactive.

F. Sealer and Dustproofer: Apply a second coat of the specified curing and sealing compound to exposed interior slabs not subjected to vehicular traffic, noted on the drawings. These slabs must have received an initial coat of the curing and sealing compound.

3.14 SHORES AND SUPPORTS

A. Comply with ACI 347 for shoring and reshoring in multistory construction, and as herein specified.

B. Extend shoring from ground to roof for structures 4 stories or less, unless otherwise permitted.

C. Extend shoring generally at least 4 floors under floor or roof being placed for structures over 5 stories. Shore floor directly under floor or roof being placed, so that loads from construction above will transfer directly to these shores. Space shoring in stories below this levels in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members where no reinforcing steel is provided. Extend shores beyond minimums to ensure proper distribution of loads throughout structure. Contractor shall provide the services of a registered Professional Engineer to design the shoring, and determine timing of removal.

D. Remove shores and reshore in a planned sequence to avoid damage to partially cured concrete. Locate and provide adequate reshoring to safely support work without excessive stress or deflection.

E. Keep reshores in place a minimum of 15 days after placing upper tier, and longer if required, until concrete has attained its required 28-day strength and heavy loads due to construction operations have been removed.

3.15 REMOVAL OF FORMS

A. Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50°F (10°C) for 12 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.

B. Formwork supporting weight of concrete, such as beam soffits, joints, slabs and other structural elements, may not be removed in less than 14 days and until concrete has attained design minimum compressive strength at 28-days. Determine potential compressive strength of in-place concrete by testing field-cured specimens representative of concrete location or members.

C. Form facing material may be removed 4 days after placement, only if shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.

3.16 RE-USE OF FORMS

A. Clean and repair surfaces of forms to be re-used in work. Split, frayed, delaminated or otherwise damaged form facing material will not be acceptable for exposed surfaces. Apply new form coating compound as specified for new formwork.

B. When forms are intended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces, except as acceptable to Commissioner.

3.17 MISCELLANEOUS CONCRETE ITEMS

A. Filling-In: Fill-in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place and cure concrete as herein specified, to blend with in- place construction. Provide other miscellaneous concrete filling shown or required to complete work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and steel-troweling surfaces to a hard, dense finish with corners, intersections and terminations slightly rounded.

C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations, as shown on drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with certified diagrams or templates of manufacturer furnishing machines and equipment.

D. Grout base plates and foundations as indicated using specified free-flowing non-shrink grout. Use non-metallic grout for exposed conditions, unless otherwise indicated.

E. Where high fluidity and/or increased placing time is required use the specified high flow grout. This grout shall be used for all base plates larger than 10 square feet.

F. Steel Pan Stairs: Provide concrete fill for steel pan stair treads and landings and associated items. Cast-in safety inserts and accessories as shown on drawings. Screeds, tamp, and finish concrete surfaces as scheduled.

G. Reinforced Masonry: Provide concrete grout for reinforced masonry lintels and bond beams where indicated on drawings and as scheduled. Maintain accurate location of reinforcing steel during concrete placement.

3.18 CONCRETE SURFACE REPAIRS

A. Prior to all repairs, an as-built condition sketch and method of repair must be submitted to the Commissioner for review and approval.

B. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to Commissioner.

C. Cut out honeycomb, rock pockets, voids over 1/4" in any dimension, and holes left by tie rods and bolts, down to solid concrete but, in no case to a depth of less than 1". Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush-coat the area to be patched with a bonding grout containing the specified bonding admixture. Place patching mortar after while bonding grout is still tacky.

D. For exposed-to-view surfaces, blend white Portland cement and standard Portland cement so that, when dry, patching mortar will match color surrounding. Provide test areas at inconspicuous location to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.

E. Repair of Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Commissioner. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets; fins and other projections on surface; and stains and other discoloration's that cannot be removed by cleaning. Flush out form tie holes, fill with dry pack mortar, or pre-cast cement cone plugs secured in place with bonding agent.

F. Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.

G. Repair of Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for tureens of slope, in addition to smoothness, using a template having required slope.

H. Repair finished unformed surfaces that contain defects, which affect durability of concrete. Surface defects, as such, include crazing, cracks in excess of 0.01" wide or which penetrate to reinforcement or completely through non-reinforced sections regardless of width, spalling, pop-outs, honeycomb, rock pockets, and other objectionable conditions.

I. Correct high areas in unformed surfaces by grinding, after concrete has cured at least 14 days, except at hydrostatic slabs.

J. Correct low areas in unformed surfaces during or immediately after completion of surface finishing operations by cutting out low areas and replacing with fresh concrete. Finish repaired

areas to blend into adjacent concrete. The specified underlayment compound or repair toping may be used when acceptable to Commissioner.

K. Repair defective areas, except random cracks and single holes not exceeding 1" diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4" clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact and finish to blend with adjacent finished concrete. Cure in the same manner as adjacent concrete.

L. Repair isolated random cracks and single holes not over 1" in diameter by dry-pack method. Groove top of cracks and cutout holes to sound concrete and clean of dust, dirt and loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Mix dry-pack, consisting of one part Portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Place dry-pack after bonding compound has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for not less than 72 hours.

M. Structural Repair: All structural repairs shall be made with prior approval of the Commissioner as to method and procedure, using the specified polymer repair mortar and/or specified epoxy adhesive. Where epoxy injection procedures must be used, an approved low viscosity epoxy made by the manufacturers previously specified shall be used. In addition, all cracks shall be filled with the specified crack sealer or other method as approved by the Commissioner . All garage slabs shall be repaired prior to the slab being treated with the specified penetrating anti-spalling sealer.

N. Underlayment Application: Leveling of floors for subsequent finishes may be achieved by use of specified underlayment material. Underlayment application shall achieve the tolerances specified in "MONOLITHIC SLAB FINISHES" above.

O. Specified Polymer Horizontal Repair Mortar: All exposed floors shall be leveled, where required, with the specified self-leveling repair topping.

P. Repair Methods not specified above may be used, subject to acceptance of Commissioner.

3.19 FOUNDATION WALLS

A. The contractor shall form and leave openings in walls as shown on drawings and approved shop drawings for work of other contractors. These openings shall be temporarily closed and when so directed, the contractor shall point up in solid and neat manner with waterproofed cement.

3.20 WORK IN CONNECTION WITH OTHER TRADES AND CONTRACTS

A. Sleeves, pockets, openings, etc., shall be set in the concrete walls and arches as required for the mechanical trades as shown on approved shop drawings; these shall be encased or built into the concrete work and shall be properly placed and secured in position in the forms before concrete is placed.

B. Provide all chases, pipe slots, etc., required for the mechanical trades (see mechanical drawings), constructed as shown on the approved shop drawings.

C. Leave temporary access panels where required to install mechanical equipment as required by trade affected. Panels shall be formed with construction joints as specified. Details for such panels shall be submitted to Commissioner for approval.

D. Coordinate all penetrations, cutting, and patching with waterproofing contractor.

3.21 CUTTING AND PATCHING

A. Contractor for concrete work shall be responsible for all cutting, removing and patching work where concrete surfaces are not installed within the limits shown on the drawings or specified herein. All such work shall meet with the approval of the Commissioner.

B. Where cutting and patching is required to accommodate the work of other subcontractors, such cutting shall be done at the expense of said subcontractors but shall be performed by the contractor for concrete work.

C. The location and extent of cutting in completed concrete work and the patching thereof shall meet with the approval of the Commissioner.

3.22 QUALITY CONTROL TESTING DURING CONSTRUCTION

A. Sampling and testing for quality control during placement of concrete may include the following, as directed by Commissioner.

1. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.
2. Slump: ASTM C 143; one test at point of discharge for each truck; additional tests when concrete consistency seems to have changed.
3. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231 pressure method for normal weight concrete; one for each truck of air-entrained concrete.
4. Concrete Temperature: Test hourly when air temperature is 40°F (4°C) and below, and when 80°F (27°C) and above; and each time a set of compression test specimens made.
5. Compression Test Specimen: ASTM C 31; one set of 5 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field-cure test specimens are required.
6. Compressive Strength Tests: ASTM C 39; one set for each day's pour exceeding 25 cu. yds. plus additional sets for each 50 cu. yds. over and above the first 25 cu. yds. of each concrete class placed in any one day; one specimens tested at 7 days, three specimens tested at 28 days, and one specimens retained in reserve for later testing if required.

    a. When frequency of testing will provide less than 5 strength tests for a given class of concrete, conduct testing from at least 5 randomly selected batches or from each batch if fewer than 5 are used.
    b. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.
    c. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength, and no individual strength test result falls below specified compressive strength by more than 500 psi.

7. Water Cement Ratio Test: Check water content of concrete in accordance with 'Standard Method of Test for Water Content of Freshly Mixed Concrete Using Microwave Oven Drying, AASHTO DESIGNATION:TP 23, SHRP DESIGNATION: 2027' for testing procedure.
8. Test results will be reported in writing to Commissioner, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials; compressive breaking strength and type of break for both 7-day tests and 28-day tests.

    a. Non Compliance: All test reports indicating non-compliance shall be faxed immediately to all parties on the test report distribution list and the hard copies submitted on different colored paper.
    b. Nondestructive Testing: Windsor probes, sonoscope, or other non-destructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.

9. Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Commissioner. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed. Contractor shall pay for such tests when unacceptable concrete is verified.

3.23 WASTE MANAGEMENT

A. Separate and recycle waste materials in accordance with the Section 015050 Construction Waste Management and Disposal and to the maximum extent feasible.

B. Collect cut off steel and discarded reinforcement steel and place in area for recycling.

C. Place materials defined as hazardous or toxic waste in designated containers.

D. Use trigger operated spray nozzles for water hoses and closed loop system to reduce water consumption.

E. Reusable forms should be cleaned immediately after removal and non-reusable forms recycled to the maximum extent economically feasible.

F. Incorporate crushed concrete or masonry materials in sub-base to the maximum extent feasible in accordance with sub-base specifications.

G. Before concrete pours, designate location or uses for excess concrete. Options include:

1. Additional paving
2. Post footing anchorage
3. Landscaping – site concrete features
4. Flowable fill

H. To avoid contamination of the local landscape, before concrete pours, designate a location for cleaning out concrete trucks where run-off can be contained, reused or incorporated. Options include:

1. Company owned site for that purpose
2. On-site area to be paved later in project

END OF SECTION

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SECTION 035300 – CONCRETE TOPPINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide selective demolition in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Hydraulic-cement-based, polymer-modified, self-leveling underlayment for application below interior floor coverings.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: For each type of product indicated, submit manufacturer's technical literature, performance criteria and installation instructions.

C. Shop Drawings: Include plans indicating substrates, locations, and average depths of underlayment based on survey of substrate conditions.

D. Product Certificates: Signed by manufacturers of underlayment and floor-covering systems certifying that products are compatible.

E. Qualification Data: Submit written information that demonstrates capabilities and experience of qualified installer.

1.4 QUALITY ASSURANCE

A. Product Compatibility: Manufacturers of underlayment and floor-covering systems certify in writing that products are compatible per 1968 NYC Building Code.

B. Fire-Resistance Ratings: Where indicated, provide hydraulic-cement underlayment systems 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.

C. Sound Transmission Characteristics: Where indicated, provide hydraulic-cement underlayment systems identical to those of assemblies tested for STC and IIC ratings per ASTM E 90 and ASTM E 492 by a qualified testing agency.

D. Preinstallation Conference: Conduct conference at Project site.

E. Special Inspections: Comply with requirements as indicated on Drawing A- 001.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage, mixing with other components, and application.

B. Store materials to comply with manufacturer's written instructions to prevent deterioration from moisture or other detrimental effects.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature, ventilation, ambient temperature and humidity, and other conditions affecting underlayment performance.

1. Place hydraulic-cement-based underlayments only when ambient temperature and temperature of substrates are between 50 and 80 deg F.

1.7 COORDINATION

A. Coordinate application of underlayment with requirements of floor-covering products and adhesives, specified in Division 9 Sections, to ensure compatibility of products.

PART 2 - PRODUCTS

2.1 HYDRAULIC-CEMENT-BASED UNDERLAYMENTS

A. Underlayment: Hydraulic-cement-based, polymer-modified, self-leveling product that can be applied in minimum uniform thickness of 1/4 inch and that can be feathered at edges to match adjacent floor elevations.

1. Available Manufacturers: Subject to compliance, provide self-leveling underlayment as manufactured by one of the following, or approved equal:

   a. Ardex.
   b. Euclid Chemical Company (The).
   c. L&M Construction Chemicals, Inc.
   d. Maxxon Corporation.

2. Cement Binder: ASTM C 150, portland cement, or hydraulic or blended hydraulic cement as defined by ASTM C 219.
3. Compressive Strength: Not less than 4100 psi at 28 days when tested according to ASTM C 109.

B. Additive (where applicable): Resilient-emulsion product of underlayment manufacturer, formulated for use with underlayment when applied to substrate and conditions indicated.

C. Aggregate (where applicable): Well-graded, washed gravel, 1/8 to 1/4 inch; or coarse sand as recommended by underlayment manufacturer.

1. Provide aggregate when recommended in writing by underlayment manufacturer for underlayment thickness required.

D. Water: Potable and at a temperature of not more than 70 deg F.

E. Reinforcement: For underlayment applied to wood substrates, provide galvanized metal lath or other corrosion-resistant reinforcement recommended in writing by underlayment manufacturer.

F. Primer: Product of underlayment manufacturer recommended in writing for substrate, conditions, and application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for conditions affecting performance.

1. Proceed with application only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. General: Prepare and clean substrate according to manufacturer's written instructions.

1. Treat nonmoving substrate cracks according to manufacturer's written instructions to prevent cracks from telegraphing (reflecting) through underlayment.
2. Fill substrate voids to prevent underlayment from leaking.

B. Concrete Substrates: Mechanically remove, according to manufacturer's written instructions, laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants that might impair underlayment bond.

1. Moisture Testing: Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates do not exceed a maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft in 24 hours.

C. Adhesion Tests: After substrate preparation, test substrate for adhesion with underlayment according to manufacturer's written instructions.

3.3 APPLICATION

A. General: Mix and apply underlayment components according to manufacturer's written instructions.

1. Close areas to traffic during underlayment application and for time period after application recommended in writing by manufacturer.
2. Coordinate application of components to provide optimum underlayment-to-substrate and intercoat adhesion.
3. At substrate expansion, isolation, and other moving joints, allow joint of same width to continue through underlayment.

B. Apply primer over prepared substrate at manufacturer's recommended spreading rate.

C. Apply underlayment to produce uniform, level surface.

1. Apply a final layer without aggregate to product surface.
2. Feather edges to match adjacent floor elevations.

D. Cure underlayment according to manufacturer's written instructions. Prevent contamination during application and curing processes.

E. Do not install floor coverings over underlayment until after time period recommended in writing by underlayment manufacturer.

F. Remove and replace underlayment areas that evidence lack of bond with substrate, including areas that emit a "hollow" sound when tapped.

3.4 PROTECTION

A. Protect underlayment from concentrated and rolling loads for remainder of construction period.

END OF SECTION 035300

SECTION 042000 - UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide unit masonry in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Interior concrete masonry units (CMU) patching and infill.
2. Interior brick masonry patching and infill.
3. Exterior brick and CMU wall patching and infill at existing windows.
4. Mortar and grout.
5. Ties and anchors.
6. Miscellaneous masonry accessories.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 PERFORMANCE REQUIREMENTS

A. Performance Requirements: Provide unit masonry patching that develops installed compressive strengths (f'_m) to equal to existing construction, unless greater performance is indicated or required.

1.4 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 01 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.

4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: Submit manufacturer's product data for each type of masonry unit, accessory, and other manufactured products, including certifications that each type complies with specified requirements.

C. Shop Drawings: Submit shop drawings clearly indicating the patch and repair work required. Re-built masonry assemblies shall be re-constructed to the sizes, dimensions and other characteristics indicated on the Drawings.

D. Samples: Submit samples of each exposed masonry material to show the types, sizes and full range of unit and mortar color and texture to be expected in the work

E. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.

1. Include test reports, per ASTM C 780, for mortar mixes required to comply with property specification.
2. Include test reports, per ASTM C 1019, for grout mixes required to comply with compressive strength requirement.

1.5 QUALITY ASSURANCE

A. Unit Masonry Standard: Comply with ACI 530.1/ASCE 6 "Specifications for Masonry Structures."

B. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, through one source from a single manufacturer for each product required.

C. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from a single manufacturer for each cementitious component and from one source or producer for each aggregate.

D. Pre-installation Conference: Before beginning the unit masonry installation, conduct a pre-installation conference at the project site with the Contractor, manufacturer, installer, and other interested parties to review procedures, schedules, and coordination of the installation with other elements of the work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.

B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

D. Deliver preblended, dry mortar mix in moisture-resistant containers designed for lifting and emptying into dispensing silo. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in a metal dispensing silo with weatherproof cover.

E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.7 PROJECT CONDITIONS

A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.

1. Extend cover a minimum of 24 inches down both sides and hold cover securely in place.

B. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.

1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
2. Protect sills, ledges, and projections from mortar droppings.
3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

C. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

D. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

PART 2 - PRODUCTS

2.1 MASONRY UNITS, GENERAL

A. Acceptable Manufacturers: Provide masonry materials and products as manufactured by one of the following, or approved equal:

1. Westbrook Concrete Block Co.
2. Oldcastle Architectural
3. Hanover Architectural Products

B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to exceed tolerances and to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not uses units where such defects, including dimensions that vary from specified dimensions by more than stated tolerances, will be exposed in the completed Work or will impair the quality of completed masonry.

2.2 MASONRY MATERIALS FOR PATCHING AND REPAIRS

A. General: Except as otherwise indicated, or as directed by the Commissioner, use materials for cutting and patching that are identical to existing materials. Use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials for cutting and patching that will result in equal-or-better performance characteristics.

B. Concrete Masonry: Provide units complying with characteristics matching the existing, in-place masonry for size, weight, fire resistance rating, grade, type, and finish.

1. Referenced Standards: ASTM C90, Type I and as follows:

a. Unit Compressive Strength: Provide units with minimum average net area compressive strength of 1900 psi, unless otherwise indicated

C. Brick Unit Masonry: Where existing brick to be reused are insufficient in quantity or are unacceptable for reuse, provide new brick to match acceptable existing brick as approved by the Commissioner. Exposed face brick shall comply with ASTM C 216, Grade SW; and type, color, size and finish to match the existing, as acceptable to the Commissioner.

1. New brick, where required, shall have a maximum initial rate of absorption of 30 lbs. per 30 sq.-ft. in accordance with ASTM C67.
2. Efflorescence: Provide brick that has been tested according to ASTM C 67 and is rated "not effloresced."

D. Where reused masonry is to be cleaned prior to reuse, provide proper handling and removal of mortar to the satisfaction of the Commissioner and, submit cleaned masonry for approval. Material and methods use in cleaned existing masonry shall comply with requirements specified, and shall match existing colors, finishes and other physical and aesthetic properties to the satisfaction of the Commissioner.

2.3 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

B. Hydrated Lime: ASTM C 207, Type S.

C. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207, Type S.

D. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortar.

E. Aggregate for Mortar: ASTM C 144.

1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
2. For joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.

F. Aggregate for Grout: ASTM C 404.

G. Water: Potable.

2.4 REINFORCEMENT

A. Masonry Joint Reinforcement, General: ASTM A 951.

1. Walls: Hot-dip galvanized, carbon steel.
2. Wire Size for Side Rods: W1.7 or 0.148-inch diameter.
3. Wire Size for Veneer Ties: W1.7 or 0.148-inch diameter.
4. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.
5. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units.

B. Masonry Joint Reinforcement for Single-Wythe Masonry: Either ladder or truss type with single pair of side rods.

2.5 TIES AND ANCHORS

A. Materials: Provide ties and anchors specified in subsequent paragraphs that are made from materials that comply with subparagraphs below, unless otherwise indicated.

1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82; with ASTM A 153, Class B-2 coating.
2. Steel Sheet, Galvanized after Fabrication: ASTM A 1008, Commercial Steel, hot-dip galvanized after fabrication to comply with ASTM A 153.

B. Corrugated Metal Ties: Metal strips not less than 7/8 inch wide with corrugations having a wavelength of 0.3 to 0.5 inch and an amplitude of 0.06 to 0.10 inch made from steel sheet, galvanized after fabrication not less than 0.067 inch thick.

C. Wire Ties, General: Unless otherwise indicated, size wire ties to extend at least halfway through veneer but with at least 5/8-inch cover on outside face. Outer ends of wires are bent 90 degrees and extend 2 inches parallel to face of veneer.

D. Individual Wire Ties: Rectangular units with closed ends and not less than 4 inches wide.

1. Z-shaped ties with ends bent 90 degrees to provide hooks not less than 2 inches long may be used for masonry constructed from solid units or hollow units laid with cells horizontal.
2. Where wythes do not align, use adjustable ties with pintle-and-eye connections having a maximum adjustment of 1-1/4 inches.
3. Wire: Fabricate from 1/4-inch- diameter, hot-dip galvanized steel wire.

2.6 MISCELLANEOUS ANCHORS

A. Anchor Bolts: Headed or L-shaped steel bolts complying with ASTM A 307, Grade A ; with ASTM A 563 hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153, Class C; of dimensions indicated.

B. Postinstalled Anchors: Provide chemical or torque-controlled expansion anchors, with capability to sustain, without failure, a load equal to six times the load imposed when installed in solid or grouted unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.

1. Corrosion Protection: Stainless-steel components complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 for bolts and nuts; ASTM A 666 or ASTM A 276, Type 304 or 316, for anchors.

2.7 EMBEDDED FLASHING MATERIALS

A. Sheet Metal Flashing: Fabricate from (28 gage) 0.0156 inch thick stainless steel complying with requirements of Section 07 62 00 - Flashing and Sheet Metal.

1. Fabricate through-wall flashing with drip edge, unless otherwise indicated. Fabricate by extending flashing 1/2 inch out from wall, with outer edge bent down 30 degrees.
2. Metal Flashing Terminations: Fabricate from stainless steel. Extend at least 3 inches into wall and out to exterior face of wall. At exterior face of wall, bend metal back on itself for 3/4 inch and down into joint 3/8 inch to form a stop for retaining sealant backer rod.

B. Flexible Flashing: For flashing not exposed to the exterior, use one of the following, unless otherwise indicated:

1. Fabricate through-wall flashing with drip edge, unless otherwise indicated. Fabricate by extending flashing 1/2 inch out from wall, with outer edge bent down 30 degrees
2. Asphalt- Coated Copper Flashing: 5-oz. /sq. ft copper sheet coated with flexible asphalt. Use only where flashing is fully concealed in masonry.

2.8 MISCELLANEOUS MATERIALS

A. Weep/ Vent Products: Use one of the following, unless otherwise indicated:

1. Round Plastic Weep/Vent Tubing: Medium-density polyethylene, 3/8-inch OD by 4 inches long.
2. Rectangular Plastic Weep/Vent Tubing: Clear butyrate, 3/8 by 1-1/2 by 3-1/2 inches long.

a. Products:

1) Hohmann & Barnard, Inc.; Quadro-Vent.
2) Heckmann Building Products Inc.; No. 85 Cell Vent.
3) Wire-Bond; Cell Vent.
4) Approved equal.

2.9 MASONRY CLEANERS

A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

2.10 MORTAR AND GROUT MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.

1. Do not use calcium chloride in mortar or grout.
2. Limit cementitious materials in mortar to portland cement and lime.

B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

C. Mortar for Unit Masonry: Comply with ASTM C 270, Property Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.

1. For reinforced masonry, use Type S.
2. For interior load-bearing walls; for interior non-load-bearing partitions; and for other applications where another type is not indicated, use Type N.

D. Provide where required to match existing mortar at brick; Pigmented Mortar: Use colored cement product or select and proportion pigments with other ingredients to produce color required. Do not add pigments to colored cement products.

1. Pigments shall not exceed 10 percent of Portland cement by weight.
2. Mix to match Commissioner's sample.

E. Grout for Unit Masonry: Comply with ASTM C 476.

1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
2. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
2. Verify that foundations are within tolerances specified.
3. Verify that reinforcing dowels are properly placed.

B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Cleaning Reinforcing: Before placing, remove loose rust, ice and other coatings from reinforcing.

B. Thickness: Build masonry construction to the thickness shown, and as required to match the existing. Build single-wythe walls to the actual thickness of the masonry units, using units of nominal thickness indicated.

C. Openings: Leave openings for equipment to be installed before completion of masonry work. After installation of equipment, complete masonry work to match work immediately adjacent to the opening.

D. Cutting: Cut masonry units with motor-driven saws to provide clean, sharp edges. Use full-size units where possible.

E. Wetting Clay Brick: Wet brick made from clay or shale in field, which have ASTM C 67 initial rates of absorption of more than 30 grams per 30 sq. in. per minutes. Use wetting methods which ensure each clay masonry unit being nearly saturated but surface dry when laid.

F. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.

3.3 LAYING MASONRY WALLS

A. Pattern Bond: Refer to the Drawings for details.

1. Masonry Patching: Match the existing, as indicated on the Drawings. Interlock masonry at corners. Do not use units with less than nominal 4" width. Tooth end block units into the existing construction to continue bond pattern; where selective demolition work required saw cutting of masonry units.
2. Where existing unit masonry construction is indicated to be infill, patched and otherwise modified all exposed mortar joints and bond patterns shall match the existing.

B. Stopping and Resuming Work: Rack back 1/2-unit length in each course. Clean exposed surfaces of masonry, and remove loose masonry units and mortar prior to laying fresh masonry.

3.4 MORTAR BEDDING AND JOINTING

A. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

B. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness, unless otherwise indicated.

3.5 MASONRY JOINT REINFORCEMENT

A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches .

1. Space reinforcement not more than 16 inches o.c.
2. Provide reinforcement not more than 8 inches above and below wall openings and extending 12 inches beyond openings.

a. Reinforcement above is in addition to continuous reinforcement.

B. Provide continuity at corners by using prefabricated L-shaped units.

C. Cut and bend reinforcing units as directed by manufacturer for continuity at corners, returns, offsets and other special conditions.

3.6 LINTELS

A. Install steel lintels where indicated.

B. Provide minimum bearing of 8 inches at each jamb, unless otherwise indicated.

3.7 FLASHING

A. General: Install embedded flashing in masonry at shelf angles, wall bases, lintels, ledges, other obstructions to downward flow of water in wall and where indicated.

B. Install flashing as follows, unless otherwise indicated:

1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
2. At lintels and shelf angles, extend flashing a minimum of 6 inches into masonry at each end. At heads and sills, extend flashing 6 inches at ends and turn up not less than 2 inches to form end dams.
3. Install metal flashing termination beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall and adhere flexible flashing to top of metal flashing termination.

C. Install vents in head joints in exterior wythes at industry standard spacing. Use specified weep/vent products to form vents.

D. Close cavities off vertically and horizontally with blocking in manner indicated. Install through-wall flashing and weep holes above horizontal blocking.

3.8 REPAIRING, POINTING, AND CLEANING

A. Remove and replace existing masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.

B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.

C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

D. Final Cleaning: After mortar is thoroughly set and cured, clean existing and new exposed masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
2. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
3. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
4. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.
5. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

3.9 MASONRY WASTE DISPOSAL

A. Excess Masonry Waste: Remove excess clean masonry waste, including excess or soil-contaminated sand, waste mortar, broken masonry units, and other masonry waste, and legally dispose of off City of New York's property.

END OF SECTION 042000

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SECTION 05 12 00 - STRUCTURAL STEEL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes but is not limited to the following as shown on the drawings and as specified herein:

1. Furnish and deliver for installation by others, anchor bolts, bearing plates and loose lintels with complete instructions and templates to facilitate installation.
2. Furnish and erect all struts, columns, bearing plates, beams, steel trusses, girders, bracing, hangers and all related connections (bolted and welded).
3. Openings (unreinforced and reinforced) in structural steel to accommodate mechanical and electrical work.
4. Shop painting and field touch-up painting.
5. Erection bracing and supports, including steel wedges, shims or nuts required for leveling base plates.
6. Lintels and angles attached to structural steel as shown on drawings.
7. Unless specifically excluded, furnish and install all other items for structural steel work indicated on the drawings, specified, or obviously needed to make the work of this Section complete.
8. Waste Management

B. Related Requirements:

1. Division 01 Section "Construction Waste Management and Disposal"
2. Division 03 Section "Cast in Place Concrete"
3. Division 04 Section "Unit Masonry"
4. Division 05 Section "Metal Deck."
5. Division 05 Section "Metal Fabrications."
6. Division 06 Section "Rough Carpentry."
7. Division 07 Section "Joint Sealants."

C. Related Work Specified Elsewhere

1. Installation of anchor bolts furnished under this section.
2. Grout under base and bearing plates.
3. Installation of loose lintels furnished under this section.
4. Miscellaneous metal work
5. Light gage metal roof trusses.
6. Stair framing and hangers.
7. Field painting of structural steel, except as specified herein.
8. Fireproofing systems.

D. Adhesives, sealants, paints and coatings used for the work of this section shall meet the Volatile Organic Compound (VOC) limits specified in Section 013520 "Sustainable Design Requirements," and below where applicable.

E. Require mills and fabricators have ISO14001 certification. Maximize the re-use of salvaged steel (as approved by the Commissioner) and, for work on existing buildings, alert the design team to any existing steel which could be re-used but has not been indicated on the drawings.

F. Maximize the recycled content of all steel products.

G. Design details penetrating the façade strictly in accordance with the architectural and structural directives.

H. Where possible all connections should be made using bolted as opposed to welded details.

I. Where welding is required use Submerged Arc Welding (SAW). The Gas Metal Arc Welding (GMAW) shall be used were SAW is not applicable (such as for angled connections and anything irregular or short). Field welding shall be allowed only in special circumstances; in such cases Flux Core Arc welding (FCAW) shall be specified with the use of portable fume exhaust system.

J. Use surface preparation techniques that minimize the use of halogenated solvents and solvents classified as volatile organic compounds. Consider using 'weathering steel' (ASTM A 847) for exterior steel with the approval of the Commissioner.

K. Use high strength HSS round tubes instead of A36 Steel pipes with approval of the Commissioner.

1.3 DEFINITIONS

A. Structural Steel: Elements of structural-steel frame, as classified by AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

B. Seismic-Load-Resisting System: Elements of structural-steel frame designated as "SLRS" or along grid lines designated as "SLRS" on Drawings, including columns, beams, and braces and their connections.

C. Heavy Sections: Rolled and built-up sections as follows:

1. Shapes included in ASTM A 6/A 6M with flanges thicker than 1-1/2 inches .
2. Welded built-up members with plates thicker than 2 inches .
3. Column base plates thicker than 2 inches .

D. Protected Zone: Structural members or portions of structural members indicated as "Protected Zone" on Drawings. Connections of structural and nonstructural elements to protected zones are limited.

E. Demand Critical Welds: Those welds, the failure of which would result in significant degradation of the strength and stiffness of the Seismic-Load-Resisting System and which are indicated as "Demand Critical" or "Seismic Critical" on Drawings.

1.4 PERFORMANCE REQUIREMENTS

A. Connections: Provide details of all connections required by the drawings to be completed by structural steel fabricator (including comprehensive engineering analysis by a qualified professional engineer) to withstand loads indicated and comply with other information and restrictions indicated, unless noted otherwise.

1. Select and complete connections using schematic details indicated and AISC 360.
2. Use design method indicated on structural drawings.
3. Moment Connections: Fully restrained unless otherwise noted on drawings.

B. Lateral Framing Resisting System: Type used is indicated on structural drawings.

1.5 SUBMITTALS

A. Product Data: Submit data for each type of product indicated in the contract documents.

B. Shop Drawings: Submit shop drawings in accordance with the specifications as follows:

1. Show clearly all work, including relationship of structural steel to the adjacent work of other trades and to significant lines of finishes of other trades.
2. Do not fabricate or deliver work to the site before drawings reviewed by the Commissioner.
3. Before preparing steel shop drawings, submit proposed submittal schedule for review by the Commissioner.
4. Before preparing steel shop drawings, submit for review a set of job standards showing all necessary joint details with full particulars of connection pieces, shop and field welds, and holes for erection bolts and permanent bolts. These shall include any moment and shear connections. Appropriate marks for designating all types and sizes of joint details shall be included. After approval of these job standards, the erection plans are to be submitted and shall be marked to indicate unmistakably the type and size of joint to be used for every beam connection. Do not order steel in advance of approval of the job standards and the erection plans with joint marks, except at own risk
5. Submit calculations for design of connections on job standards and all other connections such as moment and brace frames. Calculations shall be signed and sealed by a Professional Engineer licensed in the state in which the project is located.
6. Prepare remainder of steel shop drawings after approval of job standards and erection plans. Drawings submitted prior to approval of job standards will be returned without review.
7. Prepare shop drawings in conformance with the applicable procedures shown in "*Detailing for Steel Construction*," latest edition, published by AISC. Prepare shop drawings under the supervision of competent engineering personnel, licensed by the state in which the construction is to take place. During the preparation of shop drawings, and prior to submittal, coordinate and cross check all shop drawings, including those prepared by subcontractors, for compliance with the Contract Documents.
8. Indicate clearly the size and grade of steel for each component. Identify rolled shapes, tubes and plates by using the standard designations used in "Steel Construction Manual" Latest Edition, by AISC.
9. Indicate welds and nondestructive tests by using the symbols conforming to AWS A2.4 "Symbols for Welding and Nondestructive Testing." Where necessary for clarity, indicate welding procedure designations or other data in the tail of the welding symbol.
10. Show explicitly the type of connection used in each location, the grade, size, and number

of bolts; the type, number, position, designation and orientation of each washer; and the size of each hole, whether slotted or round. Ensure that adequate wrench clearance for correct bolt tightening is provided and note special bolt tightening sequences where applicable and necessary.

11. Show all camber dimensions in the shop drawings. Where specific camber is not shown in the drawings, note on each affected shop drawing that such members are to be fabricated with the natural camber up.
12. Show holes required for securing work specified in other sections to structural steelwork, as well as all holes required for passage through structural steelwork of work of other trades. Provide field work drawings for all such holes not shown in shop or erection drawings. Addition of, or change in size or location of openings will not be permitted without prior approval.
13. Use bolted connections wherever possible; avoid field welding unless otherwise noted on drawings.
14. Make details in such a way as to avoid having steel, connections, bracing, bolts, etc., interfere with architectural details or in any way reduce the areas of shafts, openings, clearances, etc.
15. Detail and schedule cleaning and painting data and requirements, including specific indication of "no-paint" areas.
16. The use of the Commissioner's electronic drawing files as a base for the erection shop drawings will be permitted at the request of the structural steel detailer upon completion and return of the waiver form. The use of the Commissioner's electronic drawing files as a base for shop drawing details will be not be permitted. The structural steel detailer will be responsible for compatibility of the files with his hardware or software. The electronic files are not to be considered the contract documents, the design team makes no representation regarding the accuracy or completeness of the electronic files given to the structural steel detailer and their use will be at the structural steel detailer's sole risk and without liability to the design team. The structural steel detailer shall remove the project title box and all references to the structural drawings including drawing numbers and structural drawing sections and details. The structural steel detailer shall also remove all reference to work not included in the steel contract.
17. Show clearly the size and location of each member and the erection mark assigned to each member. Show each field connection with all data and details necessary for assembling the structure. Direct special attention to the possible need for special guying, bracing, or shoring to prevent deformation of existing or new structure due to stresses caused by erection procedures and equipment, by construction loadings, and by forces of natural phenomena.
18. Prepare, keep up-to-date, and submit a complete drawing index cross-referencing each assigned piece mark with the drawing number in which the piece is detailed. Detail drawings submitted without an up-to-date index and the applicable erection drawing(s) showing the location of each piece will be deemed an incomplete submission and will not be accepted as subject to any agreed shop drawing review schedule.
19. Prepare anchor bolt and base plate erection drawings containing complete location and placing details, including details of all templates. Provide anchor bolt erection drawings to the concrete trade in advance of applicable concrete work and in coordination with concrete construction sequence.
20. Submit, in writing, any proposed deviations from the Contract Documents, prior to the submission of shop drawings showing the proposed deviation. Submit requests for deviations on the steelwork subcontractor's letterhead. Deviations not identified, or identified only in letters of transmittal or in shop drawings or both, without the required written request, may not be accepted, and shall be sufficient cause for the Commissioner to return each shop drawing containing such deviations without further action. Acceptance of shop drawings containing deviations not detected by the Commissioner during shop drawing review shall not relieve the steelwork subcontractor from

responsibility to conform strictly to the Contract Documents.

21. Prior to resubmission of shop drawings with additions or corrections, circle or bubble and identify all changes. Drawings submitted without each change being clearly identified are subject to return for resubmission.
22. Prior to making shop drawings for any portion of the work involving alterations to an existing structure, make all necessary field observations, measurements and surveys of existing conditions. If probes are required to accomplish such measurements, give timely notice where probes will be required.

C. Submit certified copies of each survey conducted by a surveyor licensed by the state in which the construction is to take place and employed by the structural steel subcontractor. Survey shall show elevations and locations of base plates and anchor bolts to receive structural steel, and final elevations and locations for major members. Indicate discrepancies between actual installation and Contract Documents.

D. Reports:

1. Submit certified copies of mill test reports for all steel furnished. Perform mechanical and chemical tests for all material regardless of thickness or use.
2. Submit certification of recycled steel content. Certification shall clearly indicate post-consumer AND post-industrial recycled steel content for the particular member or members used.
3. Submit mill and fabricator certification of compliance with ISO14001.
4. Submit anchor bolt checking certification as required.
5. Submit qualification certificates of all welders who will perform work on the project.
6. Submit survey of erected steelwork as required.

E. Submit verification of bio-degradable or low VOC, and low Hazardous Air Pollutants (HAPS) cleaning solutions. Provide a cut sheet for all cleaning solutions used in the surface preparation of steel components. Highlight VOC limits and chemical component limits.

1.6 QUALITY ASSURANCE

A. Except as modified by this specification, comply with the applicable provisions and recommendations of the following codes and standards:

1. New York City Building Code, Latest Edition
2. AISC "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings".
3. AISC "Code of Standard Practice for Steel Buildings and Bridges" latest edition.
4. AISC "Seismic Provisions for Structural Steel Buildings", latest edition.
5. Industrial Fasteners Institute "Handbook of Bolt and Bolted Joints" latest edition.
6. RCSC "Specifications for Structural Joints Using ASTM A 325 or A 490 Bolts."
7. ASTM A 6 "General requirements for rolled steel plates, shapes, sheet piling and bars for structural use".
8. AWS D1.1, "Structural Welding Code."
9. AWS A5.18 & A5.28, Structural Welding Code for GMAW
10. SSPC "Painting Manual, Volume 2, Systems and Specifications.", Latest edition.

B. Qualifications for welding work shall be as follows:

1. Qualify welding procedures and welding operators in accordance with the AWS

"Standard Qualification Procedure."

a. Include amended requirements of the building code as noted above.

2. Submit certification that all welders to be employed in work are AWS qualified. If re-certification of welders is required, retesting will be responsibility of structural steel subcontractor.

a. Include licensing requirements as per the building code noted above and local jurisdiction.

1.7 TESTING AND INSPECTION

A. Special Inspection as required by the applicable Building Code of all structural steelwork in the shop and field will be performed by the City of New York. 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. Cutting lists, order sheets, material bills, shipping bills and mill test reports.
4. Information as to time and place of all rollings and shipment of material to shops.
5. Representative sample pieces as requested by the testing agency.
6. Full and ample means and assistance for testing all material.
7. 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 and bolts:

1. All welds and bolts shall be examined by visual means.
2. 25% of all welds, selected randomly, shall be measured.
3. 25% of all bolts, selected randomly, shall be checked with calibrated torque wench.
4. In addition, all welds subject to tensile stress shall be examined by the Ultrasonic Method for 100% of their length.
5. 10% of all manual fillet welds shall be tested by the magnetic particle method.
6. 1'-0" at each end of automatic fillet welds shall be tested by the magnetic particle method.
7. 100% of groove welds shall be tested by the ultrasonic method.

D. Shop inspection will include examination of steel for straightness and alignment, fissures, mill scale, and other defects and deformities, as described in ASTM A6, examination of fabricated pieces for conforming to approved shop drawings, testing of bolts and welds, and inspection of shop painting. All shop welds shall be visually inspected and spot tested using Ultrasonic Method ASTM E 114 and AWS, Chapter 6, Part C. All inspected welds shall be identified by the inspector.

E. Field inspection will include examination of erected steel for welding, proper fitting and tensioning of bolts, alignment, trueness and plumbness, touching-up of shop coat, level of billets and base plates.

F. 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 Commissioner.
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.

G. 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 Commissioner. 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 Commissioner.

H. Apparatus and procedure for measuring torque and tension in high strength bolts and for calibrating wrenches shall be furnished and maintained by steel contractor, and shall be approved by the inspection agency. Wrenches shall be calibrated each day at the beginning of the work, each time the bolt size or length of pressure hose is changed, and at such other times as the inspection agency may direct. Periodic checks of high strength steel bolt connections will be made in the field by the inspection agency. The steel contractor shall maintain at all times during erection a manual torque wrench, and shall provide a laborer and scaffolding as required for the testing of connections by the inspection agency, and shall at his own expense, furnish such facilities and provide such assistance as may be required for proper inspection.

I. A distinguishing mark will be placed on all work that has been inspected and approved. Material or work that is not acceptable will be designated by words such as "REJECT" or "REPAIR" marked directly on the material or work.

J. Inspection of Shop Painting:

1. Visually evaluate surface preparation by comparison with pictorial standards in accordance with SSPC-Vis 1.
2. Measure dry film thickness of each coat with a magnetic film thickness gauge in accordance with SSPC-PA 2.
3. Visually inspect dried film for runs, sags, dry spray, overspray and missed areas.
4. Repair defective or damaged areas in accordance with painting requirements specified. Architecturally exposed structural steel shall be free of runs and holidays. Make repairs to shop or field coat as directed.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to site at such intervals to ensure uninterrupted progress of work. Minimize the disturbances to site and soil conditions.

B. Deliver anchor bolts and anchorage devices, which are to be embedded in cast-in-place concrete, in ample time not to delay work.

C. Store materials to permit easy access for inspection and identification. Keep steel members in a safe, dry, off ground location, using pallets, platforms, or other supports. Protect steel members and packaged materials from corrosion and deterioration, discoloration or staining.

D. Do not store materials on structure in a manner that might cause distortion or damage to members of supporting structures. Repair or replace damaged materials or structures as directed.

1.9 PROJECT CONDITIONS

A. The structural steel contractor shall coordinate the structural steel work with the work of other Contracts. Verify all dimensions and details of this Contract and those of other Contracts that affect the work before proceeding. Any discrepancies shall be immediately reported to the Commissioner.

B. Be fully responsible for the accurate installation of the work. Any discrepancy which arises from his failure to execute the work in conformity to the drawings and specifications shall be properly remedied at the contractor's own expense and in a manner acceptable to the Commissioner.

C. Locate dimensionally on setting plans all anchor bolts, inserts, bearing and base plates, etc., and prepare and deliver all required templates and fully dimensioned setting plans in time for the proper execution of the work. Anchor bolts shall be set by another subcontractor. The structural steel contractor shall check all such settings for correctness after they have been cast in place, and before proceeding with erection work.

D. Report to the Commissioner and certify compliance with the above checking requirements in writing and indicate any inaccuracies found in the location of anchor bolts or inserts, and corrections which must be made to their installation. Any inaccuracies not included in the report and found during or after steel erection shall be the responsibility of the structural steel contractor and the cost of corrective measures shall be borne by him.

E. Use base lines, bench marks, or other standards for survey work that have been provided or verified by others. If permanent building bench marks have been established, these will be used for field checking.

F. Coordinate with all other trades to insure that work of this section does not cause undue conflict. Insure that location of erection devices such as cranes, derricks, booms or hoists, does not cause over-stresses to steel frame to work previously placed by other trades or to existing structures. When required, retain the services of a licensed professional engineer to ascertain that erection devices do not create unsafe conditions or cause overstresses.

G. Ensure full co-ordination with other related trades and professions.

1.10 SUBSTITUTION

A. Commissioner reserves the right to require substitute shapes of other sizes 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.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Steel shapes, including structural steel wide flange and structural tee rolled shapes, channels, angles, plates, pipe, and hollow structural sections: As noted on structural drawings.

B. High Strength Bolts:

1. Slip-critical bolts as noted on structural drawings, with hardened washers

C. Anchor Bolts: As noted on structural drawings

D. Filler metal for welding electrodes. As noted on structural drawings.

E. Structural steel primer paint: rust inhibitive primer conforms to the following criteria

1. Demonstrate a minimum of adhesion as classified by 4B of ASTM D 3359 method A
2. Demonstrate a minimum opacity as determined by ASTM D 2805
3. Demonstrate corrosion resistance per standards ASTM B 117 & ASTM D 5894
4. "Slip Critical" compatible rating where applicable
5. The product shall not contain any of the prohibited compounds as listed in Green Seal *Standard for Paintings and Coatings*, GS-11, latest edition and in Master Painters Institute (MPI) *Green Performance Standard*, GPS-1-08.
6. The product shall meet the VOC limits as set forth in the MPI Green Performance Standard, GPS-1-08, with a maximum allowable VOC of 340 g/L for rust preventative coatings. Limits are expressed in THINNED state. Preference shall be given to products with the least crystalline silica content.
7. The product shall meet all the requirements of MPI Standards: 23, 26, 76, 79, 95, 107, 135, 173, 275. Products not listed with MPI are acceptable if and only if they meet the same environmental criteria for the same product category.

    a. Exterior exposed steel, normal conditions: Use alkyd or polyamide solvent based paints (MPI #'s 76, 79 & 101)
    b. Interior exposed steel: Use water based paint (MPI # 107)
    c. Special Applications, highly corrosive environments: Use zinc rich paints (MPI #'s 20 & 200)

F. Structural steel field paint for exposed members: rust inhibitive primer conforms to the following criteria

1. Demonstrate a minimum of adhesion as classified by 4B of ASTM D 3359 method A
2. Demonstrate a minimum opacity as determined by ASTM D 2805
3. Demonstrate corrosion resistance per standards ASTM B 117 & ASTM D 5894
4. "Slip Critical" compatible rating where applicable.
5. The product shall not contain any of the prohibited compounds as listed in Green Seal *Standard for Paintings and Coatings*, GS-11, latest edition and in the Master Painters Institute *Green Performance Standard*, GPS-1-08.

6. The product shall meet the VOC limits as set forth in the MPI Green Performance Standard, GPS-1-08, with a maximum allowable VOC of 400 g/L for rust preventative coatings. Limits are expressed in THINNED state. Preference shall be given to products with the least crystalline silica content.
7. The product shall meet all the requirements of MPI Standards: 23, 26, 76, 79, 95, 107, 135, 173, 275. Products not listed with MPI are acceptable if and only if they meet the same environmental criteria for the same product category. Products not listed with MPI are acceptable if and only if they meet the same environmental criteria for the same product category.

    a. Exterior exposed steel, normal conditions: Use alkyd or polyamide solvent based paints (MPI #'s 23, 79)
    b. Interior exposed steel: Use water based paint (MPI # 107)

PART 3 - EXECUTION

3.1 FABRICATION

A. All shop connections shall be high strength bolted unless specifically shown otherwise. Fabricate work in shop in as large assemblies as practicable. Use welded connections ONLY where shown on drawings. If a bolted connection is not possible obtain written approval from the Commissioner for the welded connection.

B. Camber: As indicated on drawings.

C. Mill column ends and bearing stiffeners to give full bearing over the cross section. Plane contact surfaces of bearing plates when required by the AISC Specifications. It is not necessary to plane bottom surfaces of plates on grout beds.

D. Drill or punch holes at right angles to the surface of the metal, not more than 1/16" larger than the connector diameter. Do not make or enlarge holes by burning. Drill material having a thickness in excess of the connector diameter and material thicker than 7/8". Holes shall be clean-cut without torn or ragged edges. Remove outside burrs resulting from drilling operations.

E. Provide holes in members to permit connection of the work of other trades. Use suitable templates for proper location of these holes. Steel requiring adjustment or accurate alignment shall be provided with slotted holes or full bearing shims as shown.

F. Provide holes, slots and openings required by other trades together with necessary reinforcing required. Use suitable templates for proper location of these openings. All such openings shall be shown on the shop drawings. No change in size or location will be permitted without prior approval.

G. Manual flame cutting shall be done only with a mechanically guided torch. An unguided torch may be used provided the cut is within 1/8" of the required line.

3.2 SHOP CONNECTIONS

A. Provide connections as shown on the drawing exactly as detailed. Where connections are not

detailed, the minimum connections shall comply with appropriate tables headed, "Framed Beam Connections" shown in the AISC "Manual of Steel Construction" unless otherwise noted on the drawings. Use high strength bolts unless otherwise shown.

B. Do not use welded connections unless shown on details. Filed welding is not allowed without written instruction from the Commissioner.

C. Proportion and detail all connections on shop drawings to resist forces shown on design drawings. If no reactions are indicated on design drawings, design connections for non-composite beams to resist the end reaction shown in the AISC tables for Uniform Load Constants for Beams. Connections for composite beams shall be proportioned to resist 150% of the above mentioned tabulated load.

D. Bolting

1. Bolts shall be of a length that will extend not less than 1/4" beyond the nuts. Enter bolts into holes without damaging the thread.
2. Use high-strength bolts in friction as shown. Make high-strength bolted joints without the use of erection bolts. Bolt heads and nuts shall rest squarely against the metal. Where structural members have sloping surface, bolted connections shall be provided with beveled washers to afford square seating or framing for bolt heads or nuts. Bring members tightly together with sufficient high-strength "fitting-up" bolts which shall be retightened as all the bolts are finally tightened. Manual torque wrenches will not be accepted for final tightening. Protect bolt heads from damage during placing. Final tightening of high-strength bolts shall be by properly calibrated power torque wrenches. Bolts that have been completely tightened shall be marked for identification.

E. Welding

1. The following environmentally preferable welding processes shall be used as described for the related application without exception:

    a. Submerged Arc Welding (SAW): Plate girders, fillet and butt joints in pipes, cylinders, columns and beams, and welds where 'downhand' or horizontal positions are possible.
    b. Gas Metal Arc Welding (GMAW) shall be used where SAW is not applicable (such as for angled connections and anything irregular or short).
    c. Field welding shall be allowed only in special circumstances; in such cases Flux Core Arc welding (FCAW) shall be specified

2. Do not begin structural welding until joint elements are inspected for surface preparation, fit-up, and cleanliness of surface to be welded and are then bolted or tacked in intimate contact and adjusted to dimensions shown on drawings, or both, with allowance for any weld shrinkage that is expected. No members are to be spliced without prior approval by the Commissioner.

    a. Containment surface preparation debris must meet SSPC-Guide 6 guidelines.

3. Pre-heat and interpass temperature shall be in accordance with Table 4.2 (including footnotes) of the AWS Code for Welding in Building Construction. The temperature shall be measured from the side opposite to that which the pre-heat is applied, where possible.
4. All groove welds shall be continuous and full penetration welds unless otherwise shown on the design drawings. Welds made without the aid of a back-up bar shall have their

roots chipped, ground or roughened out to sound metal from the second side, before welding is done from the second side.

5. All welds shall be sound throughout. There shall be no crack in any weld or weld pass. Weld may be considered sound if it contains only slight porosity or fusion defects which are well dispersed.
6. The heat, input, length of weld and sequence of weld shall be controlled to prevent distortions. The surfaces to be welded and the filler metals to be used shall be subject to inspection before any welding is performed.

3.3 SHOP PAINTING AND CLEANING

A. Finishing, coating, plating

1. Shop painting and factory finishing shall be preferred to field painting whenever possible. Where applicable, finishes and surface preparations based on a physical process such as abrasive blasting, grinding, buffing and polishing are preferred to coatings and solvent based cleaning. Where coatings are necessary powder-coated fabrication is preferred to painting and plating. Avoid plated metals especially those using cadmium and chromium as plate material or cyanide or copper/formaldehyde based electroless copper as the plating solution.

B. Remove all rust, scale, grease and other detrimental foreign matter in accordance with SSPC-SP 3, Power Tool Cleaning, unless conditions/opportunities listed below apply.

1. Use surface preparation classification recommended by paint manufacturer, SSPC or Master Painters Institute (MPI) for paint product used.

   a. SSPC-Guide 6, Guide for Containing Debris Generated During Paint Removal Operations, must be followed for all applicable surface preparation techniques.

C. Immediately after surface preparation, apply structural steel primer paint where specified, in accordance with manufacturer's instructions and at a rate to provide dry film thickness of not less that 2.0 mils. Use painting methods which result in full coverage of joints, corners, edges and exposed surfaces. Use type of primer paint as specified in "Materials" article above. Apply two coats to surfaces that will be inaccessible after erection

D. Paint all structural steel in accordance with the foregoing specification, except as follows:

1. Steel which is to receive spray-on fireproofing.
2. Within 2" of field welds or welds made after paint is applied.
3. Within 3" of high strength friction bolts.
4. Machined surfaces and threaded parts required for adjustment of the structure. Protect these with suitable rust inhibiting coating which may be removed after final installation of the work so that proper finished coatings may be applied.

3.4 GALVANIZING

A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel according to ASTM A 123/A 123M.

1. Fill vent and drain holes that will be exposed in the finished Work unless they will function

as weep holes, by plugging with zinc solder and filing off smooth.

3.5 SOURCE QUALITY CONTROL

A. Refer to testing and inspection requirements specified above.

3.6 EXAMINATION

A. Verify field measurements prior to start of erection. Check the alignment and elevation of all column supports and location of all anchor bolts with transit and level instruments before starting erection. Notify Commissioner of any errors. Obtain Commissioner's approval of methods proposed for correcting errors prior to proceeding with corrections and erection.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.7 PREPARATION

A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated.

3.8 ERECTION

A. Set structural steel accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.

B. Maintain erection tolerances of structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."

C. Column billets and bearing plates shall be supported and aligned on steel wedges, shims, or leveling nuts. After the supported members have been plumbed and properly positioned by instrument and anchor nuts tightened, the entire bearing area under the plate shall be packed solidly with grout specified in another Section. Wedges and shims shall be set back a minimum of 3/4" from the edges of plates and shall be left in place. Leveling plates are not permitted.

D. Plumbing, Leveling and Bracing

1. Structural steel shall be erected true and level, and temporary bracing shall be introduced wherever necessary to provide for all loads to which the structure may be subjected, including equipment and the operation thereof. Such bracing shall be left in place as long as may be required for safety. No welding shall be done or bolts drawn up tight until structural steel has been properly aligned. Obtain approval for guy locations to assure lack of interference with operations of other trades.

E. Drifting

1. Light drifting necessary to draw holes together will be permitted, but drifting of unfair holes will not be permitted. Twist drills shall be used to enlarge holes as necessary to the

next larger size; use next larger size bolts as required. Reaming that weakens the members, or make it impossible to fill the holes properly or to adjust accurately after reaming, will not be allowed.

3.9 FIELD CONNECTIONS

A. In addition to the requirements for shop connections comply with the following:

1. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
2. Joint Type: As noted on structural drawings.

B. Weld Connections: Comply with AWS D1.1/D1.1M[and AWS D1.8/D1.8M] for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

1. Comply with AISC 303 and AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.
2. Assemble and weld built-up sections by methods that will maintain true alignment of axes without exceeding tolerances in AISC 303 for mill material.

3.10 REPAIRS AND PROTECTION

A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing and repair galvanizing to comply with ASTM A 780.

B. Touchup Painting: Immediately after erection, clean exposed areas where primer is damaged or missing and paint with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

1. Clean and prepare surfaces by SSPC-SP 3, Power Tool Cleaning.

C. Touchup Painting: Cleaning and touchup painting are specified in Division 9.

D. After erection, all damaged areas in shop coat, exposed surfaces of bolt heads, nuts and washers, and all field welds and unpainted areas adjacent to field welds and high strength bolts shall be painted with a "touch-up" application of same paint used in the shop coat and then painted with same paint used for shop coat tinted another color. Retouch in field, any scraped, abraded, and unpainted surfaces. Painting shall be as specified for shop coats.

E. Structural steel which is to support mechanical equipment and will be left exposed to the weather in the finished project shall be field painted with one coat of anti-corrosive paint as described in Part 2 for Paint Materials.

3.11 WASTE MANAGEMENT

A. Separate and recycle waste materials in accordance with the Section 015050 Construction Waste Management and Disposal and to the maximum extent feasible.

B. Separate for recycling and place in designated containers the following metal waste in accordance with the Waste Management Plans and local recycler standards: Steel, iron, galvanized steel, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass and bronze.

C. Collect all metal cut-offs and scraps and recycle as above.

D. Fold up metal banding, flatten and place in designated area.

E. Close and seal tightly all partly used paint and finish containers and store protected in a well-ventilated, fire-safe area at moderate temperature.

F. Designated un-used paint for:

1. Immediate re-use
2. Long term maintenance needs
3. Recycling by an appropriate facility.
4. Donation

G. Place empty containers of solvent-based paints in areas designated for hazardous materials.

H. Do not dispose of paints or solvents by pouring on the ground. Place amounts too small to re-use in designated containers for proper disposal

I. Place materials defined as hazardous or toxic waste in designated containers.

END OF SECTION

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SECTION 05 31 00 - STEEL DECKING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to the work of this Section.

1.2 SUMMARY

A. Section includes but is not limited to the following as shown on the drawings and as specified herein:

1. 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, plates, and etc.
5. Flashing, cell closures, closure plates and sheet metal work required to contain concrete.
6. Ceiling hanger tabs at new decking composite with concrete where new suspended ceilings are required.
7. Waste Management.

B. Related Requirements:

1. Concrete and reinforcement over decking
2. Structural steel
3. Shoring of metal deck where unsupported span exceeds the allowable
4. Ceiling systems
5. Mechanical and electrical where supported from deck
6. Fireproofing systems
7. Sheet metal work
8. Waste Management/Recycling Strategies

1.3 PERFORMANCE REQUIREMENTS

A. Metal deck unit sizes and gages are indicated on the drawings. Gages indicated on the drawings are a minimum. Thickness of deck may be required to be increased by deck manufacturer for loadings indicated on drawings.

B. Unit shall span over three or more supports except where steel layout does not permit.

C. Maximum allowable deflection under live load plus super imposed dead load shall not exceed (1/360) of the span or (1/4) inch whichever is less.

D. Deck shall be sized as unshored. Shoring of deck is not permitted unless specifically shown in areas on the drawings.

E. Use of piercing, non-piercing, and integral hanger tabs is not permitted at roof deck.

F. Units included in a fire rated assembly must be classified in appropriate UL design.

1.4 SUBMITTALS

A. Product Data: Product data, including manufacturer's specifications, load tables, section properties and installation instructions for each type of decking and accessories.

B. Shop Drawings: Shop drawings for all installations showing gauges, deck layout, type of deck, any shoring required, where located, welding details necessary for fabrication to fit in place, and all accessories. Do not use reproductions of the Design Drawings. In addition include the fol-

lowing:

1. Ceiling tab, fillers, closures and similar items.
2. Show placement of headed shear studs connectors with respect to the flutes of the metal deck. Variation from the specified deck configuration may result in a decrease of the capacity of the studs, requiring more studs.

C. Product Certificates: Certification of specification compliance for each item specified.

D. Shop drawings showing exact placement of all headed shear studs connectors with respect to the flutes of the metal deck. Variation from the specified deck configuration may result in a decrease of the capacity of the studs, requiring more studs.

E. Reports

1. Submit certification of recycled steel content. Certification shall clearly indicate post-consumer AND post-industrial recycled steel content for the particular member or members used.
2. Submit mill and fabricator certification if in compliance with ISO14001.
3. Submit verification of finishing process:

   a. Provide a cut sheet and a Material Safety Data Sheet (MSDS) for all shop and field paints used highlighting VOC limits and chemical and mineral component limits.
   b. For heavy metals in used plating processes: Provide a cut sheet and a Material Safety Data Sheet (MSDS) for each plating material and related compounds highlighting chemical component limits.
   c. Certification of recycled zinc content for galvanized products: Provide cut sheets clearly indicating whether the galvanized products used meet the minimums for post-consumer OR post-industrial recycled contents. Or, if cut sheets are not available, obtain a written affidavit from the manufacturer stating the recycled content percentage and if the recycled content is post-consumer or post-industrial.

4. Submit verification of biodegradable or low VOC, and low Hazardous Air Pollutants (HAPS) cleaning solutions. Provide a cut sheet and a Material Safety Data Sheet (MSDS) for all cleaning solutions used in the surface preparation of steel components. Highlight VOC limits and chemical component limits.

F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that each of the following complies with requirements:

1. Power-actuated mechanical fasteners.
2. Acoustical roof deck.

G. Evaluation Reports: For steel deck.

1.5 QUALITY ASSURANCE

A. Except as modified by governing codes and by this specification, comply with the applicable provisions and recommendations of the following codes and standards:

1. New York City Building Code, Latest Edition
2. American Iron and Steel Institute (AISI) "Specification for the Design of Cold-Formed Steel Structural Members".
3. American Welding Society (AWS), D1.1 "Structural Welding Code" and D1.3 "Structural Welding Code-Sheet Steel".
4. Steel Deck Institute (SDI) "Design Manual for Composite Decks, Form Decks, and Roof Decks".

B. 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 re-

quirements of the Contract Documents.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to site at such intervals to ensure uninterrupted progress of work. However, efforts should be made to minimize the disturbance to site and soil conditions for example, by not requiring excessive areas to be put aside for on-site storage.

B. Store materials to permit easy access for inspection and identification. Keep all materials in a safe, dry, off ground location, using pallets, platforms, or other supports. Protect all materials from corrosion and deterioration, discoloration or staining. Make efforts to minimize any wastage and ensure that as much waste as possible is recycled.

C. Do not store materials on structure in a manner that might cause distortion or damage to members of supporting structures. Repair or replace damaged materials or structures as directed.

1.7 PROJECT CONDITIONS

A. Examine all work prepared by others to receive work of this section and report any defects affecting installation to the contractor for correction. Commencement of work will be construed as complete acceptance of preparatory work by others.

B. If the supporting beams are not properly aligned or sufficiently level to permit proper bearing of the steel decking units, the steel decking contractor shall bring the matter to the attention of the contractor for corrective action. The steel decking units are not to be placed until the necessary correlations are made.

C. Installation of the deck and shear studs will be inspected by the Commissioner and/or The City Of New York's agent.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. 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."

2.2 MANUFACTURERS

A. Supply manufactured deck units in accordance with the applicable requirements of the Steel Deck Institute's "Design Manual for Floor Decks and Roof Decks".

B. Deck shall be manufactured by one of the following (or other equivalent as approved by the Commissioner):

1. United Steel Deck (manufactured by Canam)
2. Wheeling Corrugating Co.
3. Vulcraft

2.3 DECK MATERIALS

A. Composite Floor Deck: Fabricate panels, with integrally embossed or raised pattern ribs and interlocking side laps, to comply with "SDI Specifications and Commentary for Composite Steel Floor Deck," in SDI Publication No. 31, with the minimum section properties indicated on the drawings. Contractor shall provide heavier gauge if the minimum gauge indicated is not sufficient to support construction loads as unshored forms and/or total load as indicated on the drawings based on the composite section. Deck shall have deformations specifically designed to produce composite action between the deck and the concrete slab by mechanical bond.

B. Non-composite Form Deck: Fabricate ribbed-steel sheet non-composite form-deck panels to comply with "SDI Specifications and Commentary for Non-composite Steel Form 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. Mechanical Fasteners: Corrosion-resistant, low-velocity, power-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.

B. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, No. 10 minimum diameter.

C. Anchor clips, vent clips, welding washers, flashing, saddle plates, sump pans, other accessories shall be those types, sizes, and configurations recommended by the decking manufacturer, and shall be of the same material and finish as the deck units. All accessories shall conform to ASTM A653/A63M.

D. Cell closure flexible strips, and fillers shall be of material in compliance with applicable building code governing class of construction.

E. Provide metal closure strips at edges of all slabs and openings that serve as pour stops for concrete. Gauge shall be sufficient to span or cantilever from steel beams.

F. Roof sump pans: Fabricate from a single piece of galvanized sheet steel of the same quality as the deck units; not less than nominal 0.0747" (14 gauge) thick before galvanizing; with bottoms level after erection and sloping sides to 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.

G. Headed studs for shear connectors shall be per drawings manufactured from cold drawn wire and conforming to ASTM A 108, Grades 1010 thru 1020.

1. Subject to compliance with requirements, studs shall be manufactured by one of the following:

a. Nelson
b. KSM

H. 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 5894

2. For all 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

3. The product shall not contain any of the prohibited compounds as listed in Green Seal *Standard for Paintings and Coatings*, GS-11, latest edition and in Master Painters Institute (MPI) *Green Performance Standard*, GPS-1-08.

4. The product shall meet the VOC limits as set forth in the MPI Green Performance Standard, GPS-1-08, with a maximum allowable VOC of 340 g/L for rust preventative coatings. Limits are expressed in THINNED state. Preference shall be given to products with the least crystalline silica content.

2.5 FABRICATION

A. Fabricate deck units in accordance with the AISI's "Specification for the Design of Cold-Formed Steel Structural Members" and accepted shop drawings. Fabricate deck units to the sizes and configurations indicated and cut to lengths which will span not fewer than three supporting members; use only full length units at overhang where indicated in a manner that laps fit tightly. Locate openings for penetrations where indicated and provide support framing and edge reinforcement for all openings.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine supporting frame and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSPECTION

A. Special 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 City Of New York. 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.

3.3 INSTALLATION, GENERAL

A. Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 31, manufacturer's written instructions, and requirements in this Section. Erection shall closely follow the erection of structural steel.

B. Install temporary shoring before placing deck panels if required to meet deflection limitations.

C. Locate deck bundles to prevent overloading of supporting members as per load schedule provided on contract documents.

D. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.

E. Provide additional reinforcement and closure pieces at openings as required for strength, continuity of deck, and support of other work, per drawings and manufacturer's specifications and .

F. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.

G. 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 all studs which do not pass test.

H. All welding shall be performed by competent experienced welding mechanics. All welds shall be given a protective coat of paint as specified in painting article of section 051200.

I. 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.

3.4 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 nominal 0.0747" (14 gauge) thick before galvanizing; with bottoms level after erection and sloping sides to 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 to substrate to provide a complete deck installation.

1. Weld cover plates at changes in direction of roof-deck panels unless otherwise indicated.

3.5 FLOOR DECK INSTALLATION

A. Fasten floor-deck panels to steel supporting members per the drawings.
B. Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports per the 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" minimum or butted at Contractor's option.

D. All unframed deck openings in composite deck with concrete larger than 6" shall be reinforced per the drawings.
E. At composite deck with concrete, metal hanger tabs shall be installed at all panel sidelaps 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.
F. Pour Stops and Girder Fillers: Weld steel sheet pour stops and girder fillers to supporting structure according to SDI recommendations unless otherwise indicated.
G. Sealing cellular deck openings, butt joints, and junctions with trench headers with tape is not included in this Section.
H. 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.
I. 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.
J. Deck shall, where possible, span 3 or more supports.
K. All welding shall be performed by competent experienced welding mechanics. All welds, shall be given a protective coat of paint as specified in painting article of section 099100.
L. 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.
M. 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 all studs which do not pass test.
N. Do not remove temporary shoring supporting composite deck construction until cast-in-place concrete has attained its design compressive strength.

3.6 FIELD QUALITY CONTROL

A. Special Inspection as required by the applicable Building Code of all metal decking will be performed by The City Of New York at no expense to the Contractor. Contractor shall provide the inspection agency with the following:

1. Schedule of all work in 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 bills, 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 Commissioner.
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 Commissioner. 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 Commissioner.

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 designated 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 Commissioner.

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.

3.7 CLEANING UP

A. Remove all equipment, unused materials and debris from the site immediately upon the completion of this work.

3.8 WASTE MANAGEMENT

A. Separate and recycle waste materials in accordance with the Section 015050 Construction Waste Management and Disposal and to the maximum extent feasible.
B. Separate for recycling and place in designated containers the following metal waste in accordance with the Waste Management Plans and local recycler standards: Steel, iron, galvanized steel, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass and bronze.
C. Collect all metal cut-offs and scraps and recycle as above.
D. Fold up metal banding, flatten and place in designated area.
E. Close and seal tightly all partly used paint and finish containers and store protected in a well-ventilated, fire-safe area at moderate temperature.
F. Designated un-used paint for:

1. Immediate re-use
2. Long term maintenance needs
3. Recycling by an appropriate facility.
4. Donation

G. Place empty containers of solvent-based paints in areas designated for hazardous materials.
H. Do not dispose of paints or solvents by pouring on the ground. Place amounts too small to re-use in designated containers for proper disposal
I. Place materials defined as hazardous or toxic waste in designated containers.

END OF SECTION

SECTION 055000 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide metal fabrications in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Miscellaneous steel framing and supports for countertops, and casework mechanical and electrical equipment, and locations where framing and supports are not specified in other Sections.
2. Rough hardware.
3. Steel weld plates and angles for casting into concrete.
4. Loose bearing and leveling plates.
5. Floor grating platforms and treads (catwalks) with plywood deck, carpet surfacing, and railing system, as indicated.
6. Steel dunnage for rooftop mounted equipment.
7. Steel ladders.

B. Products furnished, but not installed, under this Section:

1. Anchor bolts, steel pipe sleeves, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.

C. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".
5. Division 9 Section Wood Flooring for plywood subfloor products.
6. Division 9 Section "Sheet Carpeting" for carpet products.

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 PERFORMANCE REQUIREMENTS

A. Delegated Design: Design ladders, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

B. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

1.4 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: Submit manufacturer's technical data, installation instructions and finish requirements for metal fabrications and the following:

1. Paint products.
2. Grout.

C. Shop Drawings: Show fabrication and installation details for metal fabrications.

1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.

D. Welding Certificates: Signed by Contractor certifying that welders comply with AWS requirements.

E. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers certifying that shop primers are compatible with topcoats.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: Firm experienced in producing metal fabrications similar to those indicated for this Project with a record of successful in-service performance, and with sufficient production capacity to produce required units without delaying the Work.

B. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1, "Structural Welding Code - Steel."

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

1.7 COORDINATION

A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.

B. Coordinate installation of anchorages and steel weld plates and angles for casting into concrete. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 METALS, GENERAL

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

2.2 FERROUS METALS

A. Steel Plates, Shapes, and Bars: ASTM A 36.

B. Steel Pipe: ASTM A 53, standard weight (Schedule 40) unless otherwise indicated.

C. Steel Tubing: ASTM A 500, cold-formed steel tubing.

D. Steel Bars for Bar Gratings: ASTM A 36 or steel strip, ASTM A 1011 or ASTM A 1018.

E. Wire Rod for Bar Grating Crossbars: ASTM A 510.

F. Cast Iron: Either gray iron, ASTM A 48, or malleable iron, ASTM A 47, unless otherwise indicated.

G. Slotted Channel (Unistrut) Framing: Cold-formed metal box channels (struts) complying with MFMA-4.

1. Size of Channels: 1-5/8 by 1-5/8 inches, or as indicated on the Drawings.
2. Material: Cold-rolled steel, ASTM A 1008, either commercial steel, Type B or structural steel, Grade 33; 0.060-inch minimum thickness; hot-dip galvanized after fabrication, with surface sanded and blast cleaned, as per requirements of this Section.
3. Slotted channel framing members shall be from a new product lot. Framing obtained from an older lot that has been stored and subject to weathering shall not be accepted.

2.3 FASTENERS

A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.

1. Slotted Channel (Unistrut) Framing: For unistrut framing, provide socket head cap type screws only. Bolts and nuts shall not be acceptable.

B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A; with hex nuts, ASTM A 563; and, where indicated, flat washers.

C. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, ASTM F 593; with hex nuts, ASTM F 594; and, where indicated, flat washers; Alloy Group 1.

D. Anchor Bolts: ASTM F 1554, Grade 36, of dimensions indicated; with nuts, ASTM A 563; and, where indicated, flat washers.

1. Hot-dip galvanize or provide mechanically deposited, zinc coating where item being fastened is indicated to be galvanized.

E. Eyebolts: ASTM A 489.

F. Machine Screws: ASME B18.6.3.

G. Lag Screws: ASME B18.2.1.

H. Wood Screws: Flat head, ASME B18.6.1.

I. Plain Washers: Round, ASME B18.22.1.

J. Lock Washers: Helical, spring type, ASME B18.21.1.

K. Anchors, General: Anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.

L. Cast-in-Place Anchors in Concrete: Either threaded type or wedge type unless otherwise indicated; galvanized ferrous castings, either ASTM A 47 malleable iron or ASTM A 27 cast steel. Provide bolts, washers, and shims as needed, all hot-dip galvanized per ASTM F 2329.

M. Post-Installed Anchors: Torque-controlled expansion anchors.

1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, unless otherwise indicated.
2. Material for Locations where Stainless Steel is Indicated: Alloy Group 1 stainless-steel bolts, ASTM F 593, and nuts, ASTM F 594.

2.4 MISCELLANEOUS MATERIALS

A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

B. Shop Primers: Provide primers that comply with Division 9 Section "Painting".

C. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

E. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.5 FABRICATION, GENERAL

A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

D. Form exposed work with accurate angles and surfaces and straight edges.

E. Weld corners and seams continuously 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. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.

G. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

1. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches, with a minimum 6-inch embedment and 2-inch hook, not less than 8 inches from ends and corners of units and 24 inches o.c., unless otherwise indicated.

2.6 MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.

B. Fabricate units to sizes, shapes, and profiles indicated and required to receive other adjacent construction retained by framing and supports. Fabricate from structural steel shapes, plates, and steel bars of welded construction using mitered joints for field connection. Cut, drill, and tap units to receive hardware, hangers, and similar items.

1. Fabricate units from slotted channel framing where indicated.
2. Equip units with integrally welded anchors for casting into concrete or building into masonry. Furnish inserts if units must be installed after concrete is placed.

C. Fabricate supports for countertops from steel angles, channels, anchors and fastener of length, size, and profile, as indicated on Drawings or as selected by Commissioner. Provide additional accessories as required for complete assembly.

D. Galvanize miscellaneous framing and supports in the following locations:

1. Interior locations where indicated.

2.7 ROUGH HARDWARE

A. Furnish bent, or otherwise custom-fabricated, bolts, plates, anchors, hangers, dowels, and other miscellaneous steel and iron shapes as required for framing and supporting rough carpentry, and for anchoring or securing rough carpentry to concrete or other structures. Straight bolts and other stock rough hardware items are specified in Division 6 Section "Rough Carpentry".

B. Fabricate items to sizes, shapes, and dimensions required. Furnish malleable-iron washers for heads and nuts that bear on wood structural connections, and furnish steel washers elsewhere.

2.8 STEEL WELD PLATES AND ANGLES

A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the Work. Provide each unit with not less than two integrally welded steel strap anchors for embedding in concrete.

B. Provide formed or bent steel plates for anchoring concrete masonry wall units to supporting beams and framing.

1. Galvanize steel weld plates, unless otherwise indicated.

2.9 LOOSE BEARING AND LEVELING PLATES

A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.

B. Galvanize plates after fabrication.

2.10 CATWALKS

A. General: Provide catwalk assemblies as indicated on the drawings, including railings and other supports.

B. Catwalks shall be fabricated from cold rolled steel tread plate and steel gratings, with steel hangers, framing members and pipe railings.

1. Provide gratings of patterns, sizes, and spacing bar sizes indicated complying with NAAMM "Metal Bar Grating Manual".
2. Fabricate grating treads with steel plate nosing on one edge and with steel angle or steel plate carrier at each end for string connections.

C. Description: Welded bar gratings, with 1-1/4 inch by 1/8 inch thick bearing bars, 1-3/16" o.c. and cross bars 4 inch o.c.

1. Basis of Design: Subject to compliance with requirements, provide "GW 125A" as manufactured by McNichols, or approved equal from one of the following:

a. McNichols.
b. Alabama Metal Industries Corporation; a Gibraltar Industries company.
c. Fisher & Ludlow; Division of Harris Steel Limited.
d. IKG Industries; a division of Harsco Corporation.

D. Provide catwalks with side braces and all other accessories required for a rigid and secure installation.

E. Railings: Comply with specified requirements for steel pipe railings.

1. General: Fabricate pipe railings and handrails to comply with requirements indicated for design, details, and sizes, but not less than that required to support structural loads.
2. Interconnect railing and handrail members by butt-welding or welding with internal connectors, at fabricator's option.

a. At intersections, notch ends of intersecting members to fit contour of pipe to which end is joined and weld all around.

3. Bend pipe to produce uniform curvature for each repetitive shape required; maintain cylindrical cross-section of pipe throughout entire bend without deforming pipe.
4. Provide wall returns at ends of wall-mounted handrails, unless otherwise shown.
5. Close exposed ends of pipe by welding 3/16 inch thick steel plate in place or by use of prefabricated fittings. Grind edges smooth, with 1/8" minimum radius.
6. Provide toe boards at railings at the edge of open-sided grating and platforms. Use 4 inches high x 1/8 inch steel plate welded to, and centered between each railing post, unless otherwise indicated.
7. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, end closures, flanges, miscellaneous fittings, and anchors for interconnections of pipe and attachment to other work.

a. For railing posts set in concrete, provide steel pipe sleeves not less than 6 inches long and not less than 1/2 inch larger than the post, with steel plate welded to bottom of sleeve.
b. For railing posts set on concrete, provide anchor bolts, plates and miscellaneous fasteners required to through bolt the railing post anchorages through the concrete slabs, as indicated.

8. For interior steel railings with primer finish, provide primed metal fittings, brackets, fasteners, and sleeves, except galvanize anchors embedded in exterior masonry and concrete.

F. Plywood Deck: Refer to Division 9 Section "Wood Flooring" for materials and installation requirements.

G. Caerpet Finish: Refer to Division 9 Section "Sheet Carpeting" for carpet surfacing material and installation requirements.

2.11 METAL LADDERS

A. General: Comply with ANSI A14.3 unless otherwise indicated.

B. Steel Ladders:

1. Space siderails a minimum of 16 inches apart unless otherwise indicated.
2. Siderails: Continuous steel flat bars, minimum 1/2-by-2-1/2-inch; with eased edges.
3. Rungs: Minimum 3/4-inch diameter round or square steel bars.
4. Fit rungs in centerline of siderails; plug-weld and grind smooth on outer rail faces.
5. Provide nonslip surfaces on top of each rung, either by coating rung with aluminum-oxide granules set in epoxy-resin adhesive or by using a type of manufactured rung filled with aluminum-oxide grout.
6. Support each ladder at top and bottom and not more than 60 inches o.c. with welded or bolted steel brackets.
7. Prime ladders, to receive field applied paint finish as specified in Division 9 Section "Painting."

2.12 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Finish metal fabrications after assembly.

C. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2.13 STEEL AND IRON FINISHES

A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153 for steel and iron hardware and with ASTM A 123 for other steel and iron products.

1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.
2. Galvanize all exterior steel unless otherwise indicated.

B. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.

1. Shop prime with universal shop primer unless otherwise indicated.

C. Preparation for Shop Priming: Prepare surfaces to comply with requirements indicated below:

1. Interior Items Indicated to Receive High-Performance Finish: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning "
2. Other Interior Items: SSPC-SP 3, "Power Tool Cleaning."

D. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

E. Field Painted Finish: Refer to Division 9 Section "Painting" for products and application of field painted surfaces and substrates.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.

C. Field Welding: Comply with the following requirements:

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. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.

E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.

B. Anchor supports for operable partitions securely to and rigidly brace from building structure.

C. Support steel girders on solid grouted masonry, concrete, or steel pipe columns. Secure girders with anchor bolts embedded in grouted masonry or concrete or with bolts through top plates of pipe columns.

1. Where grout space under bearing plates is indicated for girders supported on concrete or masonry, install as specified below in "Installing Bearing and Leveling Plates" Article.

D. Install pipe columns on concrete footings with grouted baseplates. Position and grout column baseplates as specified below in "Installing Bearing and Leveling Plates" Article.

1. Grout baseplates of columns supporting steel girders after girders are installed and leveled.

3.3 INSTALLING BEARING AND LEVELING PLATES

A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.

B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with grout.

1. Use nonshrink grout, either metallic or nonmetallic, in concealed locations where not exposed to moisture; use nonshrink, nonmetallic grout in exposed locations unless otherwise indicated.
2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.4 ADJUSTING AND CLEANING

A. 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.

1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.

B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

C. Protect finishes of decorative metal from damage during construction period with temporary protective coverings approved by decorative metal fabricator. Remove protective covering at time of Substantial Completion.

D. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

END OF SECTION 055000

SECTION 055100 - METAL STAIRS

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide metal stairs in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Preassembled steel stairs with concrete-filled treads.

B. Refer to Division 5 Section "Decorative Metal Railings" for railing assemblies integral to metal stairs specified in this Section.

C. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 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.
2. Concentrated Load: 300 lbf applied on an area of 4 sq. in.
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/360 or 1/4 inch, whichever is less.

C. Seismic Performance: Metal stairs shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1. Component Importance Factor is 1.5.

1.4 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: Submit product data that verify or are required to ensure compliance with the Contract Documents, to include technical information, shop drawings, samples, calculations, product test reports, etc.

C. Shop Drawings: Submit shop drawings including plans, elevations, sections, details, and attachments to other work.

1. Provide templates for anchors and bolts specified for installation under other Sections.
2. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

D. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for stairs.

E. Welding Certificates: Certification that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

1.5 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: Commercial class.

B. Welding: Qualify procedures and personnel according to the following:

1. AWS D1.1, "Structural Welding Code--Steel."
2. AWS D1.3, "Structural Welding Code--Sheet Steel."

C. Professional Engineer Qualifications: Professional engineer legally authorized to practice in the State of New York and experienced in providing engineering services of the kind indicated for metal stair systems similar in material, design, and extent to that indicated for this Project and that have a record of successful in-service performance.

1.6 COORDINATION

A. Coordinate installation of anchorages for metal stairs. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

B. Coordinate locations of hanger rods and struts with other work so that they will not encroach on required stair width and will be within the fire-resistance-rated stair enclosure.

PART 2 - PRODUCTS

2.1 METALS, GENERAL

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.

2.2 FERROUS METALS

A. Steel Plates, Shapes, and Bars: ASTM A 36.

B. Steel Tubing: ASTM A 500 (cold formed) or ASTM A 513.

C. Uncoated, Hot-Rolled Steel Sheet: ASTM A 1011, either commercial steel, Type B, or structural steel, Grade 30, unless another grade is required by design loads.

2.3 FASTENERS

A. General: Provide zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 25 for exterior use, and Class Fe/Zn 5 where built into exterior walls. Select fasteners for type, grade, and class required.

B. Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A; with hex nuts, ASTM A 563; and, where indicated, flat washers.

1. Specialty Nuts: Non-slip type (U-Style) single thread speed nuts fabricated one piece spring steel with black phosphate finish.
2. Basis of Design: Subject to compliance with requirements, provide "No-Slip Clip-on Nuts", as manufactured by Mc-Master Carr, or approved equal from one of the following:

   a. Interfast.
   b. Modanock Company.

C. Anchor Bolts: ASTM F 1554, Grade 36.

1. Provide hot-dip or mechanically deposited, zinc-coated anchor bolts for stairs indicated to be galvanized.

D. Machine Screws: ASME B18.6.7.

E. Lag Bolts: ASME B18.2.3.8.

F. Plain Washers: Round, ASME B18.22.

G. Lock Washers: Helical, spring type, ASME B18.21.2.

H. Expansion Anchors: Anchor bolt and sleeve assembly with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.

1. Material for Anchors in Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B 633, Class Fe/Zn 5.

2.4 MISCELLANEOUS MATERIALS

A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

B. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer; and compatible with topcoat.

C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

D. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

E. Concrete Materials and Properties: Provide normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of 3000 psi, unless otherwise indicated. Comply with requirements of Division 3 "Section Cast-in-place Concrete."

2.5 FABRICATION, GENERAL

A. Provide complete stair assemblies, including metal framing, hangers, struts, 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.

B. Preassembled Stairs: Assemble stairs in shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch, unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

D. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

E. Form exposed work with accurate angles and surfaces and straight edges.

F. 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 and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface

G. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) screws or bolts unless otherwise indicated. Locate joints where least conspicuous.

H. Fabricate joints that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

2.6 STEEL-FRAMED STAIRS

A. Stair Framing:

1. Fabricate stringers of steel plates or channels.

   a. Provide closures for exposed ends of stringers.

2. Construct platforms of steel plate or channel headers and miscellaneous framing members as needed to comply with performance requirements of authorities having jurisdiction.
3. Weld stringers to headers; weld framing members to stringers and headers.
4. Where stairs are enclosed by gypsum board shaft-wall assemblies, provide hanger rods or struts to support landings from floor construction above or below. Locate hanger rods and struts where they will not encroach on required stair width and will be within the fire-resistance-rated stair enclosure.
5. Where masonry walls support metal stairs, provide temporary supporting struts designed for erecting steel stair components before installing masonry.

B. Metal-Pan Stairs: Form risers, subtread pans, and subplatforms to configurations shown from steel sheet of thickness needed to comply with performance requirements but not less than 0.067 inch.

1. Steel Sheet: Uncoated hot rolled steel sheet, unless otherwise indicated.
2. Directly weld metal pans to stringers; locate welds on top of subtreads where they will be concealed by concrete fill. Do not weld risers to stringers.
3. Attach risers and subtreads to stringers with brackets made of steel angles or bars. Weld brackets to stringers and attach metal pans to brackets by welding, riveting, or bolting.
4. Fill metal-pan subtreads with reinforced concrete. Where indicated, provide abrasive nosings, as selected by the Commissioner.
5. Provide subplatforms of configuration indicated or, if not indicated, the same as subtreads. Weld subplatforms to platform framing.

   a. Smooth Soffit Construction: Construct subplatforms with flat metal under surfaces to produce smooth soffits.

6. Carpet Tread: Refer to Division 9 Section "Carpeting" for materials and requirements of carpet direct glue applied to concrete treads.

C. Refer to Division 5 Sections "Decorative Metal Railings" 057300 for materials and fabrication of railing assemblies in compatible with metal stairs specified in this Section.

2.7 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. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

D. Apply shop primer to uncoated surfaces of metal stair components, except those to be embedded in concrete or masonry unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

E. Finish Coats: Refer to Division 9 Section "Painting" for materials and performance of field applied paint finishes.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing metal stairs to in-place construction. Include threaded fasteners for concrete and masonry inserts, through-bolts, lag bolts, and other connectors.

B. Set units accurately in location, alignment, and elevation, measured from established lines and levels and free of rack.

C. Install metal stairs by welding stair framing to steel structure or to weld plates cast into concrete, unless otherwise indicated.

D. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.

E. Field Welding: Comply with the following requirements:

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. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

F. Place and finish concrete fill for treads and platforms to comply with Division 3 Section "Cast-in-Place Concrete."

G. Install precast concrete treads with adhesive supplied by manufacturer.

3.2 INSTALLING METAL STAIRS WITH GROUTED BASEPLATES

A. General: Provide where indicated on the Drawings or as otherwise directed by the Commissioner.

B. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of baseplates.

C. Set steel stair baseplates on wedges, shims, or leveling nuts. After stairs have been positioned and aligned, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with grout.

1. Use nonmetallic, nonshrink grout unless otherwise indicated.
2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.3 INSTALLATION OF HANDRAILS AND RAILINGS

A. Refer to Division 5 Section "Decorative Metal Railings" 057300 for installation of railing assemblies compatible with metal stairs specified in this Section.

3.4 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.

1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.

END OF SECTION 055100

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SECTION 057300 – DECORATIVE METAL RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide handrails and railings in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Interior steel post cable railings with steel mesh infill and wood toprails, at stair locations indicated.
2. Interior wood handrail, at stair locations indicated.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 PERFORMANCE REQUIREMENTS

A. Delegated Design: Design railings, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

B. General: In engineering railings to withstand structural loads indicated, determine allowable design working stresses of railing materials based on the following:

1. Steel: 72 percent of minimum yield strength.

C. Structural Performance of Handrails and Railings: Provide handrails and railings capable of withstanding the following structural loads without exceeding allowable design working stress of materials for handrails, railings, anchors, and connections:

1. Top Rail of Guards: Capable of withstanding the following loads applied as indicated:

a. Concentrated load of 200 lbf applied at any point and in any direction.
b. Uniform load of 50 lbf/ft. applied horizontally and concurrently with uniform load of 100 lbf/ft. applied vertically downward.
c. Concentrated and uniform loads above need not be assumed to act concurrently.

2. Handrails Not Serving As Top Rails: Capable of withstanding the following loads applied as indicated:

   a. Concentrated load of 200 lbf applied at any point and in any direction.
   b. Uniform load of 50 lbf/ft. applied in any direction.
   c. Concentrated and uniform loads above need not be assumed to act concurrently.

3. Infill Area of Guards: Capable of withstanding a horizontal concentrated load of 200 lbf applied to 1 sq. ft. at any point in system, intermediate rails, balusters, or other elements composing infill area.

   a. Load above need not be assumed to act concurrently with loads on top rails in determining stress on guard.

D. Thermal Movements: Provide handrails and railings that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

E. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1.4 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: Submit manufacturers technical data for manufacturer's product lines of handrails and railings assembled from standard components.

1. Include product data for grout, anchoring cement, and paint products.

C. Shop Drawings: Show fabrication and installation of handrails and railings. Include plans, elevations, sections, details, and attachments to other Work.

1. For installed handrails and railings indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
2. Submit detailed drawings showing interface between new railing infill and existing to which it will be installed.
3. Submit details drawn to scale at not less than one inch per foot. Shop drawings shall contain the design, type of material and load assumptions and shall bear the seal of a licensed Professional Engineer registered in the jurisdiction of Project location.

D. Samples for Verification: For each type of exposed finish required, prepared on components indicated below and of same thickness and metal indicated for the Work. If finishes involve normal color and texture variations, include sample sets showing the full range of variations expected.

1. 6-inch-long sections of each different linear railing member, including handrails, top rails, posts, and balusters.
2. Fittings and brackets.
3. Wood rails.
4. Welded connections.
5. Assembled Samples of railings, made from full-size components, including top rail, post, handrail, and infill. Show method of finishing members at intersections. Samples need not be full height.
6. 12 inch square sample of wire mesh for green railing system, with all required framing and attachments in size and finish to be used for this Project.

E. Product Test Reports: Indicating products comply with requirements, based on comprehensive testing of current products.

1.5 QUALITY ASSURANCE

A. Manufacturer/Fabricator Qualifications: The manufacturer providing the material or equipment specified in this section must, for the past five (5) years, have been regularly engaged in the manufacture of material or equipment similar in type to that required for this Project. Such similar material or equipment provided by the manufacturer must have been in satisfactory service for not less than five (5) years.

B. Installer Qualifications The contractor or subcontractor performing the work of this section must, within the last five (5) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least three (3) projects similar in scope and type to the required work

C. Professional Engineer Qualifications: A professional engineer who is licensed 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 handrails and railings that are similar to those indicated for this Project in material, design, and extent.

D. Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.

E. Source Limitations: Obtain each type of railing through one source from a single manufacturer.

F. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1, "Structural Welding Code - Steel."

G. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.

1. Build mockups as shown on Drawings.
2. Build mockups for each form and finish of railing consisting of two posts, top rail, infill area, and anchorage system components that are full height and are not less than 24 inches in length.
3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 STORAGE

A. Store ornamental handrails and railing systems in clean, dry location, away from concrete and masonry, protected against damage. Provide waterproof covering; allow for air circulation inside the covering.

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify handrail and railing dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide ornamental handrails and railings as indicated on the Drawings. Provide metal free from pitting, seam marks, roller marks, stains, discolorations, and other imperfections where exposed to view on finished units.

B. Steel and Iron: Comply with the following requirements for each form required.

1. Plates, Shapes, and Bars: ASTM A 36.
2. Bars (Pickets): Hot-rolled, carbon steel complying with ASTM A 29, Grade 1010.
3. Iron Castings: Malleable iron complying with ASTM A 47, Grade 32510.
4. Wire Rope/Mesh (Infill Panels): Steel cable/wire, formed into a diamond pattern, woven-wire mesh, of size and diameter as indicated on the Drawings or standard with the selected manufacturer/product.

a. Available Manufacturers: Subject to compliance with requirements, provide diamond mesh wire rope as manufactured by one of the following:

1) Carl Stahl-DécorCable.
2) Jacob Inox, Inc.
3) Nets Unlimited, Inc.
4) Approved equal.

b. Provide steel rods, turnbuckles adjusters, and clevis, fittings indicated for high strength mechanical fastening and adjusting tension for stainless steel cable railings.

5. Woven-Wire Mesh: Intermediate-crimp, diamond pattern, 2-inch woven-wire mesh, made from 0.120 inch nominal diameter wire complying with ASTM A 580, Type 316.

C. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails, unless otherwise indicated.

1. Provide cast brackets with flange tapped for concealed anchorage to threaded hanger bolt.
2. Provide formed or cast brackets with predrilled hole for exposed bolt anchorage.
3. Provide formed metal brackets with predrilled hole for bolted anchorage and with snap-on cover that matches rail finish and conceals bracket base and bolt head.
4. Provide brackets with interlocking pieces that conceal anchorage. Locate set screws on bottom of bracket.

D. Wood: Solid Walnut; clear, straight-grained.

2.2 FASTENERS

A. Fasteners for Anchoring Handrails and Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring handrails and railings to other types of construction indicated and capable of withstanding design loads.

1. Stainless-Steel Components: Type 316 stainless-steel fasteners.

B. Fasteners for Interconnecting Handrail and Railing Components: Use fasteners fabricated from same basic metal as fastened metal, unless otherwise indicated. Do not use metals that are corrosive or incompatible with materials joined.

1. Provide concealed fasteners for interconnecting railing components and for attaching them to other Work, unless otherwise indicated.

C. Cast-in-Place and Postinstalled Anchors: Anchors of type indicated below, fabricated from corrosion-resistant materials with capability to sustain, without failure, a load equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.

1. Cast-in-place anchors.

2.3 GROUT

A. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for exterior applications.

2.4 FABRICATION

A. Assemble handrails and railings in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.

1. Fabricate decorative metal railings in profiles, thicknesses, and dimensions to the extent shown on the Drawings.

B. Form changes in direction of railing members as follows:

1. As detailed.

C. Make up mesh/wire rope railing assemblies in the shop to field-measured dimensions with fittings machine swaged. Minimize amount of turnbuckle take-up used for dimensional adjustment so maximum amount is available for tensioning cable railing. Tag cable railing assemblies and fittings to identify installation locations and orientations for coordinated installation.

1. Mesh Infill Panels: Fabricate infill panels from cable or wire rope, woven into diamond mesh pattern, and crimped into steel channel frames.

D. Wood Handrails/Toprails: 1-1/2 diameter by lengths as indicated. Fabricate from solid hardwood members; of profile indicated or, if not indicated, as selected by Commissioner, with stain and finish to match approved samples. Form railings in longest lengths possible. Factory fabricate wood handrails of the profiles and configurations as indicated on the approved shop drawings. Fabricate in longest lengths possible. Provide factory ploughed and other tooled conditions as required to accommodate custom brackets and minimize field assembly.

1. Transparent Finish: Provide three coat polyurethane finish system, complying with requirements indicated below for grade, finish system, staining, and sheen:

a. Grade: Premium.
b. AWI Finish System: Catalyzed Polyurethane.
c. Staining: As indicated.

2. Provide decorative metal brackets as selected by the Commissioner, fittings, and other hardware as required to permanently secure wood handrails to custom brackets

E. Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain profile of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of handrail and railing components.

F. Welded Connections: Where indicated, fabricate handrails and railings for connecting members by welding. Cope components at perpendicular and skew connections to provide close fit, or use fittings designed for this purpose. Weld connections continuously 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 flux immediately.
4. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.

G. Mechanical Connections: Where indicated, fabricate handrails and railings by connecting members with railing manufacturer's standard concealed mechanical fasteners and fittings, unless otherwise indicated. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.

1. Fabricate splice joints for field connection using epoxy structural adhesive where this is manufacturer's standard splicing method.

H. Brackets, Flanges, Fittings, and Anchors: Provide scheduled items, or, if not scheduled, manufacturer's standard wall brackets, flanges, miscellaneous fittings, and anchors to connect handrail and railing members to other construction.

I. Provide inserts and other anchorage devices to connect handrails and railings to concrete. Fabricate anchorage devices capable of withstanding loads imposed by handrails and railings. Coordinate anchorage devices with supporting structure.

J. For railing posts set in concrete, provide preset sleeves of steel not less than 6 inches long with inside dimensions not less than 1/2 inch larger than outside dimensions of post, and steel plate forming bottom closure.

K. For removable railing posts, fabricate slip-fit sockets from steel tube or pipe whose ID is sized for a close fit with posts; limit movement of post without lateral load, measured at top, to not more than one-fortieth of post height. Provide socket covers designed and fabricated to resist being dislodged

L. Shear and punch metals cleanly and accurately. Remove burrs from exposed cut edges.

M. Ease exposed edges to a radius of approximately 1/32 inch, unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing the Work.

N. Cut, reinforce, drill, and tap components, as indicated, to receive finish hardware, screws, and similar items.

O. Provide weep holes or another means to drain entrapped water in hollow sections of railing members that are exposed to exterior or to moisture from condensation or other sources.

P. Fabricate joints that will be exposed to weather in a watertight manner.

Q. Close exposed ends of railing members with prefabricated end fittings.

2.5 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipment.

C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.6 STEEL FINISHES

A. For steel railings, provide nongalvanized ferrous-metal fittings, brackets, fasteners, and sleeves, except galvanize anchors to be embedded in exterior construction.

B. Surface Preparation: Prepare uncoated ferrous-metal surfaces to comply with the following:

1. Interior Railings: SSPC-SP 3, "Power Tool Cleaning."

C. Primer: Provide primer as recommended by finish system manufacturer or as per the Commissioner's instruction.

D. Custom Finish: Oxidized, as per the Commissioner's approved samples.

1. Color: Black.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Fit exposed connections together to form tight, hairline joints.

B. Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.

1. Do not weld, cut, or abrade surfaces of railing components that have been coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
2. Set posts plumb within a tolerance of 1/16 inch in 3 feet.
3. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet.

C. Corrosion Protection: Coat concealed surfaces of metal that will be in contact with grout, concrete, masonry or dissimilar metals, with a heavy coat of bituminous paint.

D. Adjust railings before anchoring to ensure matching alignment at abutting joints.

E. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.

3.2 RAILING CONNECTIONS

A. Nonwelded Connections: Use mechanical or adhesive joints for permanently connecting railing components. Use wood blocks and padding to prevent damage to railing members and fittings. Seal recessed holes of exposed locking screws using plastic cement filler colored to match finish of railings.

B. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in "Fabrication" Article whether welding is performed in the shop or in the field.

C. Expansion Joints: Install expansion joints at locations indicated but not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve extending 2 inches beyond joint on either side, fasten internal sleeve securely to one side, and locate joint within 6 inches of post.

3.3 ANCHORING POSTS

A. Form or core-drill holes not less than 5 inches deep and 3/4 inch larger than OD of post for installing posts in concrete. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions.

B. Anchor posts to metal surfaces with flanges, angle type, or floor type as required by conditions, connected to posts and to metal supporting members as follows:

1. For steel railings, weld flanges to posts and bolt to metal-supporting surfaces.

C. Install removable railing sections, where indicated, in slip-fit metal sockets cast in concrete.

3.4 ATTACHING RAILINGS

A. Anchor railing ends to concrete and masonry with sleeves concealed within railing ends and anchored to wall construction with anchors and bolts.

B. Attach handrails to walls with wall brackets except where end flanges are used. Provide brackets with 1-1/2-inch clearance from inside face of handrail and finished wall surface. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.

1. Use type of bracket with flange tapped for concealed anchorage to threaded hanger bolt.
2. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.

C. Secure wall brackets and railing end flanges to building construction as follows:

1. For concrete and solid masonry anchorage, use drilled-in expansion shields and hanger or lag bolts.
2. For hollow masonry anchorage, use toggle bolts.

D. Attach wire rope/mesh infill panels to steel framing or posts, as indicated on the Drawings. Use manufacturer's recommended support anchors, bolts, fasteners and nuts.

1. Install all wire rope/mesh and connector assemblies plumb, level, square, and taut.
2. Terminate and tension wire rope/mesh infill system in accordance with manufacturer's instructions.
3. Ensure ropes are clean, and without kinks or sags.
4. After final adjustment provide tamper resistant locktight materials on all fittings.

3.5 CLEANING

A. Clean stainless steel by washing thoroughly with clean water and soap, rinsing with clean water, and wiping dry.

3.6 PROTECTION

A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.

B. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

END OF SECTION 057300

SECTION 057500 - DECORATIVE FORMED METAL

PART 1 - GENERAL

1.1 SUMMARY

A. A. Work Included: Provide pipe and tube railings in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following::

1. Decorative Mechanical Grilles and Radiator Covers.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 PERFORMANCE REQUIREMENTS

A. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

B. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1.4 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.

3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: For each type of product indicated. Include finishing materials.

C. Shop Drawings: Show fabrication and installation details for decorative formed metal.

1. Include plans, elevations, component details, and attachments to other work.
2. Indicate materials and profiles of each decorative formed metal member, fittings, joinery, finishes, fasteners, anchorages, and accessory items.

D. Samples for Initial Selection: For products involving selection of color, texture, or design, including mechanical finishes.

E. Samples for Verification: For each type of exposed finish required, prepared on 6-inch- square Samples of metal of same thickness and material indicated for the Work.

F. Coordination Drawings: For decorative formed metal elements that house items specified in other Sections. Show dimensions of housed items, including locations of housing penetrations and attachments, and necessary clearances.

G. Qualification Data: For qualified Installer and fabricator.

H. Welding certificates.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: A firm experienced in producing decorative formed metal similar to that indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

B. Anodic Finisher Qualifications: A firm experienced in successfully applying anodic finishes of type indicated and that employs competent control personnel to conduct continuing, effective quality-control program to ensure compliance with requirements.

C. Powder-Coating Applicator Qualifications: A firm experienced in successfully applying powder coatings of type indicated to metals of types indicated and that employs competent control personnel to conduct continuing, effective quality-control program to ensure compliance with requirements.

D. Installer Qualifications: Fabricator of products.

E. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."

3. AWS D1.3, "Structural Welding Code - Sheet Steel."

F. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.

1. Build mockups for the following types of decorative formed metal:
2. Closures and trim.
3. Heating unit enclosures.
4. Metal base
5. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

G. Preinstallation Conference: Conduct conference at Project site.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver decorative formed metal products wrapped in protective coverings and strapped together in suitable packs or in heavy-duty cartons. Remove protective coverings before they stain or bond to finished surfaces.

B. Store products on elevated platforms in a dry location.

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of walls, columns, beams, and other construction contiguous with decorative formed metal by field measurements before fabrication and indicate measurements on Shop Drawings.

1.8 COORDINATION

A. Coordinate installation of anchorages for decorative formed metal items. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

B. Coordinate installation of decorative formed metal with adjacent construction to ensure that wall assemblies, flashings, trim, and joint sealants, are protected against damage from the effects of weather, age, corrosion, and other causes.

PART 2 - PRODUCTS

2.1 METALS, GENERAL

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. Provide materials without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.

B. Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.

2.2 ALUMINUM

A. Aluminum, General: Provide alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with strength and durability properties for each aluminum form required not less than that of alloy and temper designated below.

B. Extruded Bars and Shapes: ASTM B 221, Alloy 6063-T5/T52.

2.3 STAINLESS STEEL

A. Sheet, Strip, Plate, and Flat Bar: ASTM A 666, Type 304.

B. Bars and Shapes: ASTM A 276, Type 304.

2.4 MISCELLANEOUS MATERIALS

A. Gaskets: As required to seal joints in decorative formed metal and remain airtight or weathertight; as recommended in writing by decorative formed metal manufacturer.

1. ASTM D 1056, Type 1, Class A, grade as recommended by gasket manufacturer to obtain seal for application indicated.
2. Closed-cell polyurethane foam, adhesive on two sides, release paper protected.

B. Sealants, Interior: Nonsag, paintable, nonstaining, latex sealant complying with ASTM C 834; of type and grade required to seal joints in decorative formed metal; and as recommended in writing by decorative formed metal manufacturer.

1. Sealants shall have a VOC content of not more than 250 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
2. Sealants shall comply 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."

C. Filler Metal and Electrodes: Provide type and alloy of filler metal and electrodes as recommended by producer of metal to be welded or brazed and as necessary for strength, corrosion resistance, and compatibility in fabricated items.

1. Use filler metals that will match the color of metal being joined and will not cause discoloration.

D. Fasteners: Fabricated from same basic metal and alloy as fastened metal unless otherwise indicated. Do not use metals that are incompatible with materials joined.

1. Provide concealed fasteners for interconnecting decorative formed metal items and for attaching them to other work unless otherwise indicated .
2. Provide Phillips flat-head machine screws for exposed fasteners where concealed fasteners are unavoidable.

E. Nonstructural Anchors: For applications not indicated to comply with design loads, provide metal expansion sleeve anchors or metal-impact expansion anchors of type, size, and material necessary for type of load and installation indicated, as recommended by manufacturer, unless otherwise indicated.

F. Anchor Materials:

1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, unless otherwise indicated.

G. Sound-Deadening Materials:

1. Insulation: Unfaced, mineral-fiber blanket insulation complying with ASTM C 665, Type I, and passing ASTM E 136 test.
2. Mastic: Cold-applied asphalt emulsion complying with ASTM D 1187.

H. Backing Materials: Provided or recommended by decorative formed metal manufacturer.

I. Laminating Adhesive: Adhesive recommended by metal fabricator that will fully bond metal to metal and that will prevent telegraphing and oil canning and is compatible with substrate and noncombustible after curing.

1. Contact Adhesive: VOC content of not more than 80 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
2. Metal-to-Metal Adhesive: VOC content of not more than 30 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
3. Multipurpose Construction Adhesive: VOC content of not more than 70 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
4. Adhesive shall comply 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."

J. Isolation Coating: Manufacturer's standard bituminous paint.

1. Coating shall comply 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."

2.5 PAINTS AND COATINGS

A. Low-Emitting Materials: Paints and coatings shall comply 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."

B. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

2.6 FABRICATION

A. Shop Assembly: Preassemble decorative formed metal items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

B. Coordinate dimensions and attachment methods of decorative formed metal items with those of adjoining construction to produce integrated assemblies with closely fitting joints and with edges and surfaces aligned unless otherwise indicated.

C. Form metal to profiles indicated, in maximum lengths to minimize joints. Produce flat, flush surfaces without cracking or grain separation at bends. Fold back exposed edges of unsupported sheet metal to form a 1/2-inch- wide hem on the concealed side, or ease edges to a radius of approximately 1/32 inch and support with concealed stiffeners.

D. Increase metal thickness or reinforce with concealed stiffeners, backing materials, or both, as needed to provide surface flatness equivalent to stretcher-leveled standard of flatness and sufficient strength for indicated use.

1. Support joints with concealed stiffeners as needed to hold exposed faces of adjoining sheets in flush alignment.

E. Build in straps, plates, and brackets as needed to support and anchor fabricated items to adjoining construction. Reinforce decorative formed metal items as needed to attach and support other construction.

F. Provide support framing, mounting and attachment clips, splice sleeves, fasteners, and accessories needed to install decorative formed metal items.

G. Where welding or brazing is indicated, weld or braze joints and seams continuously. Grind, fill, and dress to produce smooth, flush, exposed surfaces in which joints are not visible after finishing is completed.

1. Use welding and brazing procedures that will blend with and not cause discoloration of metal being joined.

2.7 DECORATIVE MECHANICAL GRILLES AND RADIATOR COVERS

A. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Basis of Design, Products: Model AL/ TL as supplied by Anemostat Air Products.
2. Or approved equal from the following or as accepted by the Commissioner.

a. Titus.
b. Nailor.

B. Fabricate decorative grilles from aluminum sheet or plate of thickness, size, and pattern indicated. Form by punching, cutting or drilling to produce openings of sizes and shapes indicated. Roll, press, and grind perforated metal to flatten and to remove burrs and deformations.

C. Drill and countersink grilles for mounting screws at 2 inches from corners and at 10 inches or less o.c. Provide units with oval-head self-tapping machine screws.

D. Fabricate grille frames from extruded aluminum of profiles, and to sizes and shapes indicated. Miter frame members at corners and connect with concealed splice plates welded to back of frames.

1. Secure grilles in frames with 0.5-inch- long welds along perimeter of grilles at 4 inches o.c.
2. Drawings indicate frame profiles required and are based on products of one manufacturer. Similar frame profiles produced by other manufacturers may be considered, provided deviations are minor and do not change design concept as judged solely by Commissioner.

E. Drill and countersink frames for mounting screws at 4 inches from corners and at 16 inches or less o.c. Provide units with oval-head wood screws.

F. Incorporate stiffeners or laminated backing using noncombustible materials as needed for strength and rigidity.

1. Fill space between stiffeners with sound-deadening insulation attached to face sheet with insulation adhesive unless otherwise indicated.
2. Coat concealed faces of metal panels more than 6 inches wide with a heavy coating of sound-deadening mastic applied at the minimum rate of 20 sq. ft./gal..

G. Provide grilles of size, type, and materials indicated.

1. For removable grilles, use modular units with recessed openings formed into surfaces of enclosures and without blank filler panels between grilles, so face panels and stools are continuous. Fabricate removable grilles and openings to precise tolerances to produce well-fitted assemblies free of warp or rattle, with grilles supported continuously along parallel edges and with tops flush with top of enclosure.

H. Incorporate removable tops and fronts where indicated or needed for access to heating-cooling units and to piping, ductwork, controls, and electrical service, with panels and openings as follows:

1. Fabricate with a fitting tolerance of not less than 1/32 inch and not more than 1/16 inch at each edge, with face of panels flush with adjoining fixed surfaces of enclosure.
2. Form panels for easy removal without interfering with adjoining construction or furniture. Hold panels in place with concealed clips and hardware that prevent warp and rattle.

I. Incorporate hinged access panels in enclosures for access to heating-cooling unit controls, as either separate elements or integrated with grille openings, as indicated or needed.

J. Coordinate construction, configuration, and dimensions of enclosures with those of heating-cooling units. Provide support for heating-cooling units and controls where indicated. Provide blind knockouts and supports for piping, ductwork, control lines, electrical conduit, and wiring where indicated or needed.

K. Locate fixed surfaces of enclosure to coincide precisely with window mullions and partition system terminations. Provide closures at ends of units, at recessed openings in base of units, and at other locations where needed to conceal unfinished wall or floor surfaces, piping, conduit, ductwork, or heating-cooling units.

1. Provide built-in partitions (bulkheads) within enclosures between heating-cooling units, located to coincide with mullions and partition system terminations. Seal partitions to faces of enclosures with compressible gaskets or mastic sealing tape, and cover both sides of partitions with sound-deadening insulation attached to partitions with insulation adhesive.

2.8 GENERAL FINISH REQUIREMENTS

A. Comply with NAAMM "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Complete mechanical finishes of flat sheet metal surfaces before fabrication where possible. After fabrication, finish all joints, bends, abrasions, and other surface blemishes to match sheet finish.

C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

D. Apply organic and anodic finishes to formed metal after fabrication unless otherwise indicated.

E. Finish items indicated on Drawings after assembly.

F. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.9 ALUMINUM FINISHES

A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

B. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.

C. Baked-Enamel or Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils. Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

1. Color and Gloss: As selected by Commissioner from manufacturer's full range.

2.10 STAINLESS-STEEL FINISHES

A. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.

B. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.

1. Run grain of directional finishes with long dimension of each piece.

C. Directional Satin Finish: No. 4.

D. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of decorative formed metal.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Locate and place decorative formed metal items level and plumb and in alignment with adjacent construction. Perform cutting, drilling, and fitting required to install decorative formed metal.

1. Do not cut or abrade finishes that cannot be completely restored in the field. Return items with such finishes to the shop for required alterations, followed by complete refinishing, or provide new units as required.

B. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where needed to protect metal surfaces and to make a weathertight connection.

C. Form tight joints with exposed connections accurately fitted together. Provide reveals and openings for sealants and joint fillers as indicated.

D. Install concealed gaskets, joint fillers, sealants, and insulation, as the Work progresses, to make interior decorative formed metal items soundproof or lightproof as applicable to type of fabrication indicated.

E. Corrosion Protection: Apply bituminous paint or other permanent separation materials on concealed surfaces where metals would otherwise be in direct contact with substrate materials that are incompatible or could result in corrosion or deterioration of either material or finish.

3.3 ADJUSTING AND CLEANING

A. Unless otherwise indicated, clean metals by washing thoroughly with clean water and soap, rinsing with clean water, and drying with soft cloths.

B. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.

C. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit or provide new units.

3.4 PROTECTION

A. Protect finishes of decorative formed metal items from damage during construction period. Remove temporary protective coverings at time of Substantial Completion.

END OF SECTION 057500

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SECTION 061000 – ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide rough carpentry in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Wood grounds, nailers, blocking, and furring and other carpentry work which is generally not exposed.
2. Plywood backing panels for equipment.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

C. Material Certificates: Submit listing of species and grade selected for framing lumber, and a signed copy of grading rules showing design values for selected lumber. Design values shall comply with specified requirements and approved by the ALSC Board of Review.

D. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:

1. Fire-retardant-treated wood.
2. Power-driven fasteners.
3. Powder-actuated fasteners.

E. Research or evaluation reports of the model code organization acceptable to authorities having jurisdiction that evidence compliance of fire-retardant-treated wood with building code in effect for Project.

1.4 QUALITY ASSURANCE

A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.5 DELIVERY, STORAGE AND HANDLING

A. Delivery and Storage: Keep materials under cover and dry. Stack wood to provide air circulation within and around stacks.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

B. Factory mark each piece of lumber with grade stamp of grading agency.

2.2 FIRE-RETARDANT-TREATED MATERIALS

A. General: Comply with performance requirements in AWPA C20 (lumber) and AWPA C27 (plywood).

1. Use Interior Type A, for typical locations, unless otherwise indicated.

B. Identify fire-retardant-treated wood with appropriate classification marking of testing and inspecting agency acceptable to authorities having jurisdiction.

2.3 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.
3. Cants.
4. Furring.
5. Grounds.
6. Utility shelving.

B. For items of dimension lumber size, provide Construction or No. 2 grade lumber with 19 percent maximum moisture content of any species.

C. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:

1. Mixed southern pine, No. 2 grade; SPIB.
2. Eastern softwoods, No. 2 Common grade; NeLMA.
3. Northern species, No. 2 Common grade; NLGA.
4. Western woods, Construction or No. 2 Common grade; WCLIB or WWPA.

D. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

E. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

F. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.4 PLYWOOD BACKING PANELS

A. Telephone and Electrical Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 1/2-inch nominal thickness.

2.5 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners of Type 304 stainless steel.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: NES NER-272.

D. Wood Screws: ASME B18.6.1.

E. Lag Bolts: ASME B18.2.1.

F. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

B. Do not splice structural members between supports, unless otherwise indicated.

C. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.

D. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

E. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.

3.2 WOOD GROUNDS, NAILERS AND BLOCKING

A. Provide where shown for screeding or attachment of other work. Shape as shown and locate for true line and level of work to be attached.

B. Attach to support applied loading. Countersink exposed bolts and nuts flush with surfaces. Where possible, anchor to concrete and masonry during their installation.

C. Provide permanent grounds of dressed, preservative treated, key-bevelled lumber not less than 1-1/2 inch wide and of thickness to match finish material. Remove temporary grounds when no longer required.

3.3 WOOD FURRING

A. Install plumb and level with closure strips at edges and openings. Shim with wood as required for tolerance of finished work.

B. Provide furring of sizes and spacing as shown on the Drawings.

3.4 INSTALLATION OF CONSTRUCTION PANELS

A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.

B. Fastening Methods: Fasten panels as indicated below:

1. Plywood Construction Panels: Screw or nail to supports.

3.5 PROTECTION

A. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

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SECTION 064023 – INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide interior architectural woodwork in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Standing and running trim, to include base.
2. Phenolic resin coated plywood casework and countertops.
3. Wood veneer panels for walls, including roller and tracks for sliding units.
4. Recycled wood fiber tack boards.
5. Shelving and brackets.
6. Shop finishing of woodwork.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.

4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: Submit product data that verify or are required to ensure compliance with the Contract Documents, to include technical information, shop drawings, samples, calculations, product test reports, etc.

C. Shop Drawings: Show location of each item of Work, including attachment of panels to theater equipment supplied by other Contractors, dimensioned plans and elevations, large-scale details, attachment devices, and other components.

1. Show details full size.
2. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
3. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets and other items installed in architectural woodwork.
4. Show veneer leaves with dimensions, grain direction, exposed face, and identification numbers indicating the flitch and sequence within the flitch for each leaf.

D. Samples for Initial Selection: Manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available for each type of material indicated below.

1. Shop-applied transparent finishes.
2. Wood veneer.
3. Solid-surfacing materials.

E. Samples for Verification: Submit the following:

1. Lumber, not less than 5 inches wide by 24 inches long, for each species and cut, finished on 1 side and 1 edge.
2. Phenolic resin coated plywood panel products, 8 by 10 inches, for each type, color, pattern, and surface finish.
3. Wood veneer panel products, 8 by 10 inches, for each type, color, pattern, and surface finish.
4. Recycled wood fiber panel products, 8 by 10 inches, for each type, color, pattern, and surface finish.
5. Corner pieces as follows:

    a. Casework front frame joints between stiles and rail, as well as exposed end pieces, 18 inches high by 18 inches wide by 6 inches deep.
    b. Miter joints for standing trim.

F. Product Certificates: Signed by manufacturers of woodwork certifying that products furnished comply with requirements.

1.4 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance; and is a certified participant in AWI's Quality Certification Program.

B. Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production and installation of interior architectural woodwork.

C. Quality Standard: Comply with AWI's "Architectural Woodwork Quality Standards" for minimum acceptable grades of interior architectural woodwork, construction, finishes, and other requirements.

1. Provide AWI certification labels or compliance certificate indicating that woodwork complies with requirements of grades specified.

D. Fire-Test-Response Characteristics: Where fire-retardant materials or products are indicated, provide materials and products with specified fire-test-response characteristics as determined by testing identical products per test method indicated by UL, ITS, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify with appropriate markings of applicable testing and inspecting agency in the form of separable paper label or, where required by authorities having jurisdiction, imprint on surfaces of materials that will be concealed from view after installation.

E. Mockups: Before fabricating and installing interior architectural woodwork, build mockups for each form of construction and finish required to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in the location and of the size indicated or as directed by the Commissioner.
2. Notify the Commissioner seven days in advance of dates and times when mockups will be fabricated and installed.
3. Include mock-ups of existing woodwork to be repair or restored.
4. Demonstrate the proposed range of aesthetic effects and workmanship.
5. Obtain the Commissioner's approval of mockups before starting interior architectural woodwork fabrication.
6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
7. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Wood Products: Comply with the following:

1. Hardboard: AHA A135.4.
2. Medium-Density Fiberboard: ANSI A208.2, Grade MD-Exterior Glue.
3. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.

B. Solid Wood: AWI's Section and Grade as indicated, as follows:

1. Species and Finish: As indicated on the Drawings and Schedules.
2. Solid wood used as trim shall be treated with an organic-resin formulation in accordance with AWPA C 20 unless otherwise indicated.

C. Resin Coated Plywood: Birch veneer plywood glued together with phenolic resin adhesive, and faced on both sides with phenolic resin paper.

D. Wood Panels: Wood veneer panels over mdf core; with slotted faces and perforated backs; with sound absorbing blankets, where indicated.

1. Veneer: American Black Walnut or as selected by the Commissioner.

2.2 FIRE-RETARDANT-TREATED MATERIALS

A. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Comply with performance requirements in AWPA UCFA (Interior) and AWPA UCFB (Exterior), or as determined by other means during manufacture. Use Exterior Type or Interior Type A. Use fire-retardant-treatment formulations that do not bleed through or otherwise adversely affect finishes. Kiln-dry material after treatment.

B. Fire-Retardant Particleboard: Panels made from softwood particles and fire-retardant chemicals mixed together at time of panel manufacture with flame-spread index of 25 or less and smoke-developed index of 25 or less per ASTM E 84.

C. Fire-Retardant Fiberboard: ANSI A208.2 medium-density fiberboard panels made from softwood fibers, synthetic resins, and fire-retardant chemicals mixed together at time of panel manufacture with flame-spread index of 25 or less and smoke-developed index of 200 or less per ASTM E 84.

2.3 CABINET HARDWARE AND ACCESSORIES

A. Hardware Standard: Comply with BHMA A156.9 for items indicated by referencing BHMA numbers or items referenced to this standard.

B. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081; with shelf brackets, B04112.

C. Shelf Rests: BHMA A156.9, B04013.

D. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.

1. Satin Chromium Plated: BHMA 626 for brass or bronze base; BHMA 652 for steel base.
2. Bright Chromium Plated: BHMA 625 for brass or bronze base; BHMA 651 for steel base.
3. Satin Stainless Steel: BHMA 630.

2.4 INSTALLATION MATERIALS

A. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln-dried to less than 15 percent moisture content; where integral with cabinetry, provide lumber kiln-dried to less than 10 percent moisture content.

B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

2.5 FABRICATION, GENERAL

A. Interior Woodwork Grade: Specified AWI quality standards for interior woodwork shall serve as minimum acceptable standards. Modifications and additions to specified standards, e.g. additional finish coats or stain, may be necessary to achieve acceptable matches with the Commissioner's control samples.

B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.

C. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:

1. Corners of Cabinets and Edges of Solid-Wood (Lumber) Members and Rails: 1/16 inch.

D. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible, before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

E. Shop cut openings, to maximum extent possible, to receive hardware including acoustical seals, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

1. Seal edges of openings in countertops with a coat of varnish.

2.6 STANDING AND RUNNING TRIM

A. General: Provide standing and running trim including, but not limited to base trim, window head and jamb trim, window subsill and door sill casings, shoes, custom framing units, and any other miscellaneous trimwork, to the extent detailed on the Drawings.

B. Grade: Premium.

C. Wood Species: Red Oak, to match wood flooring specified in Division 9 Section "Wood Flooring".

D. Sizes, Profiles, Cut, and Finish: As indicated on the Drawings.

1. Cut from solid lumber members.

E. Backout or groove backs of flat trim members and kerf backs of other wide, flat members, except for members with ends exposed in finished work.

F. Assemble casings in plant except where limitations of access to place of installation require field assembly.

2.7 PHENOLIC RESIN COATED PLYWOOD CASEWORK (SHELVING) AND COUNTERTOPS

A. Quality Standard: Comply with AWI Section 10 (Casework) and 11 (Countertops).

1. Grade: Premium.
2. Reveal Dimension: 1/2 inch, or as indicated.
3. Exposed, Semiexposed, and Concealed Surfaces: 3/4 inch Birch veneer plywood with phenolic resin paper facing.
4. Edges: Exposed plywood.

B. Phenolic Resin Coated Plywood: Birch veneer plywood glued together with phenolic resin adhesive, and faced on both sides with phenolic resin paper.

1. Basis of Design: Provide materials and components as manufactured by North American Plywood Corporation, or approved equal from one of the following:

   a. North American Plywood Corporation.
   b. Richlite.
   c. Delta Plywood and Boards.

2. Colors, Patterns, and Finishes: As selected by Commissioner from resin coated plywood manufacturer's full range of colors.

2.8 WOOD ACCENT PANELS

A. Basis of Design: Provide "Topakustik" wood panels as manufactured by n'H Akustik + Design AG and distributed by RPG Diffusor Systems, Inc., or approved equal from one of the following:

1. RPG Diffusor Systems, Inc.
2. Decoustics.
3. Murano Acoustics USA.
4. Robin Reigi.

B. Description: Wood veneer panels over MDF core; with slotted faces and perforated backs; with backing fabric and sound absorbing blankets, where indicated.

1. Veneer: American Black Walnut or as selected by the Commissioner.
2. Edge Condition: Straight cut, veneer, finished, or as indicated on the Drawings.
3. Sizes and Profiles: As indicated on the Drawings.
4. Patterns: Manufacturer's 9/2 M with 6% 32/11/10 perforation.
5. Finish: Manufacturers shop-applied clear, semi-gloss varnish.

C. Backing Fabric: Nonwoven, black, glass fiber matt.

D. Sound Absorbing Blankets: Manufacturer's standard Nonwoven, black, glass fiber batt (or mineral wool), 1 inch thick.

1. Provide at typical locations indicated on the Drawings. Do not use at radiator coverings and as accent wood where acoustical properties are not required.

E. Panels on exit corridors walls shall comply with Table 5- 4 of the Building Code of the City of New York.

2.9 TACKBOARDS

A. Basis of Design: Subject to compliance with requirements, provide PINnacle 440, as manufactured by Homasote Company, or approved equal from one of the following:

1. Homasote Company.
2. Celotex.
3. G-P.

B. Tack Board Assemblies: Provide 1/2 inch thick recycled tackable wood fiberboard.

C. Construct tack board of size as indicated on Drawings; sanded smooth with manufacturer's natural finish.

D. Trims: Provide trims of type, size and finish as indicated on Drawings or if not indicated as selected by Commissioner.

2.10 ROLLERS/TRACKS FOR OPERABLE WOOD PANELS

A. Rollers/Tracks: Steel or aluminum mounted directly to overhead Uni-strut supports, designed for type of operation, size, and weight of wood panels indicated. Limit track deflection to no more than 0.10 inch between supports.

B. Overhead Carriers: Trolley system as required for configuration type, size, and weight of partition and for easy operation; with ball-bearing wheels.

2.11 SHELVING

A. Basis of Design: Subject to compliance with requirements, provide Rakks brackets, standards, and supports, as manufactured by Ragine Corporation, or approved equal from one of the following:

a. Ragine Corporation.
b. Knape & Vogt.
c. Rubbermaid.

B. General: Aluminum brackets, mounts, and standards for plywood counters and shelving.

C. Material: Fabricate components from extruded aluminum sections complying with ASTM B221, 6063-T5 alloy and temper.

1. Finishes: Manufacturer's standard factory applied clear anodized or powder coat finish, as selected by the Commissioner.

D. Fasteners: Provide No. 6 Phillips flat head plated steel screws, or type and size as recommended by manufacturer.

E. Wall Standards: Channel type standards, mounted on walls and designed to hold shelf support brackets inserted into channel ends or access slots and slid to desired position.

F. Shelf Support Brackets: Designed to slide into support channels, adjustable, and securely locked into place.

1. Provide brackets fabricated from 1/4 inch thick extruded aluminum bar with steel pin to retain and hold bracket in support channel.

2. Retaining Pins: Provide shelf support brackets with steel pin to secure shelf from shifting on bracket.
3. Shelf Couplers: 1 inch wide, pvc extrusion pinned to top of bracket to provide sufficient support for two adjoining shelves.

G. Desk bracket: T-shaped bracket with diagonal brace for support of work surface and capable of supporting Minimum 120 pounds per bracket.

H. Counter Bracket: L-shaped bracket fabricated from aluminum T sections. Miter cut and weld brackets. Grind and deburr sharp edges and welds.

2.12 SHOP FINISHING

A. Quality Standard: Comply with AWI Section 5.

1. Provide low-VOC finish coatings, meeting requirements of authorities having jurisdiction for the location of the Project.

B. Preparations for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.

1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling and to end-grain surfaces.

C. Transparent Finish:

1. Grade: Premium.
2. AWI Finish System: Acrylic lacquer.
3. Staining: Match approved sample for color.
4. Wash Coat for Stained Finish: Apply a wash-coat sealer to woodwork made from closed-grain wood before staining and finishing.
5. Open-Grain Woods: Do not apply filler to open-grain woods.
6. Sheen: As indicated on the Drawings and Schedules.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Quality Standard: Install woodwork to comply with AWI Section 1700 for the same grade specified in Part 2 of this Section for type of woodwork involved.

B. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches.

C. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.

D. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Scarf running joints and stagger in adjacent and related members.

1. Fill gaps, if any, between top of base and window or wall with wood filler, sand smooth, and finish same as wood base if finished.

E. Shelving/Casework: Install without distortion so casework fits against walls and substrates properly and are accurately aligned. Complete installation of brackets, hardware and accessory items.

F. Countertops: Anchor securely by screwing through corner blocks of base or other supports into underside of countertop.

1. Align adjacent solid-surfacing-material countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop.

G. Paneling: Anchor to supporting substrate with concealed panel-hanger clips, unless otherwise indicated. Do not use face fastening, unless otherwise indicated.

1. Install flush paneling with no more than 1/16 inch in 96-inch vertical cup or bow and c inch in 96-inch horizontal variation from a true plane.

H. Tackboards: Provide full spread of adhesive on back of Homasote panel and attach directly to prepared wall substrates. Align straight and true.

3.2 ADJUSTING AND CLEANING

A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

B. Clean, lubricate, and adjust hardware.

C. Clean woodwork on exposed and semiexposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION 064023

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SECTION 066000 - RESIN PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide resin panels in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Cast, thermoplastic polyester sheet fabrications, as indicated.
2. Aluminum support/retainer frames.
3. Primers, sealants, adhesives and other installation accessories.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).

5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: Submit fabricator's specifications, data and instructions for resin fabrications. Include test reports, and material data sheets for cast resin materials, custom aluminum accessories, and adhesives.

1. Include test reports evidencing compliance with local authorities relative to flammability and smoke development issues.

C. Shop Drawings: Submit shop drawings showing complete information for fabrication and installation of resin assemblies. Indicate member dimensions and cross-section; fabrication tolerances; location, size and type of reinforcement, anchors and lifting devices necessary for handling and erection. Include drawings and coordination large scale details where cast resin sheet materials are required to be attached to, or otherwise interface with other building/finish materials and assemblies.

1. Indicate location, sizing and spacing of extrusions, clips/retainers, anchors, dowels, and other mechanical fasteners, as required to sufficiently secure the assemblies.
2. Submit large scale details of each different assembly, indicating typical and atypical conditions (including interlocking/tongue-and-groove edge conditions), attachments, connections and similar conditions.

D. Samples: Submit sets of actual material samples approximately 6" x 6" x full thickness of each different color, type, finish of thermoplastic polyester fabrication. Include sets of each different hardware and support system components. Samples are to illustrate quality, color, and texture of exposed materials and accessories. Color, texture and finish to match Commissioner's samples. Submit samples of anchorages and accessories as requested by Commissioner.

1. Prepare the samples with manufacturer's standard integral fire-retardant treatment where required by authorities having jurisdiction.

E. Reports: Submit written reports to Commissioner of proposed material mixes and material constituents for decorative plastic fabrications prior to start of production.

1.4 QUALITY ASSURANCE

A. Fire Performance: Provide cast resin fabrications with fire performance characteristics specified within this Section, tested by UL or other testing agency acceptable to authorities having jurisdiction, with appropriate marking of applicable testing and inspecting agency.

1. Surface Burning Testing: ASTM E 84.

B. Single-Source Responsibility: Obtain each different type of cast resin material from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.

1. Single-Source Responsibility for Aluminum Retainer/Support System: Obtain each type of aluminum retainer/support system from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.

C. Manufacturer Qualifications: The manufacturer providing the material or equipment specified in this section must, for the past five (5) years, have been regularly engaged in the manufacture of material or equipment similar in type to that required for this Project. Such similar material or equipment provided by the manufacturer must have been in satisfactory service for not less than five (5) years.

D. Field Constructed Mock-Up: Prior to installation of resin fabrications, erect field constructed sample panels to represent completed installation. Mock-ups shall be of the sizes and configurations directed by the Commissioner; to clearly illustrate quality of workmanship and execution. Mock-ups shall include joinery, seaming, and other such installation issues.

1. Build mock-up to include accessory materials, anchors and adjacent material to indicate a complete installation.
2. Mock-ups shall be acceptable to the Commissioner prior to commencement of the Work.

1.5 COORDINATION

A. General: Coordinate Work of this Section with the work of trades directly associated with, or whose assemblies act as the substrates for, or are otherwise attached to the resin work.

B. Coordinate layout and installation of cast resin panels and system components with other work supported by, or penetrating through resin fabrications.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver resin assemblies to assure continuity of installation. Store units to prevent cracking, distortion, warping, staining, or other damage. Lift and support units only at designated lifting or supporting points as acceptable to the resin manufacturer.

1. Comply with the manufacturer's recommendations and instructions regarding the delivery, storage and handling of the custom fabricated resin fabrications.
2. Deliver, store and handle panels in accordance with the manufacturer's instructions.

B. Store materials on the job in an area free from moisture, and protected from damage in accordance with the manufacturer's instructions and recommendations.

PART 2 - PRODUCTS

2.1 SOLID POLYMER PANELS

A. Polyethylene Terephtalate, Glycol Modified (PETG) Fabrications: Provide proprietary copolyester matrix, with interlayer material, creating a monolithic sheet, of the thicknesses indicated; weighing approximately 6.6 lbs/ft2 per inch of thickness. Resin fabrications shall have manufacturer's textured and patterned coatings/finishes indicated; and in compliance with the following requirements, unless otherwise indicated:

1. Density (ASTM D 1505): 79 lbs/sq-ft.
2. Water Absorption, 24 h immersion (ASTM D 570): 0.2%
3. Tensile Stress @ Yield (ASTM D 638): 7,700 psi.
4. Tensile Stress @ Break (ASTM D 638): 3,800 psi.
5. Flexural Strength (ASTM D 790): 11,200 psi.
6. Elongation @ Yield (ASTM D 638): 4.8%

7. Elongation @ Break (ASTM D 638): 50%
8. Hardness (ASTM D 785): 115 R Scale.
9. Flame Spread (ASTM E 84): Class A.
10. Smoke Density (ASTM D 2843): Less than 75 (Pass).

B. Basis of Design: Subject to compliance with requirements, provide Varia Ecoresin, as manufactured by 3Form, or acceptable product from one of the following:

1. 3Form.
2. Lumicor.
3. Ridout Plastics, Div of Duraglas, Inc.

C. Color/Finish:

1. Basis of Design: 3Form's Aqua and Ghost located on each resin panel; with manufacturers "Sandstone" finish on both sides.
2. Provide both colors on each panel in pattern and orientation to match approved samples.

2.2 MISCELLANEOUS ACCESSORIES

A. General: Provide primers, adhesives, sealants, fasteners, and other components recommended by the cast resin manufacturer for a complete system installation; as specifically designed for the materials being attached and the various substrates indicated.

1. Sealant: Manufacturer's standard clear, non-yellowing clear silicone, for cast resin fabrications.
2. Adhesive: As recommended by the resin panel manufacturer for each condition and substrate shown.
3. Exposed Fasteners: Manufacturers standard; of the sizes, designs, materials and strengths required to support the suspended resin fabrications. Use screws designed specifically for plastics.

2.3 FABRICATION

A. Fabricate extruded aluminum supports, reveals, trims and accessory framing carefully fitted with hairline joinery. Assemble all work with continuity of line and design, using rigidly secured joints with hairline contact, unless otherwise shown. Form butt hairline joints with roll-over edge exposed. Grind off roll-over edge flush with and matching of adjacent metal. Shop assemble all work. Disassemble units too large for shipment and provide them with alignment and splice plates for accurate field fit.

B. Reinforce members and joints with concealed stiffeners, brackets and plates, as necessary for adequate strength and rigidity.

C. Provide concealed fastenings unless otherwise shown. Locate necessary exposed fastenings in an orderly pattern, in accordance with the approved Shop Drawings.

D. Separate dissimilar metals with dielectric separator to prevent galvanic action. Do not extend coatings onto exposed surfaces.

2.4 ALUMINUM FINISHES

A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

C. Clear Anodic Finish: AAMA 611, AA-M12C22A31, Class II, 0.010 mm or thicker.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Examine the substrates and conditions where custom extruded aluminum retainer/support assemblies are to be installed. under which the work is to be installed.

B. Verify that aluminum extrusion wall thickness does not exceed standard tolerances allowed by throat/receiver size required to capture/retain cast resin assemblies.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with frame manufacturer's written installation instructions and approved Shop Drawings.

B. Install aluminum support/retainer frames plumb and square, securely anchored to substrates with fasteners recommended by frame manufacturer.

C. Install aluminum compression plates, threaded rods, channels, clips and other accessories in accordance with the manufacturer's instructions and recommendations. Provide linear members in the longest possible lengths available; avoid splices and seams other than changes in direction and applications where lengths exceed manufacturer's available sizes.

1. Where splices are unavoidable, provide concealed installation clips to ensure 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 leave screws or other fasteners exposed to view at splice conditions, when installation is complete; unless otherwise acceptable to the Commissioner.

3.3 INSTALLATION OF RESIN ASSEMBLIES

A. Install units true to lines and levels indicated as a rigid assembly. Maintain accurate location and alignment of the panels, flush with adjacent panels.

B. Provide a completed installation which is smooth and clean and ready to receive finishes specified elsewhere.

C. Install cast panels in accordance with the manufacturer's instructions and the approved Shop Drawings. Seams between adjacent panels and abutting materials shall be constructed to resemble "hairline" tolerances; where recommended by the manufacturer, or when indicated as the standard of design, provide sealant beads in addition to special adhesives to result in assemblies matching approved mock-ups.

1. Space fasteners uniformly and neatly, without damage to adjacent surfaces.
2. Finish joints using methods recommended by the manufacturer.
3. Butt seams of adjacent panels and treat seams in accordance with the panel manufacturer's instructions, and as required to match approved mock-ups.

4. Provide special edge treatment so laminated resin fabrications are free of visual defects, bumps, bulges, and other visual imperfections which are evident after lamination/installation. Acceptance of such visual defects, imperfections and other such objections are the sole responsibility of the Commissioner.

D. Unless otherwise indicated, or as acceptable to the Commissioner, cast resin fabrications shall be fully adhered to supporting (properly prepared) substrates and other supporting cast resin sheets utilizing the manufacturer's standard "lamination process with full spread adhesives and cements.

3.4 CLEANING

A. Clean cast resin fabrications in strict accordance with the manufacturer's instructions and recommendation. Do not use caustic or abrasive type cleaning agents/materials which will scratch the finished fabrications. Where possible limit cleaning agents to warm water, mild ammonia based cleaners and alcohol and water solutions where acceptable to the manufacturer.

1. Replace work which cannot be successfully cleaned and repaired.

END OF SECTION 066000

SECTION 076200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide sheet metal flashing and trim in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Formed roof base and counter flashing.
2. Formed Street/Ground Level base and trim flashing, where required.
3. Accessories, slip sheets, clips and related items as indicated and as necessary for complete watertight construction.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 PERFORMANCE REQUIREMENTS

A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing, rattling, leaking, and fastener disengagement.

B. Thermal Movements: Provide sheet metal flashing and trim that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of sheet metal and trim thermal movements. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

C. Water Infiltration: Provide sheet metal flashing and trim that do not allow water infiltration to building interior.

1.4 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: For each type of product indicated, include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

C. Shop Drawings: Show layouts of sheet metal flashing and trim, including plans and elevations. Distinguish between shop- and field-assembled work. Include the following:

1. Identify material, thickness, weight, and finish for each item and location in Project.
2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.
3. Details for fastening, joining, supporting, and anchoring sheet metal flashing and trim, including fasteners, clips, cleats, and attachments to adjoining work.
4. Details of expansion-joint covers, including showing direction of expansion and contraction.

D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:

1. Sheet Metal Flashing: 12 inches long. Include fasteners, cleats, clips, closures, and other attachments.
2. Trim: 12 inches long. Include fasteners and other exposed accessories.
3. Accessories: Full-size sample.

E. Qualification Data: Submit written information that demonstrates capabilities and experience of installer.

1.5 QUALITY ASSURANCE

A. Sheet Metal Flashing and Trim Standard: Comply with SMACNA "Architectural Sheet Metal Manual." Conform to dimensions and profiles shown unless more stringent requirements are required by design intent.

B. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

C. Preinstallation Conference: Conduct conference at Project site.

1. Meet with City of New York, Commissioner, Installer, and installers whose work interfaces with or affects sheet metal flashing and trim including installers of roofing materials, roof accessories, unit skylights, and roof-mounted equipment.
2. Review methods and procedures related to sheet metal flashing and trim.
3. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
4. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Aluminum Sheet: ASTM B 209, alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required

1. Surface: Smooth, flat finish.
2. Exposed Coil-Coated Finishes:

a. High-Performance Organic Finish: Two-coat, thermocured system containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 2604.
b. Color: As selected by Commissioner from manufacturer's full range.

3. Concealed Finish: Pretreat with 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.

B. Stainless Steel: AISI Type 302, complying with ASTM A 666, soft, except where harder temper required for forming or performance; 0.0187-inch thick.

1. Surface: Smooth, flat.
2. Finish: No. 4 (polished directional satin).

2.2 UNDERLAYMENT MATERIALS

A. Polyethylene Sheet: 6-mil- thick polyethylene sheet complying with ASTM D 4397.

B. Felts: ASTM D 226, Type II (No. 30), asphalt-saturated organic felt, nonperforated.

C. Slip Sheet: Rosin-sized paper, minimum 3 lb/100 sq. ft.

2.3 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads.

1. Nails: Use stainless-steel fasteners.
2. Exposed Fasteners: Heads matching color of sheet metal by means of plastic caps or factory-applied coating.
3. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws, gasketed, with hex washer head.
4. Blind Fasteners: High-strength aluminum or stainless-steel rivets.

C. Sealing Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealing tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape.

D. Elastomeric Sealant: ASTM C 920, elastomeric polysulfide polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

E. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant, polyisobutylene plasticized, heavy bodied for hooked-type expansion joints with limited movement.

F. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.

G. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

H. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

I. Solder for Stainless Steel: ASTM B 32, Grade Sn60, with acid flux of type recommended.

2.4 FABRICATION

A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item required by design intent. Shop fabricate items where practicable. Obtain field measurements for accurate fit before shop fabrication.

B. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.

C. Fabricate sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels required by design intent, with exposed edges folded back to form hems.

1. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
2. Seams for Stainless Steel: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.

D. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA recommendations.

E. Expansion Provisions: Where lapped or bayonet-type expansion provisions in the Work cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.

F. Conceal fasteners and expansion provisions where possible on exposed-to-view sheet metal flashing and trim.

G. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.

1. Thickness: As recommended by SMACNA's "Architectural Sheet Metal Manual" and FMG Loss Prevention Data Sheet 1-49 for application but not less than thickness of metal being secured.

2.5 SHEET METAL FABRICATIONS

A. Base Flashing: Fabricate from the following material:

1. Aluminum: 0.040 inch thick.

B. Counterflashing: Fabricate from the following material:

1. Aluminum: 0.032 inch thick.

C. Roof-Penetration Flashing: Fabricate from the following material:

1. Stainless Steel: 0.0187 inch thick.

2.6 MISCELLANEOUS FLASHING

A. Equipment Support Flashing: Fabricate from the following material:

1. Stainless Steel: 0.0187 inch thick.

B. Base Flashing At Entry/Ground Level: Provide membrane flashing materials as indicated on the Drawings and as required to prevent passage of water to interior of building. Where not indicated on the Drawings or selected by the Commissioner, provide modified rubberized asphalt sheet, cut in strips of sizes indicated. Coordinate materials with the Commissioner for applicability of system to substrates and adjacent construction.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.

B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by fabricator or manufacturers of dissimilar metals.

C. Install sheet metal flashing and trim true to line and levels required by design intent. Provide uniform, neat seams with minimum exposure of solder, welds, and butyl sealant.

D. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.

E. Fasteners: Use fasteners of sizes that will penetrate substrate not less than 1-1/4 inches for nails and not less than 3/4 inch for wood screws.

1. Use stainless-steel fasteners.

F. Seal joints with butyl sealant as required for watertight construction.

G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pretin edges of sheets to be soldered to a width of 1-1/2 inches except where pretinned surface would show in finished Work.

3.2 ROOF FLASHING INSTALLATION

A. General: Install sheet metal roof flashing and trim to comply with performance requirementsand SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, set units true to line, and level as required by design intent. Install work with laps, joints, and seams that will be permanently watertight.

B. Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing in reglets or receivers and fit tightly to base flashing. Extend counterflashing 4 inches over base flashing. Lap counterflashing joints a minimum of 4 inches and bed with butyl sealant.

C. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Install flashing as follows:

1. Turn lead flashing down inside vent piping, being careful not to block vent piping with flashing.
2. Seal with butyl sealant and clamp flashing to pipes penetrating roof except for lead flashing on vent piping.

D. Equipment Support Flashing: Coordinate installation of equipment support flashing with installation of roofing and equipment. Weld or seal flashing with butyl sealant to equipment support member.

E. Modified Bituminous Sheet Application: Install modified bituminous sheets according to manufacturer's written instructions.

1. Apply and firmly adhere sheets over area to receive membrane. Accurately align sheets and maintain uniform 2-1/2-inch minimum lap widths and end laps. Overlap and seal seams and stagger end laps to ensure watertight installation.
2. Apply continuous sheets over sheet strips bridging substrate cracks, construction, and contraction joints.
3. Seal exposed edges of sheets at terminations not concealed by metal counterflashings.

4. Repair tears, voids, and lapped seams in waterproofing not complying with requirements. Slit and flatten fishmouths and blisters. Patch with sheet waterproofing extending 6 inches beyond repaired areas in all directions

END OF SECTION 076200

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SECTION 078123 – INTERIOR INTUMESCENT FIREPROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide interior intumescent fireproofing in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Exposed intumescent mastic fire-resistive coatings for interior exposed and concealed structural steel.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 DEFINITIONS

A. SFRM: Sprayed fire-resistive material.

1.4 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.

4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: For each type of product indicated, include manufacturer's technical information, performance requirements, and installation instructions.

C. Shop Drawings: Structural framing plans indicating the following:

1. Locations and types of surface preparations required before applying SFRM.
2. Extent of SFRM for each construction and fire-resistance rating, including the following:

a. Applicable fire-resistance design designations of a qualified testing and inspecting agency acceptable to authorities having jurisdiction.

1) For steel joist assemblies, include applicable fire-resistance design designations, with each steel joist tested with the same maximum tensile stress as each steel joist indicated on Drawings. Design designations with steel joists tested at lower maximum tensile stress than those indicated are not permitted.

b. Minimum thicknesses needed to achieve required fire-resistance ratings of structural components and assemblies.

3. Treatment of SFRM after application.

D. Samples for Initial Selection: For each type of colored, exposed SFRM indicated.

E. Samples for Verification: For each type of colored, exposed SFRM, two Samples, each 4 inches square, of each color, texture, and material formulation to be applied. Where finishes involve normal color and texture variations, include sample sets showing the full range of variations expected.

F. Product Certificates: For each type of SFRM, signed by product manufacturer.

G. Qualification Data: For Installer, manufacturer, professional engineer, and testing agency.

H. Compatibility and Adhesion Test Reports: From SFRM manufacturer indicating the following:

1. Materials have been tested for bond with substrates.
2. Materials have been verified by SFRM manufacturer to be compatible with substrate primers and coatings.
3. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

I. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for proposed SFRM.

J. Research/Evaluation Reports: For SFRM.

K. Field quality-control test and special inspection reports.

L. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

A. Installer Qualifications The contractor or subcontractor performing the work of this section must, within the last five (5) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least three (3) projects similar in scope and type to the required work.

B. Source Limitations: Obtain SFRM through one source from a single manufacturer.

C. SFRM Testing: By a qualified testing and inspecting agency engaged by Contractor or manufacturer to test for compliance with specified requirements for performance and test methods.

1. SFRMs are randomly selected for testing from bags bearing the applicable classification marking of UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
2. Testing is performed on specimens of SFRMs that comply with laboratory testing requirements specified in Part 2 and are otherwise identical to installed fire-resistive materials, including application of accelerant, sealers, topcoats, tamping, troweling, rolling, and water overspray, if any of these are used in final application.

D. Compatibility and Adhesion Testing: Engage a qualified testing and inspecting agency to test for compliance with requirements for specified performance and test methods.

1. Test for bond per ASTM E 736 and requirements in UL's "Fire Resistance Directory" for coating materials. Provide bond strength indicated in referenced fire-resistance design, but not less than minimum specified in Part 2.
2. Verify that manufacturer, through its own laboratory testing or field experience, has not found primers or coatings to be incompatible with SFRM.

E. Fire-Test-Response Characteristics: Provide SFRM with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify bags containing SFRM with appropriate markings of applicable testing and inspecting agency.

1. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory" acceptable to authorities having jurisdiction, for SFRM serving as direct-applied protection tested per ASTM E 119.
2. Surface-Burning Characteristics: ASTM E 84.

F. UL Designations: Specific UL assemblies integral to the work specified in this Section shall be indicated on the Drawings, unless otherwise indicated.

G. Provide products containing no detectable asbestos as determined according to the method specified in 40 CFR 763, Subpart E, Appendix E, Section 1, "Polarized Light Microscopy."

H. Mockups: Apply mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Extent of Mockups: Approximately 100 sq. ft. of surface for each product indicated.
2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

I. Special Inspections: Comply with requirements as indicated on Drawing A- 001.

J. Preinstallation Conference: Conduct conference at Project site. Review methods and procedures related to SFRM including, but not limited to, the following:

1. Review products, exposure conditions, design ratings, restrained and unrestrained conditions, calculations, densities, thicknesses, bond strengths, and other performance requirements.
2. Review and finalize construction schedule and verify sequencing and coordination requirements.
3. Review weather predictions, ambient conditions, and proposed temporary protections for SFRM during and after installation.
4. Review surface conditions and preparations.
5. Review field quality-control testing procedures.

1.6 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, shelf life if applicable, and fire-resistance ratings applicable to Project.

B. Use materials with limited shelf life within period indicated. Remove from Project site and discard materials whose shelf life has expired.

C. Store materials inside, under cover, and aboveground; keep dry until ready for use. Remove from Project site and discard wet or deteriorated materials.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not apply SFRM when ambient or substrate temperature is 40 deg F or lower unless temporary protection and heat are provided to maintain temperature at or above this level for 24 hours before, during, and for 24 hours after product application.

B. Ventilation: Ventilate building spaces during and after application of SFRM. Use natural means or, if they are inadequate, forced-air circulation until fire-resistive material dries thoroughly.

1.8 COORDINATION

A. Sequence and coordinate application of SFRM with other related work specified in other Sections to comply with the following requirements:

1. Provide temporary enclosure as required to confine spraying operations and protect the environment.
2. Provide temporary enclosures for applications to prevent deterioration of fire-resistive material due to exposure to weather and to unfavorable ambient conditions for humidity, temperature, and ventilation.
3. Avoid unnecessary exposure of fire-resistive material to abrasion and other damage likely to occur during construction operations subsequent to its application.
4. Defer installing ducts, piping, and other items that would interfere with applying fire-resistive material until application of fire protection is completed.
5. Do not install enclosing or concealing construction until after fire-resistive material has been applied, inspected, and tested and corrections have been made to defective applications.

1.9 WARRANTY

A. Special Warranty: Manufacturer's standard form, signed by Contractor and by Installer, in which manufacturer agrees to repair or replace SFRMs that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Cracking, flaking, spalling, or eroding in excess of specified requirements; peeling; or delaminating of SFRM from substrates.
b. Not covered under the warranty are failures due to damage by occupants and City of New York's maintenance personnel, exposure to environmental conditions other than those investigated and approved during fire-response testing, and other causes not reasonably foreseeable under conditions of normal use.

2. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 INTUMESCENT MASTIC FIRE-RESISTIVE COATINGS

A. Available Manufacturers: Subject to compliance with requirements, provide intumescent fireproof coatings as manufactured by one of the following, or approved equal:

1. A/D Fire Protection Systems Inc.
2. Albi Manufacturing, Division of StanChem Inc.
3. Carboline Company, Fireproofing Products Div.
4. Isolatek International Corp.

B. Fire-Resistive, Intumescent Mastic Coating: Factory-mixed formulation.

1. Water-Based Formulation: Approved by manufacturer and authorities having jurisdiction and tested in accordance with UL 263 (ASTM E 119).
2. Thin-film mastic coating consisting of intumescent base coat, to receive separate topcoat.

C. Primers: For use on each steel substrate and with each sprayed fire-resistive product, provide primer as recommended by the manufacturer specifically for use with above specified intumescent coating.

1. Performance Requirements: Provide primer to comply with one or both of the following:

a. Primer's bond strength complies with requirements specified in UL's "Fire Resistance Directory" for coating materials based on a series of bond tests per ASTM E 736.
b. Primer is identical to those used in assemblies tested for fire-test-response characteristics of SFRM tested per UL 263 (ASTM E 119) or another testing and inspecting agency acceptable to authorities having jurisdiction.

D. Topcoat: High quality semigloss acrylic latex; type recommended in writing by manufacturer of each SFRM for application over exposed SFRM.

1. Color and Gloss: As selected by the Commissioner from manufacturer's full range.

2.2 AUXILIARY FIRE-RESISTIVE MATERIALS

A. General: Provide auxiliary fire-resistive materials that are compatible with SFRM and substrates and are approved by UL or another testing and inspecting agency acceptable to authorities having jurisdiction for use in fire-resistance designs indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for substrates and other conditions affecting performance of work. A substrate is in satisfactory condition if it complies with the following:

1. Substrates comply with requirements in the Section where the substrate and related materials and construction are specified.
2. Substrates are free of dirt, oil, grease, release agents, rolling compounds, mill scale, loose scale, incompatible primers, incompatible paints, incompatible encapsulants, or other foreign substances capable of impairing bond of fire-resistive materials with substrates under conditions of normal use or fire exposure.
3. Objects penetrating fire-resistive material, including clips, hangers, support sleeves, and similar items, are securely attached to substrates.
4. Substrates are not obstructed by ducts, piping, equipment, and other suspended construction that will interfere with applying fire-resistive material.

B. Conduct tests according to fire-resistive material manufacturer's written recommendations to verify that substrates are free of substances capable of interfering with bond.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Cover other work subject to damage from fallout or overspray of fire-resistive materials during application.

B. Clean substrates of substances that could impair bond of fire-resistive material, including dirt, oil, grease, release agents, rolling compounds, mill scale, loose scale, and incompatible primers, paints, and encapsulants.

C. Prime substrates where recommended in writing by SFRM manufacturer unless compatible shop primer has been applied and is in satisfactory condition to receive SFRM.

D. For exposed applications, repair substrates to remove surface imperfections that could affect uniformity of texture and thickness in finished surface of SFRM. Remove minor projections and fill voids that would telegraph through fire-resistive products after application.

3.3 APPLICATION

A. Comply with fire-resistive material manufacturer's written instructions for mixing materials, application procedures, and types of equipment used to mix, convey, and spray on fire-resistive material, as applicable to particular conditions of installation and as required to achieve fire-resistance ratings indicated.

B. Apply SFRM that is identical to products tested as specified in Part 1 "Quality Assurance" Article and substantiated by test reports, with respect to rate of application, accelerator use, sealers, topcoats, or other materials and procedures affecting test results.

C. Extend fire-resistive material in full thickness over entire area of each substrate to be protected. Unless otherwise recommended in writing by SFRM manufacturer, install body of fire-resistive covering in a single course.

D. Spray apply fire-resistive materials to maximum extent possible. Following the spraying operation in each area, complete the coverage by trowel application or other placement method recommended in writing by SFRM manufacturer, and producing surface texture approved by the Commissioner.

E. Apply exposed intumescent mastic fire-resistive coatings in thicknesses and densities not less than those required to achieve fire-resistance ratings designated for each condition. Comply with each manufacturer's recommendations.

1. Primer: Apply to a minimum dry film thickness between 2 mils (0.05 mm) and 3 mils (0.08 mm) per coat.
2. Basecoat: The thin-film fire resistive material shall be applied at the required dry film thickness per the appropriate UL design number.
3. Topcoat: Apply to a minimum dry film thickness of 0.0016" (0.04 mm).

3.4 FIELD QUALITY CONTROL

A. Special Inspections: City of New York will engage a qualified special inspector to perform the following special inspection and prepare reports:

1. SFRM.

B. Testing Agency: Engage a qualified testing agency to perform tests and inspections and prepare test reports.

1. Testing and inspecting agency will interpret tests and state in each report whether tested work complies with or deviates from requirements.

C. Tests and Inspections: Testing and inspecting of completed applications of SFRM shall take place in successive stages, in areas of extent and using methods as indicated by reference standards. Do not proceed with application of SFRM for the next area until test results for previously completed applications of SFRM show compliance with requirements. Tested values must equal or exceed values indicated and required for approved fire-resistance design.

D. Remove and replace applications of SFRM that do not pass tests and inspections for cohesion and adhesion, for density, or for both and retest as specified above.

E. Apply additional SFRM, per manufacturer's written instructions, where test results indicate that thickness does not comply with specified requirements, and retest as specified above.

3.5 CLEANING, PROTECTING, AND REPAIR

A. Cleaning: Immediately after completing spraying operations in each containable area of Project, remove material overspray and fallout from surfaces of other construction and clean exposed surfaces to remove evidence of soiling.

B. Protect SFRM, according to advice of product manufacturer and Installer, from damage resulting from construction operations or other causes so fire protection will be without damage or deterioration at time of Substantial Completion.

C. Coordinate application of SFRM with other construction to minimize need to cut or remove fire protection. As installation of other construction proceeds, inspect SFRM and patch any damaged or removed areas.

D. Repair or replace work that has not successfully protected steel.

END OF SECTION 078123

SECTION 078413 - PENETRATION FIRESTOPPING

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide penetration firestopping in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Penetrations through fire-resistance-rated floors, walls, and partitions.
2. Penetrations through smoke barriers.
3. Sealant joints in fire-resistance-rated construction.
4. Furnishing of dams, clips and closures for support and containment of fire stopping materials and installation of dams, clips and closures where possible to install after completion of floors, walls or other construction.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 SYSTEM PERFORMANCE REQUIREMENTS

A. General: For the following constructions, provide firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of assembly penetrated.

1. Fire-resistance-rated non-load-bearing walls, including partitions, with fire-protection-rated openings.
2. Fire-resistance-rated floor assemblies, including slab perimeter and floor edge conditions.

B. Systems shall be capable of preventing passage of smoke, flame and hot gases sufficient to ignite cotton waste, when tested in accordance with ASTM E 814 and ANSI/UL 1479 for firestop systems and ASTM E 119 and ANSI/UL 2079 for joint systems and fire containment, including perimeter conditions.

C. F-Rated Systems: Provide through-penetration firestop systems with F-ratings indicated, as determined per ASTM E 814, but not less than that equaling or exceeding fire-resistance rating of constructions penetrated.

D. T-Rated Systems: For the following conditions, provide through-penetration firestop systems with T-ratings indicated, as well as F-ratings, as determined per ASTM E 814, where systems protect penetrating items exposed to potential contact with adjacent materials in occupied floor areas:

1. Penetrations located outside wall cavities.
2. Penetrations located outside fire-resistive shaft enclosures.
3. Penetrations located in construction containing fire-protection-rated openings.
4. Penetrating items larger than 4-inch-diameter nominal pipe or 16 sq. in. in overall cross-sectional area.

E. Jointed Systems: Provide joint firestop systems indicated, as determined per ASTM E 1399, but not less than that equaling or exceeding fire-resistance rating of adjoining construction.

F. For firestop systems exposed to view, traffic, moisture, and physical damage, provide products that after curing do not deteriorate when exposed to these conditions both during and after construction.

1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.
2. For floor penetrations with annular spaces exceeding 4 inches in width and exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved either by installing floor plates or by other means.
3. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.

G. For firestop systems exposed to view, provide products with flame-spread ratings of less than 25 and smoke-developed ratings of less than 450, as determined per ASTM E 84.

H. Firestop Systems do not reestablish the structural integrity of load bearing partitions/assemblies, or support live loads and traffic. Installer shall consult the Commissioner prior to penetrating any load bearing assembly.

I. Where subject to movement, firestopping materials used shall remain flexible and allow for normal movement of building structure, substrates, penetrating items and related surfaces and items without affecting integrity and performance of firestopping materials and systems

1.4 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.

4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: For each type of product specified, provide manufacturers technical data, material safety data sheets (MSDS), performance requirements and installation instructions.

1. Submit manufacturers documentation indicating products used are approved for use in the City of New York.

C. Shop drawings detailing materials, installation methods, and relationships to adjoining construction for each through-penetration firestop system, and each kind of construction condition penetrated and kind of penetrating item. Include firestop design designation of qualified testing and inspecting agency evidencing compliance with requirements for each condition indicated.

1. List of Conditions: Shop Drawings shall list all firestopping categories indicated or expected for the project. For each type of construction element and assembly indicated, list the UL Design Number to be complied with, include coordinated specified product data for each product incorporated into firestopping assemblies. Attach a copy of each UL Design Number listed.
2. For unusual penetrations which have no formal tested assembly and which require modification of qualified testing and inspecting agency's illustration to suit the particular unusual through-penetration firestop condition, submit Drawings and product data and associated illustrations prepared by qualified firestopping Manufacturer's Fire Protection Engineer including required modifications clearly illustrated.

    a. Manufacturer's engineering judgment shall be derived from similar UL system designs or other applicable tests. Engineer judgement drawings must follow requirements set forth by the International Firestop Council.

3. The Manufacturer issuing the engineering judgment shall be responsible for issued engineering judgments without any adjustment to the responsibilities of the entities involved.

D. Certificates:

1. From Installer indicating penetration firestopping has been installed in compliance with requirements and manufacturer's written recommendations.

2. Product certificates signed by manufacturers of firestopping products certifying that their products comply with specified requirements.

    a. Submit certification by firestopping manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs) and are nontoxic to building occupants.

E. Product test reports from, and based on tests performed by, a qualified testing and inspecting agency evidencing compliance of firestopping with requirements based on comprehensive testing of current products.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A firm experienced in installing penetration firestopping similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful performance. Qualifications include having the necessary experience, staff, and training to install manufacturer's products per specified requirements. Manufacturer's willingness to sell its penetration firestopping products to Contractor or to Installer engaged by Contractor does not in itself confer qualification on buyer.

B. Single-Source Responsibility: Obtain all firestopping systems for each kind of penetration, joint and construction condition indicated from a single manufacturer.

C. Fire-Test-Response Characteristics: Penetration firestopping shall comply with the following requirements:

1. Penetration firestopping tests are performed by a qualified testing agency acceptable to authorities having jurisdiction.
2. Penetration firestopping is identical to those tested per testing standard referenced in "Penetration Firestopping" Article. Provide rated systems complying with the following requirements:

a. Penetration firestopping products bear classification marking of qualified testing and inspecting agency.
b. Classification markings on penetration firestopping correspond to designations listed by the following:

1) UL in its "Fire Resistance Directory."

D. Field-Constructed Mockup: Prior to installing firestopping, erect mockups for each different through-penetration firestop system indicated to verify selections made and to demonstrate qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for final installations.

1. Locate mockups on site in locations indicated or, if not indicated, as directed by the Commissioner.
2. Notify directed by the Commissioner one week in advance of the dates and times when mockups will be erected.
3. Obtain directed by the Commissioner's acceptance of mockups before start of final unit of Work.
4. Retain and maintain mockups during construction in an undisturbed condition as a standard for judging completed unit of Work.

a. Accepted mockups in an undisturbed condition at time of Substantial Completion may become part of completed unit of Work.

E. Provide firestopping products containing no detectable asbestos as determined by the method specified in 40 CFR Part 763, Subpart F, Appendix A, Section 1, "Polarized Light Microscopy."

F. Preinstallation Conference: Conduct conference at Project site.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Do not install penetration firestopping when ambient or substrate temperatures are outside limits permitted by penetration firestopping manufacturers or when substrates are wet because of rain, frost, condensation, or other causes.

B. Install and cure penetration firestopping per manufacturer's written instructions using natural means of ventilations or, where this is inadequate, forced-air circulation.

1.7 COORDINATION

A. Coordinate construction of openings and penetrating items to ensure that penetration firestopping is installed according to specified requirements.

B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate penetration firestopping.

C. Notify City of New York's testing agency at least seven days in advance of penetration firestopping installations; confirm dates and times on day preceding each series of installations.

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. A/D Fire Protection Systems Inc.
2. Grace Construction Products.
3. Hilti, Inc.
4. Specified Technologies Inc.
5. 3M Fire Protection Products.
6. Tremco, Inc.; Tremco Fire Protection Systems Group.
7. Approved equal.

2.2 PENETRATION FIRESTOPPING

A. Provide penetration firestopping that is produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated. Penetration firestopping systems shall be compatible with one another, with the substrates forming openings, and with penetrating items if any.

B. Penetrations in Fire-Resistance-Rated Walls: Provide penetration firestopping with ratings determined per ASTM E 814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg.

C. Penetrations in Horizontal Assemblies: Provide penetration firestopping with ratings determined per ASTM E 814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg.

D. Penetrations in Smoke Barriers: Provide penetration firestopping with ratings determined per UL 1479.

1. L-Rating: Not exceeding 5.0 cfm/sq. ft. of penetration opening at 0.30-inch wg at both ambient and elevated temperatures.

E. W-Rating: Provide penetration firestopping showing no evidence of water leakage when tested according to UL 1479.

F. Exposed Penetration Firestopping: Provide products with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.

G. Accessories: Provide components for each penetration firestopping system that are needed to install fill materials and to maintain ratings required. Use only those components specified by penetration firestopping manufacturer and approved by qualified testing and inspecting agency for firestopping indicated.

1. Permanent forming/damming/backing materials, including the following:

   a. Slag-wool-fiber or rock-wool-fiber insulation.
   b. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state.
   c. Fire-rated form board.
   d. Fillers for sealants.

2. Temporary forming materials.
3. Substrate primers.
4. Collars.
5. Steel sleeves.

2.3 FILL MATERIALS

A. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer metallic sleeve lined with an intumescent strip, a radial extended flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.

B. Latex Sealants: Single-component latex formulations that do not re-emulsify after cure during exposure to moisture.

C. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.

D. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized-steel sheet.

E. Intumescent Putties: Nonhardening dielectric, water-resistant putties containing no solvents, inorganic fibers, or silicone compounds.

F. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.

G. Mortars: Prepackaged dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.

H. Pillows/Bags: Reusable heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents, and fire-retardant additives. Where exposed, cover openings with steel-reinforcing wire mesh to protect pillows/bags from being easily removed.

I. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.

J. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below:

1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces, and nonsag formulation for openings in vertical and sloped surfaces, unless indicated firestopping limits use of nonsag grade for both opening conditions.

2.4 MIXING

A. For those products requiring mixing before application, comply with penetration firestopping manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning: Clean out openings immediately before installing penetration firestopping to comply with manufacturer's written instructions and with the following requirements:

1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of penetration firestopping.
2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with penetration firestopping. Remove loose particles remaining from cleaning operation.
3. Remove laitance and form-release agents from concrete.

B. Priming: Prime substrates where recommended in writing by manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

C. Masking Tape: Use masking tape to prevent penetration firestopping from contacting adjoining surfaces that will remain exposed on completion of the Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove stains. Remove tape as soon as possible without disturbing firestopping's seal with substrates.

3.3 PENETRATION FIRESTOPPING

A. General: Comply with the "System Performance Requirements" article in Part 1 and the firestopping manufacturer's installation instructions and drawings pertaining to products and applications indicated.

1. The Contractor shall select the material and UL test assemblies to be used as may be required for each type of material, location, rating and penetration or hole size. Do not proceed with the work until all submittals have been fully approved.

2. Provide firestopping materials and thicknesses as required to provide indicated ratings. Where not otherwise indicated, comply with U.L. standard designs. In multiple layer work, offset joints by at least 6 inches.
3. Install firestopping without gaps and voids of any kind. Do not use damaged materials. Remove and replace nonfitting or disturbed work. Do not use fire safing materials containing solvents.

B. Install forming materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.

1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of firestopping.

C. Install fill materials for firestopping by proven techniques to produce the following results:

1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
3. For fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.
4. Provide 20 gauge minimum metal plates where required for fire safing support to comply with fire rating.
5. For mineral safing insulation, apply in continuous length using manufacturer's standard safing clips compress insulation until stable without movement.

3.4 FIELD QUALITY CONTROL

A. City of New York will engage a qualified testing agency to perform tests and special inspections to examine completed firestopping and determine if it is being installed in compliance with requirements.

B. Where deficiencies are found or penetration firestopping is damaged or removed because of testing, repair or replace penetration firestopping to comply with requirements.

C. Proceed with enclosing penetration firestopping with other construction only after inspection reports are issued and installations comply with requirements.

3.5 CLEANING AND PROTECTION

A. Clean off excess fill materials adjacent to openings as the Work progresses by methods and with cleaning materials that are approved in writing by penetration firestopping manufacturers and that do not damage materials in which openings occur.

B. Provide final protection and maintain conditions during and after installation that ensure that penetration firestopping is without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, immediately cut out and remove damaged or deteriorated penetration firestopping and install new materials to produce systems complying with specified requirements.

END OF SECTION 078413

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide joint sealants in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Interior joint sealants and backings in horizontal and vertical surfaces, as indicated and required.
2. Primers, bond breakers, backer rods, joint fillers, and other accessory materials for interior joints.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 SYSTEM PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that have been produced and installed to establish and to maintain watertight and airtight continuous seals without causing staining or deterioration of joint substrates.

B. Sealants used as weather seals shall not experience adhesive or cohesive failure. Sealants shall withstand movements up to the limits prescribed by the manufacturer. Exposed sealant surface shall not crack or bubble. Sealants and primers shall not stain adjacent materials. Sealants shall not be adhered to, or placed against, the edge of a laminated glass unit interlayer.

1.4 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.

3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: Submit manufacturer's technical data for each product required, including instructions for preparation and application.

C. Samples:

1. Submit samples for initial selection purposes in form of manufacturer's standard bead samples, consisting of strips of actual products showing full range of manufacturer's standard colors available, for each product exposed to view.
2. Submit samples for verification purposes of each type and color of joint sealant required. Install joint sealant samples in 1/2-inch wide joints formed between two 6-inch long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

D. Certificates: Submit certificates from manufacturers that their products comply with specifications and are suitable for the use indicated.

E. Test Reports: Submit joint sealer-substrate test results to verify compatibility of proposed joint sealants with substrates. Manufacturer shall conduct tests and provide reports complying with the following:

1. Compatibility and adhesion test reports from elastomeric sealant manufacturer indicating that materials forming joint substrates and joint sealant backings have been tested for compatibility and adhesion with joint sealants. Include sealant manufacturer's interpretation of test results relative to sealant performance and recommendations for primers and substrate preparation needed to obtain adhesion.
2. Preconstruction field test reports indicating which products and joint preparation methods demonstrate acceptable adhesion to joint substrates.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer who has completed joint sealant applications similar in material, design, and extent to that indicated for Project that have resulted in construction with a record of successful in-service performance.

B. Testing Laboratory Qualifications: To qualify for acceptance, an independent testing laboratory must demonstrate to Commissioner's satisfaction, based on evaluation of laboratory-submitted criteria conforming to ASTM E 699, that it has the experience and capability to conduct satisfactorily the testing indicated without delaying progress of the Work.

C. Single Source Responsibility for Joint Sealant Materials: Obtain each different primary joint sealant materials required from a single manufacturer; obtain auxiliary/secondary materials as recommended by, and acceptable to, the prime materials manufacturer.

D. Preconstruction Field Testing: Prior to installation of joint sealants, field-test their adhesion to joint substrates as follows:

1. Locate test joints where indicated or, if not indicated, as directed by Commissioner.
2. Conduct field tests for each application indicated within this section.
3. Notify Commissioner one week in advance of the dates and times when mock-ups will be erected.
4. Arrange for tests to take place with joint sealant manufacturer's technical representative present.
5. Test Method: Test joint sealants by hand pull method described below:

    a. Install joint sealants in 60 inches joint lengths using same materials and methods for joint preparation and joint sealant installation required for completed Work. Allow sealants to cure fully before testing.
    b. Make knife cuts horizontally from one side of joint to the other followed by 2 vertical cuts approximately 2 inches long at side of joint and meeting horizontal cut at top of 2-inch cuts. Place a mark 1 inch from top of 2-inch piece.
    c. Use fingers to grasp 2" piece of sealant just above 1-inch mark; pull firmly down at a 90-degree angle or more while holding a ruler along side of sealant. Pull sealant out of joint to the distance recommended by sealant manufacturer for testing adhesive capability, but not less than that equaling specified maximum movement capability in extension; hold this position for 10 seconds.

6. Report whether or not sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate.
7. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

E. Stainability Tests: Prior to installation of joint sealants, field-test sample applications of sealant on stone and other porous substrate samples of types of substrates to be used in the Project to test stainability of substrates by sealants proposed to be use in the finished work. Submit test samples for evaluation.

F. Field-Constructed Mock-Ups: Prior to installation of joint sealants, apply elastomeric sealants as follows to verify selections made under sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution:

1. Joints in field-constructed mock-ups of assemblies specified in other Sections that are indicated to receive elastomeric joint sealants specified in this Section.

G. Pre-Installation Conference: Before beginning the sealant installation, conduct a preinstallation conference at a location determined by the Commissioner with the sealant manufacturer(s), installer, aluminum system manufacturer's representative, masonry manufacturer and other interested parties to review procedures, schedules, and coordination of the sealant with other elements of the Work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multi-component materials.

B. Store and handle materials in compliance with manufacturer's recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.7 PROJECT CONDITIONS

A. Environmental Conditions: Do not install joint sealers when air and surface temperatures are outside the limits permitted by joint sealer manufacturer, or when joint substrates are wet or dirty.

B. Joint Widths: Do not proceed with installation of joint sealers when joint widths are not as allowed by joint sealer manufacturer.

1.8 WARRANTY

A. Submit a written warranty agreeing to repair or replace defective joint sealer materials or workmanship; including staining, loss of adhesion, loss of cohesion, cracking or discoloration, for a period of 5 years from the date of Substantial Completion.

B. The warranty should include a provision that the period of such warranty shall commence with the City of New York's final acceptance of all work covered under the Contract or at such other date or dates as the City of New York may specify in writing prior to that time.

C. The following types of failure will be adjudged as defective work:

1. Abnormal deterioration, aging or weathering of the work.
2. Water leakage under conditions equivalent to, or less severe than, those specified.
3. Air leakage exceeding specified limits.
4. Sealant loss of adhesion, loss of cohesion, cracking or discoloration.
5. Staining of sealed substrates by sealant or primer.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

B. Colors: Provide colors of joint sealers as selected by the Commissioner, from manufacturer's standard colors.

2.2 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing elastomeric sealants that comply with ASTM C 920 and other requirements indicated including those requirements referencing classifications of ASTM C 920 for Type, Grade, Class, and Uses.

B. Single-component, Neutral Curing Silicone Sealant: Type S; Grade NS; Class 50:

1. Uses: For all interior joints except as otherwise indicated in this Section.
2. Additional Capability: When tested per ASTM C 719, to withstand 50 percent increase and decrease of joint width.

3. Products: Subject to compliance with requirements, provide one of the following, or approved equal:

   a. "Dow Corning 791/795"; Dow Corning Corp.
   b. "Silpruf"; General Electric Co.
   c. "Pecora 865/895"; Pecora Corporation.

C. One-Part Mildew-Resistant Silicone Sealant: Type S; Grade NS; Class 25.

1. Uses: Non-traffic, formulated with fungicide for sealing interior joints with nonporous substrates at vertical surfaces of tile in toilets and between plumbing fixtures and tile.
2. Products: Subject to compliance with requirements, provide one of the following, or approved equal.

   a. "786 Mildew Resistant"; Dow Corning Corporation.
   b. "Sanitary SCS1700"; GE Silicones.
   c. "Tremsil 200 (White)"; Tremco.

2.3 LATEX JOINT SEALANTS

A. Acrylic-Emulsion Sealant: One part, nonsag sealant complying with ASTM C 834, paintable and recommended for interior applications with joint movement of not more than plus or minus 5 percent.

1. Products: Subject to compliance with requirements, provide one of the following, or approved equal:

   a. "Chem-Calk 600"; Bostik Construction Products Div.
   b. "AC-20"; Pecora Corp.
   c. "Tremco Acrylic Latex 834"; Tremco Inc.

2.4 MISCELLANEOUS JOINT SEALANTS

A. Butyl-Polyisobutylene Sealant: Manufacturer's standard, solvent- release-curing, butyl-polyisobutylene sealant complying with AAMA 809.2, for concealed metal to metal joints.

B. Fire-resistant Joint Sealants, General: Refer to Division 7 Section "Penetration Firestopping", for materials and requirements.

1. Provide sealant with fire-resistance rating identical to assemblies tested per ASTM E 814 by Underwriters Laboratory, Inc. or other testing agency acceptable to authorities.
2. Fire-Stopping Sealant: One or two-part, foamed-in-place, silicone sealant for filling or sealing openings around cables, conduit, pipes and similar penetrations through walls and floors.

C. Acoustical Joint Sealants, General: Provide sealants that comply with the requirements specified herein and as specified in Division 9 Section "Gypsum Board".

1. Concealed Acoustical Sealant: ASTM C 834, nonhardening, non-skinning, nonstaining, non-bleeding, gunnable sealant for concealed applications per ASTM C 919.
2. Exposed Acoustical Sealant: Nonoxidizing, skinnable, paintable, gunnable sealant for exposed applications per ASTM C 919.

2.5 COMPRESSION SEALS AND JOINT FILLERS

A. Preformed Foam Sealant: Precompressed, open-cell foam sealant of high-density urethane foam with a nondrying, water repellant agent; precompressed to develop a watertight and airtight seal.

1. Properties: Permanently elastic, mildew-resistant, non-migratory, nonstaining, compatible with joint substrates and other sealers.
2. Products: Subject to compliance with requirements, provide one of the following, or approved equal; of size to suit joint dimensions:

a. "Emseal Greyflex"; Emseal Corp.
b. "Will-Seal Tape Type 150"; Illbruck.

B. Plastic Foam Joint-Fillers: Preformed, compressible, resilient, non-waxing, non-extruding strips of plastic foam of material indicated below, and of size, shape and density to control sealant depth

1. Flexible, non-gassing, closed-cell polyethylene foam, unless otherwise indicated.

a. Provide color as selected by the Commissioner from the manufacturer's full range of colors.

C. Tubing Joint-Fillers: Neoprene, EPDM or silicone tubing complying with ASTM D 1056, non-absorbent to water and gas, resilient at temperatures down to -26 deg F., of size and shape to provide a secondary seal.

D. Back-Bedding Mastic Tape Sealant: Preformed, butyl-based elastomeric tape sealant with a solids content of 100 percent; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape manufacturers for application indicated; packaged on rolls with a release paper backing; and complying with ASTM C 1281 and AAMA 800 for products indicated below:

1. AAMA 806.3 tape, for applications in which tape is subject to continuous pressure.
2. AAMA 807.3 tape, for applications in which tape is not subject to continuous pressure.

2.6 JOINT SEALANT BACKING

A. General: Provide sealant backings of material and type that are non-staining; are compatible with joint substrates, sealers, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure

2.7 MISCELLANEOUS MATERIALS

A. Primer: Provide type recommended by joint sealer manufacturer where required for adhesion of sealant to joint substrates, as determined from preconstruction joint sealer-substrate and field tests.

B. Cleaners: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and non-porous surfaces in any way, and formulated to promote optimal adhesion of sealants to joint substrates

C. Masking Tape: Provide non-staining, non-absorbent type compatible with joint sealants and to surfaces adjacent to joints.

D. Accessory Materials for Fire-Stopping Sealants: Provide accessory materials required for installation of fire-stopping sealants, refer to Division 7 Section "Penetration Firestopping".

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint sealant performance. Do not proceed with installation of joint sealants until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with recommendations of joint sealant manufacturer and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Clean concrete, masonry, and similar porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
3. Remove laitance and form release agents from concrete.
4. Clean metal, glass, and other nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
5. Joint Priming: Prime all joint substrates whether or not indicated or recommended by joint sealant manufacturer. Apply primer to comply with joint sealant manufacturer's recommendations.
6. Confine primers to areas of joint sealant bond; do not allow spillage or migration onto adjoining surfaces.

B. Masking Tape: Use masking tape where required to prevent contact of primers, cleaners and joint sealants with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears.

1. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint sealant manufacturer's printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Installation of Sealant Backings: Install sealant backings complying with the following requirements:

1. Install joint fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint
2. Do not leave gaps between ends of joint fillers.
3. Do not stretch, twist, puncture, or tear joint fillers.
4. Remove absorbent joint fillers that have become wet prior to sealant application and replace with dry material.

D. Install bond breaker tape behind joint sealants where backings are not to be used between sealants and back of joints.

E. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability. Install sealants at the same time sealant backings are installed.

F. Tooling of Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

1. Provide joint configuration as indicated on the drawings, and complying with ASTM C 1193.

   a. Concave Joints: As per the referenced standard; Figure 5A, where indicated.
   b. Recessed Joints: As per the referenced standard; Figure 5C, with recess depth of 1/4" from face material; and at locations indicated. Use masking tape to protect adjacent surfaces of recessed tooled joints.
   c. Flush Joints: As per the referenced standard; Figure 5B, where indicated.

G. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, and to comply with sealant manufacturer's directions for installation methods, materials, and tools that produce seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures where expansion of sealant requires acceleration to produce seal, apply heat to sealant in conformance with sealant manufacturer's recommendations.

H. Installation of Fire-Stopping Sealant: Install sealant and accessory materials to fill openings penetrating floors and walls to provide fire-stops with required fire resistance ratings. Refer to Division 7 Section "Penetration Firestopping" for additional requirements.

I. Installation of Acoustic Sealant: Install sealant and accessory materials to fill openings penetrating floors and walls to provide air-stops with required acoustic ratings.

1. Acoustical sealant shall be applied in continuous beads. The material shall be resilient and non-setting.
2. Seal sound-rated partitions on both sides where facings abut dissimilar materials. Fill void with 1/4" minimum to 3/8" maximum round bead of sealant, as required.

3. Seal at the following locations:

   a. Around the perimeter, in the angle formed by panels and abutting dissimilar materials.
   b. At all intersections, and all penetrations of floor, ceiling, walls, columns.
   c. At all panel terminations in door and window frames, and at control joint to panels.
   d. Around all cutouts for lights, cabinets, pipes and plumbing, HVAC ducts, electrical boxes, etc.

3.4 CLEANING

A. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so that and installations with repaired areas are indistinguishable from original work.

END OF SECTION 079200

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SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide hollow metal doors and frames in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Fire-resistance rated flush design hollow construction type steel doors, as indicated.
2. Fully welded, steel door frames, as indicated.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data for each type of door and frame specified, including details of construction, materials, dimensions, hardware preparation, core, label compliance, sound ratings, profiles, and finishes.

C. Shop Drawings: Submit details of each frame type, elevations of door types, conditions at openings, details of construction, location and installation requirements of finish hardware and reinforcements, and details of joints and connections. Show anchorage and accessories.

1. Provide schedule of doors and frames using same reference numbers for details and openings as those on contract drawings.
2. Coordinate glazing frames and stops with glazing requirements.
3. Prior to fabrication of steel door and frame assemblies, verify actual wall thicknesses, partition types, and thoroughly review the design intent indicated on the Drawings.

D. Samples: For the following items, prepared on Samples about 12 by 12 inches to demonstrate compliance with requirements for quality of materials and construction:

1. Doors: Show vertical-edge, top, and bottom construction; core construction; and hinge and other applied hardware reinforcement. Include separate section showing glazing if applicable.
2. Frames: Show profile, corner joint, floor and wall anchors, and silencers. Include separate section showing fixed hollow metal panels and glazing if applicable.

1.4 QUALITY ASSURANCE

A. Standard: Provide doors and frames complying with ANSI/SDI A250.8 and as specified within this Section.

B. Source Limitations: Obtain hollow metal work from single source from single manufacturer.

C. 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 10B.

1. Fire Rating: As indicated on the Drawings.
2. Temperature-Rise Limit: Where indicated, provide doors that have a maximum transmitted temperature end point of not more than 250 deg C above ambient after 30 minutes of standard fire-test exposure.

D. Preinstallation Conference: Conduct conference at Project site.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and job storage. Provide additional protection to prevent damage to finish of factory-finished doors and frames.

B. Inspect doors and frames on delivery for damage. Minor damages may be repaired provided refinished items match new work and are acceptable to the Commissioner; otherwise, remove and replace damaged items as directed.

C. Store doors and frames at building site under cover. Place units on minimum 4-inch- high wood blocking. Avoid using nonvented plastic or canvas shelters that could create a humidity chamber. If cardboard wrappers on doors become wet, remove cartons immediately. Provide minimum 1/4-inch spaces between stacked doors to promote air circulation.

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish opening dimensions and proceed with fabricating standard steel frames without field measurements. Coordinate wall construction to ensure that actual opening dimensions correspond to established dimensions.

1.7 COORDINATION

A. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for 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:

1. Amweld Building Products, LLC.
2. Ceco Door Products; an Assa Abloy Group company.
3. Curries Company; an Assa Abloy Group company.
4. Steelcraft; an Ingersoll-Rand company.
5. Approved equal.

2.2 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Hot-Rolled Steel Sheet: ASTM A 1011, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

C. Frame Anchors: ASTM A 591, Commercial Steel (CS), 40Z coating designation; mill phosphatized.

D. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153.

E. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow metal frames of type indicated.

F. Grout: ASTM C 476, except with a maximum slump of 4 inches, as measured according to ASTM C 143.

G. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

H. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool with 96- to 192-kg/cu. m density; with maximum flame-spread and smoke-development indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.

2.3 STANDARD HOLLOW METAL DOORS

A. General: Provide doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated. 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.

a. Fire Door Core: As required to provide fire-protection and temperature-rise ratings indicated.

3. Vertical Edges for Single-Acting Doors: Manufacturer's standard.

a. Beveled Edge: 1/8 inch in 2 inches.

4. Vertical Edges for Double-Acting Doors: Round vertical edges with 2-1/8-inch radius.
5. Top and Bottom Edges: Closed with flush or inverted 0.042-inch thick, end closures or channels of same material as face sheets.
6. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."

B. Interior Doors: Face sheets fabricated from cold-rolled steel sheet, unless metallic-coated sheet is indicated; 0.053-inch thick. 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 2 and Physical Performance Level B (Heavy Duty), Model 2 (Seamless).

C. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.

D. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel sheet.

2.4 STANDARD HOLLOW METAL FRAMES

A. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile. Fabricate frames for doors, transoms, and sidelites, with mitered or coped corners; of welded construction.

B. Interior Frames: Fabricated from cold-rolled steel sheet unless metallic-coated sheet is indicated.

1. Frames for Steel Doors: 0.053-inch thick steel sheet.

C. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates from same material as frames.

2.5 FRAME ANCHORS

A. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick
2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.
3. Compression Type for Drywall Slip-on Frames: Adjustable compression anchors.
4. Postinstalled Expansion Type for In-Place Concrete or Masonry: Minimum 3/8-inch diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.

B. Floor Anchors: Formed from same material as frames, not less than 0.042 inch thick, and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

2.6 FABRICATION

A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

B. Tolerances: Fabricate hollow metal work to tolerances indicated in SDI 117.

C. Hollow Metal Doors:

1. Exterior Doors: Provide weep-hole openings in bottom of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
2. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch beyond edge of door on which astragal is mounted.

D. Hollow Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.
2. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
3. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
4. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
5. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.

6. Jamb Anchors: Provide number and spacing of anchors as follows:

   a. Masonry Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:

      1) Two anchors per jamb up to 60 inches high.
      2) Three anchors per jamb from 60 to 90 inches high.
      3) Four anchors per jamb from 90 to 120 inches high.
      4) Four anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof above 120 inches high.

   b. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:

      1) Three anchors per jamb up to 60 inches high.
      2) Four anchors per jamb from 60 to 90 inches high.
      3) Five anchors per jamb from 90 to 96 inches high.
      4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
      5) Two anchors per head for frames above 42 inches wide and mounted in metal-stud partitions.

   c. Compression Type: Not less than two anchors in each jamb.
   d. Postinstalled Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.

7. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers as follows. Keep holes clear during construction.

   a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
   b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.

E. Fabricate concealed stiffeners, edge channels, and hardware reinforcement from either cold- or hot-rolled steel sheet.

F. Hardware Preparation: Factory prepare hollow metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates furnished as specified in Division 8 Section "Door Hardware."

1. Locate hardware as indicated, or if not indicated, 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.

2.7 STEEL FINISHES

A. Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating.

1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

B. Refer to Division 9 Section "Painting" for applications of field painted finishes to steel doors and frames specified within this Section.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.

C. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.

B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

3.3 INSTALLATION

A. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.

B. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with ANSI/SDI A250.11.

1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

    a. At fire-protection-rated openings, install frames according to NFPA 80.
    b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
    c. Install frames with removable glazing stops located on secure side of opening.
    d. Install door silencers in frames before grouting.
    e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
    f. Check plumbness, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
    g. Field apply bituminous coating to backs of frames that are filled with grout containing antifreezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.

    a. Floor anchors may be set with powder-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.

3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation behind frames.
4. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
5. In-Place Gypsum Board Partitions: Secure frames in place with postinstalled expansion anchors through floor anchors at each jamb. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
6. Installation Tolerances: Adjust hollow metal door frames for squareness, alignment, twist, and plumb to the following tolerances:

    a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    b. Alignment: Plus or minus 11/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
    c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.

C. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.

    1. Fire-Rated Doors: Install doors with clearances according to NFPA 80.

3.4 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. Remove grout and other bonding material from hollow metal work immediately after installation.

C. 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.

END OF SECTION 081113

SECTION 083113 - ACCESS DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide access doors and frames in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Access doors and frames for walls and ceilings.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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

1.3 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: For each type of product, include construction details, materials, individual components and profiles, and finishes.

C. Shop Drawings:

1. Include plans, elevations, sections, details, and attachments to other work.
2. Detail fabrication and installation of access doors and frames for each type of substrate.

D. Samples: For each door face material, at least 3 by 5 inches in size, in specified finish.

E. Product Schedule: Provide complete access door and frame schedule, including types, locations, sizes, latching or locking provisions, and other data pertinent to installation.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of access door(s) and frame(s) through one source from a single manufacturer.

B. Fire-Rated Access Doors and Frames: Units complying with NFPA 80 that are identical to access door and frame assemblies tested for fire-test-response characteristics per the following test method and that are listed and labeled by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:

1. NFPA 252 or UL 10B for vertical access doors and frames.
2. ASTM E 119 or UL 263 for horizontal access doors and frames.

C. Size Variations: Obtain Commissioner's acceptance of manufacturer's standard-size units, which may vary slightly from sizes indicated.

1.5 COORDINATION

A. Verification: Determine specific locations and sizes for access doors needed to gain access to concealed plumbing, mechanical, or other concealed work, and indicate in the schedule specified in "Submittals" Article.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Steel Plates, Shapes, and Bars: ASTM A 36.

B. Steel Sheet: Uncoated or electrolytic zinc coated, ASTM A 879, with cold-rolled steel sheet substrate complying with ASTM A 1008, Commercial Steel (CS), exposed.

C. Inserts, Bolts, and Anchor Fasteners: Hot-dip galvanized steel according to ASTM A 153 or ASTM F 2329.

2.2 ACCESS DOORS AND FRAMES FOR WALLS AND CEILINGS

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. Acudor Products, Inc.
2. Karp.
3. Larsen's Manufacturing Company.
4. Nystrom.
5. Approved equal.

B. Recessed Access Doors with Gypsum Board Finish: Fabricate door in the form of a pan recessed for gypsum board infill. Provide frame with gypsum board bead for concealed flange installation. Fabricate from steel sheet.

1. Locations: Ceilings.
2. Door Size: As selected by the Commissioner.
3. Door: Minimum 0.060 inch thick sheet metal.
4. Frame Material: Same material and thickness as door.
5. Hinges: Spring-loaded, concealed-pin type.
6. Latch: Screwdriver-operated cam latch.
7. Basis of Design: Subject to compliance with requirements, provide RW Series, as manufactured by Nystrom, or approved equal from one of the following:

    a. Nystrom.
    b. Acudor Products, Inc.
    c. Karp.
    d. Larsen's Manufacturing Company.

C. Fire-Rated, Flush Access Doors and Trimless Frames: Fabricated from steel sheet.

1. Locations: Walls and ceilings.
2. Fire-Resistance Rating: Not less than that of adjacent construction.
3. Temperature Rise Rating: 250 deg F at the end of 30 minutes.
4. Door: Flush panel with a core of mineral-fiber insulation enclosed in sheet metal with a minimum thickness of 0.030 inch.
5. Frame: Minimum 0.030-inch thick sheet metal with drywall bead.
6. Hinges: Concealed pivot with a controlled action device.
7. Automatic Closer: Spring type.
8. Latch: Self-latching device operated by knurled knob with interior release.
9. Basis of Design: Subject to compliance with requirements, provide Series KSTDW, by Karp, or approved equal from one of the following:

    a. Karp.
    b. Acudor Products, Inc.
    c. Larsen's Manufacturing Company.
    d. Nystrom.

2.3 FABRICATION

A. General: Provide access door and frame assemblies manufactured as integral units ready for installation.

B. Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.

C. Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access doors to types of supports indicated.

1. For concealed flanges with drywall bead, provide edge trim for gypsum board securely attached to perimeter of frames.
2. Provide mounting holes in frames for attachment of units to metal framing.
3. Provide mounting holes in frame for attachment of masonry anchors.

D. Recessed Access Doors: Form face of panel to provide recess for application of applied finish. Reinforce panel as required to prevent buckling.

E. Latching Mechanisms: Furnish number required to hold doors in flush, smooth plane when closed.

1. For recessed panel doors, provide access sleeves for each locking device. Furnish plastic grommets and install in holes cut through finish.
2. For cylinder locks, furnish two keys per lock and key all locks alike.

2.4 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

D. Steel Finishes: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Surface Preparation for Steel Sheet: Clean surfaces to comply with SSPC-SP 1, "Solvent Cleaning," to remove dirt, oil, grease, or other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning," or SSPC-SP 8, "Pickling."

2. Factory-Primed Finish: Apply shop primer immediately after cleaning and pretreating.
3. Field Painted Finish: Refer to Division 9 Section "Painting" for materials and requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with manufacturer's written instructions for installing access doors and frames.

B. Install doors flush with adjacent finish surfaces.

3.3 ADJUSTING

A. Adjust doors and hardware, after installation, for proper operation.

B. Remove and replace doors and frames that are warped, bowed, or otherwise damaged.

END OF SECTION 083113

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SECTION 083473 - SOUND CONTROL HOLLOW METAL DOOR ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide sound control hollow metal door assemblies in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Acoustic swinging sound control hollow metal doors and frames.
2. Perimeter seals, door bottoms and astragals.
3. Hardware, brackets, and additional items as required.
4. Thresholds.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".
5. Division 4 Section "Unit Masonry" for embedding anchors for hollow metal work into masonry construction.
6. Division 8 Section "Glazing" for glass view panels in sound control hollow metal doors.
7. Division 8 Sections "Door Hardware" for door hardware for sound control hollow metal doors and frames.
8. Division 9 Section "Painting" for field painting hollow metal doors and frames.
9. Division 26 "Electrical" Sections for electrical connections including conduit and wiring for door controls and operators installed on frames with factory installed electrical knock out boxes.

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. ANSI/SDI A250.8 - Recommended Specifications for Standard Steel Doors and Frames.
2. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames, Frames Anchors and Hardware Reinforcing.
3. ANSI/SDI A250.6 - Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames.
4. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
5. ANSI/SDI A250.11 - Recommended Erection Instructions for Steel Frames.

6. ASTM A1008 - Standard Specification for Steel Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
7. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
8. ASTM E 1408 - Standard Test Method for Laboratory Measurement of the Sound Transmission Loss of Door Panels and Door Systems.
9. ASTM E336 - Standard Test Method for Measurement of Airborne Sound Insulation in Buildings.
10. ASTM E 413 - Classification for Rating Sound Insulation.
11. ANSI/BHMA A156.15 - Hardware Preparation in Steel Doors and Frames.
12. ANSI/SDI 122 - Installation and Troubleshooting Guide for Standard Steel Doors and Frames.
13. ANSI/SDI 124 - Maintenance of Standard Steel Doors and Frames.
14. ANSI/NFPA 80 - Standard for Fire Doors and Fire Windows; National Fire Protection Association.
15. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; National Fire Protection Association.
16. UL 10C (1998) - Positive Pressure Fire Tests of Door Assemblies; UL 1784 (2001) - Standard for Air Leakage Tests of Door Assemblies.

1.3 TESTING AND PERFORMANCE

A. Sound control assemblies to be identical to those tested at an independent acoustical laboratory qualified under the National Voluntary Laboratory Accreditation Program (NVLAP) by the National Institute for Science and Technology (NIST) in accordance with ASTM E1408 and ASTM E413.

1.4 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: For each type of product indicated, include construction details, sound ratings, material descriptions, core descriptions, hardware reinforcements, profiles, anchors, fire-resistance rating, and finishes.

C. Door hardware supplier is to furnish templates, template reference number and/or physical hardware to the steel door and frame supplier in order to prepare the doors and frames to receive the finish hardware items.

D. Shop Drawings: Include the following:

1. Elevations of each door design.
2. Details of doors, including vertical and horizontal edge details and metal thicknesses.
3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
4. Locations of reinforcement and preparations for hardware.
5. Details of each different wall opening condition.
6. Details of anchorages, joints, field splices, and connections.
7. Details of accessories.
8. Details of moldings, removable stops, and glazing.
9. Details of preparations for power, signal, and control systems.

E. Samples for Verification:

1. Finishes: For each type of exposed finish required, prepared on Samples of not less than 3 by 5 inches.
2. Doors: Include section of vertical-edge, top, and bottom construction; automatic door bottom or gasket; core construction; glazing; and hinge and other applied hardware reinforcement.
3. Frames: Include profile, corner joint, floor and wall anchors, and seals. Include separate section showing fixed sound panels if applicable.

F. Schedule: Provide a schedule of sound-control door assemblies prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with the Door Hardware Schedule.

G. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each type of sound-control door assembly.

1.5 QUALITY ASSURANCE

A. Manufacturers Qualifications: Obtain acoustic assemblies through one source from a single manufacturer with three (3) years of documented experience producing sound control door and frame type work similar to that indicated for this Project and that have a proven record of successful in-service performance.

B. Fire-Rated Door Assemblies: Assemblies 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.

C. Smoke-Control Door Assemblies: Comply with UL 1784 or NFPA 105, whichever is more stringent.

D. Sound Rating: Provide sound-control door assemblies identical to those of assemblies tested as sound-retardant units by an acoustical testing agency, and have the following minimum rating:

1. STC Rating: As indicated on the Drawings, and determined by ASTM E 413 when tested in an operable condition according to ASTM E 90 and ASTM E 1408.

E. Pre-Installation Conference: Conduct conference in compliance with requirements in DDC General Conditions with attendance by representatives of Supplier, Installer, and Contractor to review proper methods and procedures for installing sound control doors and frames and to verify installation of electrical knockout boxes and conduit at frames with electrified or access control hardware.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver sound control hollow metal work palletized, and crated to provide protection during transit and Project-site storage.

B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

C. Store sound control hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch- (102-mm-) high wood blocking. Do not store in a manner that traps excess humidity.

1. Provide minimum 1/4-inch space between each stacked door to permit air circulation. Door and frames to be stacked in a vertical upright position.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install wood sound-control wood doors until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

B. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

1.8 COORDINATION

A. Coordinate installation of anchorages for sound control hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

1.9 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of sound-control door assemblies that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Failure to meet sound rating requirements.

b. Faulty operation of sound seals.
c. Deterioration of metals, metal finishes, and other materials beyond normal use or weathering.

B. Warranty Period for Steel Doors: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products as manufactured by one of the following:

1. Krieger Specialty Products Company.
2. Overly Door Company.
3. Pioneer Industries, Inc.
4. Security Acoustics; a division of Security Metal Products Corp.
5. Approved equal.

B. Basis of Design: Subject to compliance with requirements, provide Model 5192149, as manufactured by Overly Door Company, or approved equal.

2.2 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Frame Anchors: ASTM A 653, Commercial Steel (CS), Commercial Steel (CS), Type B; with minimum G60 or A60 metallic coating.

C. Door Hardware: Provide required door hardware including cam-lift hinges, perimeter seals, door bottoms, astragals, thresholds and hardware standoff brackets required to meet the specified STC rating. Refer to Division 8 Section, "Door Hardware" for remainder of sound control door hardware.

D. Glazing: Vision panels to be designed and tested by the manufacturer to meet the specified STC rating and comply with requirements in Division 8 Section, "Glazing."

E. Grout: Comply with ASTM C 476, with a slump of not more than 4 inches as measured according to ASTM C 143.

2.3 SOUND CONTROL HOLLOW METAL DOORS

A. Description: Provide flush-design sound-control doors, 1-3/4 inches thick, of seamless construction; with manufacturer's standard sound-retardant core as required to provide STC and fire rating indicated. Construct doors with smooth, flush surfaces without visible joints or seams on exposed faces or stile edges. Fabricate according to ANSI/NAAMM-HMMA 865.

1. Interior Doors: Fabricate from cold-rolled steel sheet unless otherwise indicated, 0.060 inch nominal thickness, or thicker as required to achieve STC rating indicated.

a. Design: Flush panel.

b. Core Construction: Manufacturer's standard sound control door core construction designed and tested for the specified STC rating.

1) Fire Door Core: As required to provide fire-protection level specified

2. Loose Stops for Glazed Lites in Doors: Same material as face sheets.
3. Top and Bottom Channels: Closed with continuous channels of same material as face sheets, spot welded to face sheets not more than 6 inches o.c.
4. Hardware Reinforcement: Same material as face sheets.

2.4 SOUND CONTROL HOLLOW METAL FRAMES

A. Description: Fabricate sound-control door frames with corners mitered, reinforced, and continuously welded full depth and width of frame. Fabricate according to ANSI/NAAMM-HMMA 865.

1. Material and Thickness: Minimum 14 gage (0.067-inch) thick steel sheet.

B. Fire rated frames: Fabricate frames in accordance with NFPA 80, listed and labeled by a qualified testing agency, for fire-protection ratings indicated.

C. Hardware Reinforcement: Fabricate according to ANSI/NAAMM-HMMA 865 of same material as face sheets

1. Factory mortise, reinforce, drill and tap and doors and frames for all mortise hardware as required by hardware manufacturer's template. Provide necessary reinforcement plates as required for surface mounted hardware; all drilling and tapping to be done in field by installer. Provide dust cover boxes on all frame mortises.
2. Head Reinforcement: Reinforce frames with metallic-coated steel channel or angle stiffener, 0.108-inch nominal thickness, welded to head.

D. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.064-inch nominal thickness metallic-coated steel with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.156 inch hick.

2. Floor Anchors: Floor anchors to be provided at each jamb. Formed from same material as frames, not less than 0.079-inch thick

E. Plaster Guards: Metallic-coated steel sheet, not less than 0.026 inch thick

2.5 SOUND-CONTROL HARDWARE

A. Description: Provide manufacturer's standard sound-control system, including head and jamb seals, door bottoms, cam-lift hinges, and thresholds, as required by testing to achieve STC and fire rating indicated.

1. Compression Seals: One-piece units; consisting of closed-cell sponge neoprene seal held in place by metal retainer; with retainer cover of same material as door frame; attached to door frame with concealed screws.
2. Door Bottoms: Neoprene or silicone gasket held in place by metal housing; mortised into bottom edge of door.

3. Cam-Lift Hinges: Full-mortise template type that raises door 1/2 inch when door is fully open; with hardened pin; fabricated from stainless steel.
4. Thresholds: Flat, smooth, unfluted type as recommended by manufacturer; fabricated from aluminum.

    a. Finish: Clear anodic finish.

5. Other Hardware: Comply with requirements in Division 8 Section "Door Hardware".

2.6 FABRICATION

A. Sound-Control Steel Door Fabrication: Sound-control doors to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal.

1. Seamless Edge Construction: Fabricate doors with faces joined at vertical edges by welding; welds shall be ground, filled, and dressed to make them invisible and to provide a smooth, flush surface.
2. Glazed Lites: Factory install glazed lites according to requirements of tested assembly to achieve STC rating indicated. Provide fixed stops and moldings welded on secure side of door.

B. Sound-Control Frame Fabrication: Fabricate sound-control frames to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

1. Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible. Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated from same thickness metal as frames.
2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
3. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
4. Jamb Anchors: Provide number and spacing of anchors as follows:

    a. Masonry Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:

        1) Two anchors per jamb up to 60 inches in height.
        2) Three anchors per jamb from 60 to 90 inches in height.
        3) Four anchors per jamb from 90 to 96 inches in height.
        4) Four anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof more than 96 inches in height.

5. Head Reinforcement: For frames more than 48 inches wide, provide continuous head reinforcement for full width of opening, welded to back of frame at head.
6. Hardware Preparation: Factory prepare sound-control frames to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping, according to the Door Hardware Schedule and templates furnished as specified in "Door Hardware."

a. Reinforce frames to receive nontemplated mortised and surface-mounted door hardware.
b. Locate hardware as indicated, or if not indicated, according to NAAMM-HMMA 831, "Recommended Hardware Locations for Custom Hollow Metal Doors and Frames."

7. Plaster Guards: Weld guards to frame at back of hardware cutouts and glazing-stop screw and sound-control seal preparations to close off interior of openings in frames to be grouted.

C. Hardware Preparation: Factory prepare sound-control doors and frames to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping, according to the Door Hardware Schedule and templates furnished as specified in "Door Hardware."

1. Reinforce doors and frames to receive nontemplated mortised and surface-mounted door hardware.
2. Locate door and frames hardware as indicated, or if not indicated, according to NAAMM-HMMA 831, "Recommended Hardware Locations for Custom Hollow Metal Doors and Frames."

D. Tolerances: Fabricate doors and frames to tolerances indicated in ANSI/NAAMM-HMMA 865.

2.7 STEEL FINISHES

A. Prime Finish: Doors and frames to be cleaned, and chemically treated to insure maximum finish paint adhesion. Surfaces of the door and frame exposed to view to receive a factory applied coat of rust inhibiting shop primer.

1. Shop Primer: Manufacturer's standard, fast-curing, lead and chromate free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

B. Finish Coats: Refer to Division 9 Section "Painting" for materials and requirements of field applied finish coats.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. General Contractor to verify the accuracy of dimensions given to door and frame manufacturer for existing openings or existing frames (strike height, hinge spacing, hinge back set, etc.).

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.

B. Prior to installation and with installation spreaders in place, adjust and securely brace sound-control door frames to the following tolerances:

1. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
2. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
3. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
4. Plumbness: Plus or minus 1/16 inch, measured at jambs on a perpendicular line from head to floor.

C. Drill and tap doors and frames to receive nontemplated mortised and surface-mounted door hardware.

3.3 INSTALLATION

A. General: Install sound control hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.

B. Sound Control Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with ANSI/SDI A250.11.

1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged. Shim as necessary to comply with installation tolerances.

   a. At fire-protection-rated openings, install frames according to NFPA 80.
   b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
   c. Install frames with removable glazing stops located on secure side of opening.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with post-installed expansion anchors.
3. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with appropriate mortar.
4. Wood or Metal Partitions: As required by the specified STC rating, and in accordance with the manufacturer's recommended instructions, coordinate installation of frames to allow for solidly filling space between frames and wood or metal partitions with light weight plaster grout.

C. Sound Control Hollow Metal Doors: Fit sound control 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 plus or minus 1/16 inch.
   b. Between Edges of Pairs of Doors: 1/8 inch plus or minus 1/16 inch.
   c. Between Bottom of Door and Top of Threshold: Standard bottom clearance as required by manufacturer.

2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.

D. Sound-Control Seals: Where seals have been prefit and preinstalled in the factory and subsequently removed for shipping, reinstall seals and adjust according to manufacturer's written instructions.

E. Cam-Lift Hinges: Install hinges according to manufacturer's written instructions.

F. Thresholds: Set thresholds in full bed of sealant complying with requirements in Division 7 Section "Joint Sealants."

G. Glazing: Comply with installation requirements in Division 8 Section "Glazing" and with sound-control door assembly manufacturer's written instructions.

1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c., and not more than 2 inches o.c. from each corner

H. Install perimeter seals, door bottoms, astragals and thresholds in accordance with manufacturer's written installation instructions.

3.4 FIELD QUALITY CONTROL

A. Qualified independent testing agency to test specific sound control assembly installations as selected by the City of New York/Commissioner in accordance with ASTM E336. Installed product to perform no less than five FSTC or NIC rating points below the specified laboratory STC rating. Installations that do not meet criteria, to be adjusted and retested until compliance is obtained.

3.5 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 sound control hollow metal work that is warped, bowed, or otherwise unacceptable.

B. Remove grout and other bonding material from sound control hollow metal work immediately after installation.

C. 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.

END OF SECTION 083473

SECTION 087100 – DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide door hardware in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Swinging doors
2. Sliding Doors
3. Other doors to the extent indicated.

B. Door hardware includes, but is not necessarily limited to, the following:

1. Mechanical door hardware.
2. Electromechanical door hardware, power supplies, back-ups and surge protection.
3. Automatic operators.
4. Cylinders specified for doors in other sections.

C. Codes and References: Comply with the following:

1. American National Standards Institute/Builders Hardware Manufacturers Association (ANSI):
   a. ANSI/BHMA A156.1 Butts & Hinges (2006)
   b. ANSI/BHMA A156.2 Bored & Preassembled Locks & Latches (2003)
   c. ANSI/BHMA A156.4 Door Controls – Closers (2000)
   d. ANSI/BHMA A156.6 Architectural Door Trim (2005)
   e. ANSI/BHMA A156.7 Template Hinge Dimensions (2003)
   f. ANSI/BHMA A156.8 Door Controls – Overhead Stops and Holders (2005)
   g. ANSI/BHMA A156.16 Auxiliary Hardware (2002)
   h. ANSI/BHMA A156.18 Materials & Finishes (2006)
   i. ANSI/BHMA A156.21 Thresholds (2006)
   j. ANSI/BHMA A156.22 Door Gasketing Systems (2005)
   k. ANSI/BHMA A156.28 Keying Systems (2008)
   l. ANSI/BHMA A250.13 Testing and Rating of Severe Windstorm Resistant Components for Swinging Door Assemblies

2. International Code Council/American National Standards Institute (ICC/ANSI):
   a. ICC/ANSI A117.1 Standards for Accessible and Usable Buildings and Facilities (2003).

3. Underwriters Laboratories, Inc. (UL):
   a. UL 10C Positive Pressure Fire Test of Door Assemblies
   b. UL 1784 Air Leakage Test of Door Assemblies

4. Door and Hardware Institute (DHI):
   a. DHI Publication – Keying Systems and Nomenclature
   b. DHI Publication – Abbreviations and Symbols
   c. DHI Publication – Installation Guide for Doors and Hardware

d. DHI Publication – Sequence and Format of Hardware Schedule

5. National Fire Protection Agency (NFPA)
   a. NFPA 70 National Electrical Code (2011)
   b. NFPA 80 Standard for Fire Doors and Other Opening Protectives (2010)
   c. NFPA 101 Life Safety Code (2009)
   d. NFPA 105 Standard for the Installation of Smoke Door Assemblies (2010)

6. Building Codes
   a. 1968 NYC Building Code & NYS Building Code

1.2 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction and installation details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Samples for Initial Selection: For plastic protective trim units in each finish, color, and texture required for each type of trim unit indicated.

C. Samples for Verification: For exposed door hardware of each type required, in each finish specified, prepared on Samples of size indicated below. Tag Samples with full description for coordination with the door hardware schedule. Submit Samples before, or concurrent with, submission of door hardware schedule.

1. Sample Size: Full-size units or minimum 2-by-4-inch Samples for sheet and 4-inch long Samples for other products.

   a. Full-size Samples will be returned to Contractor. Units that are acceptable and remain undamaged through submittal, review, and field comparison process may, after final check of operation, be incorporated into the Work, within limitations of keying requirements.

D. Other Submittals:

1. Door Hardware Schedule: Prepared by or under the supervision of Installer, detailing fabrication and assembly of door hardware, as well as installation procedures and diagrams. Coordinate final door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

   a. Submittal Sequence: Submit door hardware schedule after or concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate the fabrication of other work that is critical in Project construction schedule.
   b. Format: Use same scheduling sequence and format and use same door numbers as in the Contract Documents.
   c. Content: Include the following information:

      1) Identification number, location, hand, fire rating, size, and material of each door and frame.

2) Locations of each door hardware set, cross-referenced to Drawings on floor plans and to door and frame schedule.
3) Complete designations, including name and manufacturer, type, style, function, size, quantity, function, and finish of each door hardware product.
4) Description of electrified door hardware sequences of operation and interfaces with other building control systems.
5) Fastenings and other pertinent information.
6) Explanation of abbreviations, symbols, and codes contained in schedule.
7) Mounting locations for door hardware.
8) List of related door devices specified in other Sections for each door and frame.

2. Keying Schedule: Prepared by or under the supervision of Installer, detailing Commissioner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations that are coordinated with the Contract Documents.

E. Qualification Data: For Installer.

F. Product Certificates: For electrified door hardware, from the manufacturer.

1. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.

G. Product Test Reports: For compliance with accessibility requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for door hardware on doors located in accessible routes.

H. Warranty: Special warranty specified in this Section.

I. Maintenance Data: For each type of door hardware to include in maintenance manuals. Include final hardware and keying schedule.

1.3 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 Commissioner via registered mail or overnight package service. Instructions for delivery to the Commissioner shall be established at the "Keying Conference".

1.4 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 and electrified 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 Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.

C. 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.

1.5 WARRANTY

A. Manufacturer's Warranty: Special warranties specified in this Article shall not deprive City of New York of other rights City of New York may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

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 Commissioner. 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.
4. Electrical component defects and failures within the systems operation.

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. Ten years for extra heavy duty cylindrical (bored) locks and latches.
3. Seven years for heavy duty cylindrical (bored) locks and latches.
4. Five years for standard duty cylindrical (bored) locks and latches.
5. Five years for exit hardware.
6. Ten years for manual door closers.
7. Two years for electromechanical door hardware.

1.6 WARRANTY SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for continued adjustment, maintenance, and removal and replacement of door hardware.

B. Continuing Service: Beginning at Substantial Completion, and running concurrent with the specified warranty period, provide continuous (6) months full maintenance including repair

and replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door opening operation. 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.

2.2 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. Two Hinges: For doors with heights up to 60 inches.
b. Three Hinges: For doors with heights 61 to 90 inches.
c. Four Hinges: For doors with heights 91 to 120 inches.
d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 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).

2.3 POWER TRANSFER DEVICES

A. Provide mortar guard enclosure on steel frames installed at masonry openings for each electrical hinge specified.

B. Electric Door Hardware Cords: Provide electric transfer wiring harnesses with standardized plug connectors to accommodate up to twelve (12) wires. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number of concealed wires to accommodate electric function of specified hardware. Provide a connector for through-door electronic locking devices and from hinge to junction box above the opening. Wire nut connections are not acceptable. Determine the length required for each electrified hardware component for the door type, size and construction, minimum of two per electrified opening.

1. Acceptable Manufacturers:

   a. Bommer Industries (BO)
   b. Hager Companies (HA)
   c. McKinney Products (MK)

2. Provide one each of the following tools as part of the base bid contract:

   a. Electrical Connecting Kit
   b. Connector Hand Tool

2.4 DOOR OPERATING TRIM

A. Flush Bolts and Surface Bolts: ANSI/BHMA A156.3 and A156.16, Grade 1, certified automatic, self-latching, and manual flush bolts and surface bolts. Manual flush bolts to be furnished with top rod of sufficient length to allow bolt location approximately six feet from the floor. Furnish dust proof strikes for bottom bolts. Surface bolts to be minimum 8" in

length and U.L. listed for labeled fire doors. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.

1. Acceptable Manufacturers:

   a. Door Controls International (DC).
   b. McKinney Architectural Hardware (MK).
   c. Rockwood Manufacturing (RO).
   d. Trimco (TC).

B. Coordinators: ANSI/BHMA A156.3 certified door coordinators consisting of active-leaf, hold-open lever and inactive-leaf release trigger. Coordinators fabricated from steel with nylon-coated strike plates and built-in adjustable safety release.

1. Acceptable Manufacturers:

   a. Door Controls International (DC).
   b. McKinney Architectural Hardware (MK).
   c. Rockwood Manufacturing (RO).
   d. Trimco (TC).

2.5 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.

1. Acceptable Manufacturers:

   a. Corbin Russwin Hardware (RU).
   b. Sargent Manufacturing (SA).
   c. Schlage (SC).
   d. Stanley Best (BE).
   e. Yale Locks and Hardware (YA).

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. Security Cylinders: ANSI/BHMA A156.5, Grade 1, patented security cylinders and keys able to be used together under the same facility master or grandmaster key system. Cylinders are to be factory keyed.

1. Acceptable Manufacturers:

a. Corbin Russwin (RU) - Pyramid PS Series.
b. Sargent Manufacturing (SA) - Signature Series.
c. Yale Locks and Hardware (YA) - 5000 Series.

E. 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 Commissioner. 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. Grand Master Key System: Cylinders are operated by a change key, a master key, and a grand master key.
3. Great-Grand Master Key System: Cylinders are operated by a change key, a master key, a grand master key, and a great-grand master key.
4. Existing System: Master key or grand master key locks to existing system.
5. Keyed Alike: Key all cylinders to same change key.

F. Key Quantity: Provide the following minimum number of keys:

1. Top Master Key: One (1)
2. Change Keys per Cylinder: Two (2)
3. Master Keys (per Master Key Group): Two (2)
4. Grand Master Keys (per Grand Master Key Group): Two (2)
5. Construction Control Keys (where required): Two (2)
6. Permanent Control Keys (where required): Two (2)

G. 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".

H. Key Registration List: Provide keying transcript list to Commissioner in the proper format for importing into key control software.

I. Key Control Software: Provide one network version of key management software package that includes one year of technical support and upgrades to software at no charge. Provide factory key system formatted for importing into software.

2.6 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. Acceptable Manufacturers:

a. Corbin Russwin Hardware (RU) – ML2000 Series.

b. Sargent Manufacturing (SA) – (R)8200 Series.
c. Yale Locks and Hardware (YA) – 8800FL Series.

B. Lock Trim Design: As specified in Hardware Sets.

C. Knurling: Where specified provide knurling or abrasive coating to all levers on doors leading to hazardous areas such as mechanical rooms, boiler and furnace rooms, janitor closets, and as otherwise required by ANSI 117.1 (2009).

2.7 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. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. 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.

2.8 CONVENTIONAL EXIT DEVICES

A. Conventional Drop Bar Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 certified panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device crossbars to be seamless assemblies of brass, bronze, or stainless steel construction with a minimum thickness of .065". Crossbars lever arms to be drop forged and counter balanced by springs in both the center and hinge style cases.

1. Acceptable Manufacturers:

a. Corbin Russwin Hardware (RU) - ED6000 Series.
b. Sargent Manufacturing (SA) - 90 Series.
c. Yale Locks and Hardware (YA) - 1500 Series.

2.9 ELECTROMECHANICAL CONVENTIONAL EXIT DEVICES

A. Electrified Options: As indicated in hardware sets, provide electrified exit device options including: electric latch retraction, electric dogging, outside door trim control, exit alarm, delayed egress, latchbolt monitoring, lock/unlock status monitoring, touchbar monitoring and request-to-exit signaling. Unless otherwise indicated, provide electrified exit devices standard as fail secure.

2.10 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.

B. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA 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 (YA) - 4400 Series.

C. Door Closers, Overhead Concealed (Heavy Duty): ANSI/BHMA 156.4 certified Grade 1 heavy duty door closers with closers with complete spring power adjustment, sizes 1 thru 6. Closers to have fully concealed body in the frame head and track assembly in the door, rack

and pinion type construction, either offset or center hung applications, with separate and independent valves for closing speed, latch speed, and backcheck adjustments. Overhead concealed closers require a minimum 4-inch frame head for mounting.

1. Acceptable Manufacturers:

   a. Norton Door Controls (NO) - 7900 Series
   b. Sargent Manufacturing (SA) - 268/278 Series
   c. Ingersol Rand / LCN - 2010 Series

2.11 SURFACE MOUNTED CLOSER HOLDERS

A. Closer Holder Release Devices: ANSI A156.15 certified closer holder release devices designed to hold open fire or smoke rated doors until interruption of signal from fire alarm, smoke detector or remote release switch. Pull side, push side, or double egress mounting applications available with non-handed track and closer body and dual voltage input (24V/120V). Voltage to be 24VDC unless otherwise specified. Where optional detector is required, provide integral photo electric type with LED indicator. Auxiliary door stops are required at hold open point.

1. Acceptable Manufacturers:

   a. Norton Door Controls (NO) - 7700PT(D) Series.
   b. Rixson Door Controls (RF) - Smok-Chek VI Series.
   c. Sargent Manufacturing (SA) -351 EHT(D) Series.

2.12 DOOR STOPS AND HOLDERS

A. General: Door stops and holders 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. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Acceptable Manufacturers:

   a. McKinney Architectural Hardware (MK).
   b. Rockwood Manufacturing (RO).
   c. Trimco (TC).

2.13 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.

1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

C. Fire Labeled Gasketing: :Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.

1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and UBC 7-2, Fire Tests of Door Assemblies.

D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated, based on testing according to ASTM E 1408.

E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

F. Acceptable Manufacturers:

1. McKinney Weatherstripping Products (MW).
2. Pemko Manufacturing (PE).
3. Zero International (ZE).

2.14 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.

2.15 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.

D. Antimicrobial Finishes: Where specified, finishes on locksets, latchsets, exit devices and push/pull trim to incorporate an FDA recognized. Silver Ion, antimicrobial coating listed for use on equipment as a suppressant to the growth and spread of a broad range of bacteria, algae, fungus, mold and mildew.

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 and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.

1. Installers are to be trained 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. Retrofitting: 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 occupancy.

3.7 DEMONSTRATION

A. Instruct 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 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. Refer to Door Hardware Schedule below, for hardware sets.

C. Manufacturer's Abbreviations (Basis of Design):

1. MK - McKinney
2. RO - Rockwood
3. SA - Sargent
4. RF - Rixson
5. PE - Pemko

Hardware Schedule

Set: 1.0

Doors: 1.6

3 Hinge	TA2714 NRP 4-1/2" x 4-1/2"	US10B	MK
1 Rim Exit Device	10 12 42 9813 ETMZ	US10B	SA
1 Concealed Closer	268 OB	EB	SA
3 Silencer	608		RO

Set: 1.1

Doors: 1.5

3 Hinge	TA2714 NRP 4-1/2" x 4-1/2"	US10B	MK
1 Rim Exit Device	10 12 42 9813 ETMZ	US10B	SA
1 Concealed Closer	268 OB	EB	SA
1 Gasketing	312CR		PE
3 Silencer	608		RO

Set: 2.0

Doors: 1.1

8 Hinge	TA2714 NRP 4-1/2" x 4-1/2"	US10B	MK
2 Flush Bolt	555	US10B	RO
1 Dust Proof Strike	570	US10B	RO
1 Rim Exit Device	10 12 42 9813 ETMZ	US10B	SA
1 Concealed Closer	268 OB	EB	SA
2 Door Stop	441CU	US10B	RO
1 Gasketing	312CR		PE
2 Silencer	608		RO

Set: 3.0

Doors: 2.3

3 Hinge	TA2714 4-1/2" x 4-1/2"	US10B	MK

1 Rim Exit Device	12 42 9810	US10B	SA
1 Concealed Closer	268 OB	EB	SA
1 Door Stop	441CU	US10B	RO
3 Silencer	608		RO

Set: 3.1

Doors: 2.4

3 Hinge	TA2714 4-1/2" x 4-1/2"	US10B	MK
1 Rim Exit Device	12 42 9815 ETMZ	US10B	SA
1 Concealed Closer	268 OB	EB	SA
1 Door Stop	441CU	US10B	RO
1 Gasketing	312CR		PE
3 Silencer	608		RO

Set: 4.0

Doors: 1.3

3 Hinge	TA2714 4-1/2" x 4-1/2"	US10B	MK
1 Mortise Lock (privacy)	LB 49 8266 COMZ	US10B	SA
1 Concealed Closer	268 O	EB	SA
1 Door Stop	441CU	US10B	RO
3 Silencer	608		RO

Notes: Sound seals to be shipped with door & frame assembly.

Set: 4.1

Doors: 1.2

3 Hinge	TA2714 4-1/2" x 4-1/2"	US10B	MK
1 Mortise Lock (privacy)	LB 49 8266 COMZ	US10B	SA
1 Door Stop	441CU	US10B	RO
3 Silencer	608		RO

Notes: Sound seals to be shipped with door & frame assembly.

Set: 4.2

Doors: 2.5, 2.6

3 Hinge	TA2714 4-1/2" x 4-1/2"	US10B	MK

1 Mortise Lock (privacy)	LB 49 8266 COMZ	US10B	SA
1 Concealed Closer	268 OB	EB	SA
1 Door Stop	441CU	US10B	RO
3 Silencer	608		RO

Set: 5.0

Doors: 1.4

3 Hinge	TA2714 4-1/2" x 4-1/2"	US10B	MK
1 Mortise Lock (passage)	8215 COMZ	US10B	SA
1 Concealed Closer	268 OB	EB	SA
1 Door Stop	441CU	US10B	RO
3 Silencer	608		RO

Set: 6.0

Doors: 2.2, 2.8

3 Hinge	TA2714 4-1/2" x 4-1/2"	US10B	MK
1 Mortise Lock (office)	10 8205 COMZ	US10B	SA
1 Concealed Closer	268 OB	EB	SA
1 Wall Stop	403	US10B	RO
1 Gasketing	S773BL		PE

Set: 7.0

Doors: 2.7

6 Hinge	TA2714 4-1/2" x 4-1/2"	US10B	MK
2 Flush Bolt	555	US10B	RO
1 Dust Proof Strike	570	US10B	RO
1 Mortise Lock (storeroom)	10 8204 COMZ	US10B	SA
1 Concealed Closer	268 OB	EB	SA
2 Wall Stop	403	US10B	RO
1 Gasketing	S773BL		PE

Set: 8.0

Doors: C.3

6 Hinge	TA2714 NRP 4-1/2" x 4-1/2"	US10B	MK
2 Door Closer (surface w/stop arm)	MC 351 CPS	EB	SA
1 Gasketing	S773BL		PE

Set: 9.0

Doors: 1.8, 1.9

3 Hinge	TA2714 4-1/2" x 4-1/2"	US10B	MK
1 Mortise Lock (storeroom)	10 8204 COMZ	US10B	SA
1 Wall Stop	403	US10B	RO

Set: 10.0

Doors: EXT

8 Hinge (heavy weight)	T4A3386 NRP 6" x 5"	US10B	MK
2 Surface Vert Rod Exit	10 12 31 42 9763 MAL	US10B	SA
2 Extension Rod Kit	571-12	US10B	SA
2 Door Closer (surface w/stop arm)	MC 351 CPS	EB	SA
1 Threshold	1716AK		PE
1 Gasketing	2891DS		PE
2 Door Bottom	4301DNBL		PE
1 Astragal	300DP		PE

Set: 11.0

Doors: C.1, C.2

6 Hinge	TA2714 NRP 4-1/2" x 4-1/2"	US10B	MK
2 Flush Bolt	555	US10B	RO
1 Dust Proof Strike	570	US10B	RO
1 Mortise Lock (storeroom)	10 8204 COMZ	US10B	SA
2 Door Closer (surface w/stop arm)	MC 351 CPS	EB	SA
1 Gasketing	S773BL		PE

Set: 800.0

Doors: 2.1

6 Hinge	TA2714 4-1/2" x 4-1/2"	US10B	MK
1 Dust Proof Strike	570	US10B	RO
1 Flush Bolt	1842	US10B	RO
1 Mortise Lock (classroom)	10 8237 COMZ	US10B	SA
1 Coordinator	1672 x mtg brackets if required	Black	RO
2 Concealed Closer	268 O	EB	SA
2 Door Stop	441CU	US10B	RO
2 Electromagnetic Holder	998 900-400	690	RF
1 Gasketing	S773BL		PE

Notes: Magnetic Holders to be tied into Fire Alarm system.

END OF SECTION 087100

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SECTION 088000 – GLAZING

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide glazing in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Laminated safety glass set in aluminum channels.
2. Spandrel glass.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 PERFORMANCE REQUIREMENTS

A. Thermal Movements: Provide glazing that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures acting on glass framing members and glazing components. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

1.4 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.

4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: For each glass product and glazing material indicated, submit manufacturers technical information, installation instructions and performance criteria.

C. Samples: For each glass type, in the form of 12 inch square Samples for glass. Install sealant Samples between two strips of material representative in color of the adjoining framing system.

D. Product Certificates: Signed by manufacturers of glass and glazing products certifying that products furnished comply with requirements.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed glazing similar in material, design, and extent to that indicated for this Project; whose work has resulted in glass installations with a record of successful in-service performance; and who employs glass installers for this Project.

B. Source Limitations for Glazing Accessories: Obtain glazing accessories through one source from a single manufacturer for each product and installation method indicated.

C. Safety Glazing Products: Comply with testing requirements in 16 CFR 1201.

1. Where glazing units, including laminated glass, are specified in Part 2 articles for glazing lites:

a. More than 9 sq ft in exposed surface area of one side, provide glazing products that comply with Category II materials, for lites
b. Less than 9 sq. ft. in exposed surface area of one side, provide glazing products that comply with Category I or II materials, except for hazardous locations where Category II materials are required by 16 CFR 1201 and regulations of authorities having jurisdiction.

D. 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 "Glazing Manual."

E. 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 in the location as directed by Commissioner.
2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

F. Preinstallation Conference: Conduct conference at Project site.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.

1.8 WARRANTY

A. General: Submit warranties to repair or replace defective glass and glazing materials or workmanship for a period of not less than 5 years after date of Substantial Completion, or longer where specified.

B. Manufacturer's Warranty on Laminated Glass: Submit written warranty signed by insulating glass manufacturer agreeing to furnish replacements for those laminated glass units that deteriorate as defined in the "Definitions" article, f.o.b. point of manufacture, freight allowed Project site, within specified warranty period indicated below. Warranty covers only deterioration due to normal conditions of use and not to handling, installing, and cleaning practices contrary to glass manufacturer's published instructions.

1. Warranty Period: Manufacturer's standard but not less than 5 years after date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. JE Berkowitz, L.P.
2. Guardian Industries Corp.
3. Pilkington North America.
4. PPG Industries, Inc.
5. Viracon.

2.2 GLASS PRODUCTS

A. Glass, General: All glass of the same type shall be the manufactured product of one company. Provide glass types for each application according to the glazing schedule found in part three of this section.

B. Fabrication Process: By horizontal (roller-hearth) process. Glass heat treatment should run in one direction as installed in the building. Direction is subject to Commissioner's approval.

1. Resulting heat treated glass shall minimize the "roller distortion" or "ripples" resulting from fabrication. Where noticeable distortions exist, and are acceptable to the Commissioner, install glass with such distortions running horizontally.
2. Glass within one type of opening shall be produced by the same heat treating process.

C. Primary Glass Requirements:

1. Clear Float Glass: ASTM C 1036; Type I (transparent glass, flat), Class 1 (clear), Quality q3 (glazing select).

D. Laminated Glass:

1. Two lites of clear glass bonded to plastic, puncture resistant, 0.030 inch (minimum) polyvinyl butyral (PVB) interlayer conforming to the requirements of ANSI Z97.1, ASTM C 1172, and CPSC standard 16 CFR 1201 Category II.
2. Interlayer shall be compatible with all glazing sealants.
3. Total Thickness: 3/8 inch, or as indicated on the Drawings and Material Index.

E. Ceramic- Coated Spandrel Glass: ASTM C 1048, Condition C, Type I, Quality- Q3 and complying with other requirements specified.

1. Basis-of-Design Product: Subject to compliance with requirements, provide ENVIROSPAN as supplied by JE Berkowitz, L.P, or approved equal product from one of the manufacturers listed above in article 2.1..
2. Nominal Glass Thickness: 0.25 inch.
3. Ceramic Frit Orientation: #2 Surface.
4. Ceramic Frit Color: Match existing opaque glass as selected by Commissioner from manufacturer's full product line.
5. Glass: Tinted heat- treated float.
6. Tint Color: Gray.

2.3 ALUMINUM CHANNEL FRAME

A. Aluminum: ASTM B 221, alloy 6063-T5 for extrusions, or other alloys and temper recommended by manufacturer appropriate for specified finish.

1. Clear Anodic Finish: AAMA 611, AA-M12C22A31, Class II, 0.010 mm or thicker.

B. Framing: Extruded aluminum channel frame, of profiles indicated on the Drawings. Provide channel framing in minimum thickness of 0.125 inch for framing members and rails.

1. Provide all required framing accessories and gaskets for complete installation with all required separations

C. Anchorage Devices: Manufacturers standard formed or fabricated steel or aluminum assemblies of shapes, plates, bars or tubes.

1. Fasteners: Aluminum, non-magnetic stainless steel or other non- corrosive materials compatible with items being fastened.

a. Provide concealed fasteners wherever possible.

2.4 GLAZING ACCESSORIES

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.

2.5 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.

B. Cleaners and Sealers: Types recommended by sealant or gasket manufacturer.

C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.

D. Spacers: Elastomeric blocks or continuous extrusions with a Shore, Type A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.

E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).

2.6 FABRICATION OF GLAZING UNITS

A. Fabricate glazing units in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites in a manner that produces square edges with slight kerfs at junctions with outdoor and indoor faces.

C. Grind smooth and polish exposed glass edges and corners.

D. Aluminum Channel Framing: Provide members of size, shape and profile indicated, designed to provide for glazing fabricated and assembled in accordance with manufacturer's requirements. Fabricate frame assemblies with mitered or coped joints. Maintain accurate relation of planes and angles, with hairline fit of contacting members

1. Provide manufacturer's standard isolation within aluminum extrusions.
2. Provide spacers and other materials that are non-corrosive, non-staining, non-bleeding and compatible with adjoining materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine framing glazing, with Installer present, for compliance with the following:

1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
2. Presence and functioning of weep system.
3. Minimum required face or edge clearances.
4. Effective sealing between joints of glass-framing members.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

3.3 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. Provide glazing channel dimensions, 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. 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.

E. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

F. Provide spacers for glass lites where length plus width is larger than as follows:

1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
2. Provide minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.

G. 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.

H. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

I. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.

J. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

3.4 ALUMINUM CHANNEL FRAMING

A. General: Install framing components plumb and true in alignment with established lines and grades.

B. Anchorage: After system components are positioned, secure channel to framed members of building structure, to the extent indicated on the Drawings.

C. Provide separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.

3.5 GASKET GLAZING (DRY)

A. Fabricate compression gaskets in 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. 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. Install gaskets so they protrude past face of glazing stops.

3.6 CLEANING AND PROTECTION

A. Do not apply markers to glass surface unless required for certification purposes. Remove nonpermanent labels, and clean surfaces.

B. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended 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.

E. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

END OF SECTION 088000

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SECTION 088300 - MIRRORS

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide mirrors in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Frameless, film-backed glass mirrors.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: For each type of product indicated, include description of materials and process used to produce each type of mirror specified that indicates sources of glass, glass coating components, edge sealer, and quality-control provisions.

C. Shop Drawings: Include mirror elevations, mirror hardware, and attachments to other work.

D. Samples: For each type of the following products:

1. Mirrors: 12 inches square, including edge treatment on two adjoining edges.
2. Mirror Clips and other Hardware: Full size.

E. Product Certificates: For each type of mirror and mirror mastic, from manufacturer.

F. Preconstruction Test Reports: From mirror manufacturer indicating that mirror mastic was tested for compatibility and adhesion with mirror backing film and substrates on which mirrors are installed.

G. Maintenance Data: For mirrors to include in maintenance manuals.

H. Warranty: Sample of special warranty.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs glass installers for this Project.

B. Source Limitations for Mirrors: Obtain mirrors from single source from single manufacturer.

C. Source Limitations for Mirror Accessories: Obtain mirror glazing accessories from single source.

D. Glazing Publications: Comply with the following published recommendations:

1. GANA's "Glazing Manual" unless more stringent requirements are indicated. Refer to this publication for definitions of glass and glazing terms not otherwise defined in this Section or in referenced standards.
2. GANA Mirror Division's "Mirrors, Handle with Extreme Care: Tips for the Professional on the Care and Handling of Mirrors."

E. Safety Glazing Products: For film-backed mirrors, provide products complying with testing requirements in 16 CFR 1201 for Category II materials.

F. Preconstruction Mirror Mastic Compatibility Test: Submit mirror mastic products to mirror manufacturer for testing to determine compatibility of mastic with mirror backing film and substrates on which mirrors are installed.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect mirrors according to mirror manufacturer's written instructions and as needed to prevent damage to mirrors from moisture, condensation, temperature changes, direct exposure to sun, or other causes.

B. Comply with mirror manufacturer's written instructions for shipping, storing, and handling mirrors as needed to prevent deterioration of silvering, damage to edges, and abrasion of glass surfaces and applied coatings. Store indoors.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Do not install mirrors until ambient temperature and humidity conditions are maintained at levels indicated for final occupancy.

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which mirror manufacturer agrees to replace mirrors that deteriorate within specified warranty period. Deterioration of mirrors is defined as defects developed from normal use that are not attributed to mirror breakage or to maintaining and cleaning mirrors contrary to manufacturer's written instructions. Defects include discoloration, black spots, and clouding of the silver film.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Arch Aluminum & Glass Co., Inc.
2. Gardner Glass, Inc.
3. Guardian Industries.
4. National Glass Industries.

2.2 FLAT GLASS MIRRORS

A. Glass Mirrors, General: ASTM C 1503.

B. Tempered Clear Glass (GL-2): Mirror Glazing Quality, for blemish requirements; and comply with ASTM C 1048 for Kind FT, Condition A, tempered float glass before silver coating is applied.

1. Nominal Thickness: 1/4 inch.

2.3 MISCELLANEOUS MATERIALS

A. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.

B. Edge Sealer: Coating compatible with glass coating and approved by mirror manufacturer for use in protecting against silver deterioration at mirrored glass edges.

C. Mirror Mastic: An adhesive setting compound, asbestos-free, produced specifically for setting mirrors and certified by both mirror manufacturer and mastic manufacturer as compatible with glass coating and substrates on which mirrors will be installed.

D. Film Backing for Safety Mirrors: Film backing and pressure-sensitive adhesive; both compatible with mirror backing paint as certified by mirror manufacturer.

2.4 MIRROR TRIM AND HARDWARE

A. Top and Bottom Aluminum J-Channels: Aluminum extrusions with a return deep enough to produce a glazing channel to accommodate mirrors of thickness indicated and in lengths required to cover bottom and top edges of each mirror in a single piece.

1. Bottom Trim: J-channels formed with front leg and back leg not less than 3/8 and 7/8 inch in height, respectively, and a thickness of not less than 0.04 inch.
2. Top Trim: J-channels formed with front leg and back leg not less than 5/8 and 1 inch in height, respectively, and a thickness of not less than 0.04 inch.
3. Finish: Clear bright anodized, unless otherwise indicated.

B. Mirror Top and Bottom Clips: Manufacturer's standard, or as indicated.

C. Fasteners: Fabricated of same basic metal and alloy as fastened metal and matching it in finished color and texture where fasteners are exposed.

D. Anchors and Inserts: Provide devices as required for mirror hardware installation. Provide toothed or lead-shield expansion-bolt devices for drilled-in-place anchors. Provide galvanized anchors and inserts for applications on inside face of exterior walls and where indicated.

2.5 FABRICATION

A. Mirror Edge Treatment: Rounded polished, unless otherwise indicated.

1. Seal edges of mirrors with edge sealer after edge treatment to prevent chemical or atmospheric penetration of glass coating.
2. Require mirror manufacturer to perform edge treatment and sealing in factory immediately after cutting to final sizes.

B. Film-Backed Safety Mirrors: Apply film backing with adhesive coating over mirror backing paint as recommended in writing by film-backing manufacturer to produce a surface free of bubbles, blisters, and other imperfections.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, over which mirrors are to be mounted, with Installer present, for compliance with installation tolerances, substrate preparation, and other conditions affecting performance of the Work.

B. Verify compatibility with and suitability of substrates, including compatibility of mirror mastic with existing finishes or primers.

C. Proceed with installation only after unsatisfactory conditions have been corrected and surfaces are dry.

3.2 PREPARATION

A. Comply with mastic manufacturer's written installation instructions for preparation of substrates, including coating substrates with mastic manufacturer's special bond coating where applicable.

3.3 INSTALLATION

A. General: Install mirrors to comply with mirror manufacturer's written instructions and with referenced GANA publications. Mount mirrors accurately in place in a manner that avoids distorting reflected images.

B. Provide a minimum air space of 1/8 inch between back of mirrors and mounting surface for air circulation between back of mirrors and face of mounting surface.

C. Wall-Mounted Mirrors: Install mirrors with mastic and mirror hardware. Attach mirror hardware securely to mounting surfaces with mechanical fasteners installed with anchors or inserts as applicable. Install fasteners so heads do not impose point loads on backs of mirrors.

1. Top and Bottom Aluminum J-Channels: Provide setting blocks 1/8 inch thick by 4 inches long at quarter points. To prevent trapping water, provide, between setting blocks, two slotted weeps not less than 1/4 inch wide by 3/8 inch long at bottom channel.
2. Mirror Clips: Place a felt or plastic pad between mirror and each clip to prevent spalling of mirror edges. Locate clips so they are symmetrically placed and evenly spaced.
3. Install mastic as follows:

    a. Apply barrier coat to mirror backing where approved in writing by manufacturers of mirrors and backing material.
    b. Apply mastic to comply with mastic manufacturer's written instructions for coverage and to allow air circulation between back of mirrors and face of mounting surface.
    c. After mastic is applied, align mirrors and press into place while maintaining a minimum air space of 1/8 inch between back of mirrors and mounting surface.

3.4 CLEANING AND PROTECTION

A. Protect mirrors from breakage and contaminating substances resulting from construction operations.

B. Do not permit edges of mirrors to be exposed to standing water.

C. Maintain environmental conditions that will prevent mirrors from being exposed to moisture from condensation or other sources for continuous periods of time.

D. Wash exposed surface of mirrors not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash mirrors as recommended in writing by mirror manufacturer.

END OF SECTION 088300

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SECTION 089000 – LOUVERS

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide louvers and vents in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Fixed extruded- aluminum louvers.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 PERFORMANCE REQUIREMENTS

A. Thermal Movements: Provide louvers and vents that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 80 deg F, ambient; 100 deg F, material surfaces.

B. Performance Ratings: Provide louvers and vents complying with requirements specified, as demonstrated by testing manufacturer's stock units identical to those provided, except for length and width according to AMCA 500-L.

1.4 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.

2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Submit product data, Shop Drawings, samples for verification, product test reports and product certificates.

1.5 QUALITY ASSURANCE

A. Metal members shall contain a minimum of 35% (combined) post-industrial/post-consumer recycled content (the percentage of recycled content is based on the weight of the component materials). Certification of recycled content shall be in accordance with the Submittal Requirements of this Section.

B. Metal members fabricated within, and containing raw materials extracted within, 500 miles (by air) of the project site shall be documented in accordance with the Submittal Requirements above.

C. Source Limitations: Obtain louvers through one source from a single manufacturer where indicated to be of same type, design, or factory-applied color finish.

D. Welding Qualifications: Qualify welding processes and welding operators in accordance with D1.2 "Structural Welding Code - Aluminum" and D1.3 "Structural Welding Code - Sheet Steel."

E. SMACNA Standard: Comply with recommendations in SMACNA "Architectural Sheet Metal Manual" for fabrication, construction details, and installation procedures.

1.6 SUSTAINABLE DESIGN SUBMITTALS

A. In keeping with the environmental goals of the project, the reduction of paper generated by the project is encouraged. Documentation is to be submitted to the Commissioner in editable PDF format.

B. VOC Reporting Form

1. Product Name
2. Product Number
3. Application
4. Vendor or Manufacturing
5. VOC Content (g/l) less water
6. Related allowable content
7. Manufacturer's backup with related content highlighted (publication or letter)

C. Material Reporting Form

1. Product Name
2. Manufacturer
3. Material Cost
4. Pre-Consumer Content, % of weight
5. Post-Consumer Content, % of weight
6. Total Value (1/2 pre + post)
7. Rapidly Renewable Material %
8. CRI or FloorScore Certification
9. Manufacturer's backup with related content highlighted (publication or letter)

1.7 DELIVERY, STORAGE AND HANDLING

A. Comply with the requirements of the Construction Indoor Air Quality Management Plan and the Construction Waste Management Plan.

1.8 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace louvers that fails in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following:

1. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

B. Warranty Period for Metal Finishes: Twenty years from date of Substantial Completion.

1.9 PROJECT CONDITIONS

A. Waste Management: Comply with the requirements of the Construction Waste Management Plan.

PART 2 - PRODUCTS

2.1 PRODUCT REQUIREMENTS FOR SUSTAINBLE DESIGN - GENERAL

A. All field applied paints, coatings, sealants, sealer, adhesives in this Section shall meet the requirements of VOC limits in 010150 - Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings".

B. All products in this Section shall be free of Materials of Concern as noted in 015150 - Construction IAQ Requirements

C. Recycled content: All metal components must have a combined recycled content of no less than 40 percent (1/2 pre-consumer + post-consumer).

2.2 MATERIALS

A. Aluminum Extrusions: Alloy 6063-T5, T-52, or T6.

B. Aluminum Sheet: alloy 3003 or 5005 with temper as required for forming, or as otherwise recommended by metal producer for required finish.

C. Aluminum Castings: ASTM B 26, alloy 319.

D. Fasteners: Of same basic metal and alloy as fastened metal or 300 Series stainless steel, unless otherwise indicated. Do not use metals that are incompatible with joined materials.

1. Use types and sizes to suit unit installation conditions.
2. Use Phillips flat-head screws for exposed fasteners, unless otherwise indicated.

E. Postinstalled Fasteners for Concrete and Masonry: Torque-controlled expansion anchors, made from stainless-steel components, with capability to sustain, without failure, a load equal to 4 times the loads imposed, for concrete, or 6 times the load imposed, for masonry, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.

F. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187

2.3 HORIZONTAL, DRAINABLE- BLADE LOUVER

A. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Greenheck Fan Corporation.
2. Industrial Louvers, Inc.
3. Ruskin Company; Tomkins PLC.

B. Louver Depth: 4 or 6 inches to suit installation in existing frame condition.

C. Frame and Blade Nominal Thickness: Not less than 0.063 inch for blades and 0.080 inch for frames.

D. Mullion Type: Exposed

2.4 LOUVER SCREENS

A. General: Provide screen at each exterior louver.

1. Screen Location for Fixed Louvers: Interior face.
2. Screening Type: Insect screening.

B. Secure screen frames to louver frames with stainless-steel machine screws, spaced a maximum of 6 inches from each corner and at 12 inches o.c.

C. Louver Screen Frames: Fabricate with mitered corners to louver sizes indicated.

1. Metal: Same type and form of metal as indicated for louver to which screens are attached. Reinforce extruded- aluminum screen frames at corners with clips.
2. Finish: Same finish as louver frames to which louver screens are attached.
3. Type: Non-rewirable, U-shaped frames.

D. Louver Screening for Aluminum Louvers:

1. Insect Screening: Aluminum, 18- by- 16 mesh; 0.012- inch wire.

2.5 FABRICATION

A. Fabricate frames, including integral sills, to fit in openings of sizes indicated, with allowances made for fabrication and installation tolerances, adjoining material tolerances, and perimeter sealant joints.

B. Include supports, anchorages, and accessories required for complete assembly.

2.6 FINISHES

A. Finishes: Comply with NAAMM "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Finish louvers after assembly.

B. Aluminum Finishes: Finish designations prefixed by AA comply with system established by the Aluminum Association for designating aluminum finishes.

C. High-Performance Organic Finish: 2-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

1. Color and Gloss: As selected by the Commissioner from manufacturer's full range.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Locate and place louvers level, plumb and at indicated alignment with adjacent work.

B. Use concealed anchorages where possible.

C. Form closely fitted joints with exposed connections accurately located and secured.

D. Provide perimeter reveals and openings of uniform width for sealants and joint fillers, as indicated.

E. Install concealed gaskets, joint fillers and insulation as louver and vent installation progresses, where required by design or manufacturer's recommendations.

F. Comply with Division 7 Section "Joint Sealants" for sealants applied during louver and vent installation.

3.2 ADJUSTING AND CLEANING

A. Clean exposed louver surfaces that are not protected by temporary covering, to remove fingerprints and soil during construction period. Do not let soil accumulate during construction period.

B. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to finishes. Thoroughly rinse surfaces and dry.

C. Repair finishes damaged by cutting, welding, soldering, and grinding. Restore finishes so no evidence remains of corrective work.

1. Touch up minor abrasions in finishes with air-dried coating that matches color and gloss of and is compatible with factory-applied finish coating.

D. Return items that cannot be refinished in the field to the factory, make required alterations, and refinish entire unit or provide new units.

3.3 PROTECTION

A. Protect metal surfaces from corrosion or galvanic action by applying a heavy coating of bituminous paint on surfaces that will be in contact with concrete, masonry or dissimilar metals.

END OF SECTION 089000

SECTION 092900 - GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide gypsum board assemblies in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Gypsum board wall, ceiling and shaft-wall applications screw-attached to steel systems.
2. Non-load-bearing steel framing systems for interior gypsum board and shaft wall assemblies.
3. Suspension systems for interior gypsum ceilings.
4. Drywall finishing with joint tape-and-compound.
5. Tile backing panels.
6. Acoustical insulation and sealant for gypsum board products.
7. Specialty isolation and sound rated assemblies as indicated.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 PERFORMANCE REQUIREMENTS

A. Structural Requirements: Provide gypsum board assemblies capable of withstanding following lateral design loadings (air pressures) for maximum heights of partitions without failing. Evidence of failure includes deflections exceeding limits indicated, bending stresses causing studs to break or to distort, and end-reaction shear causing track (runners) to bend or to shear and studs to become crippled. Comply with requirements of governing authorities having jurisdiction and recommendations of SA923 of United States Gypsum Company for loading performance criteria.

1. Lateral Loading: 5 psf.
2. Deflection Limits, Painted Assemblies: 1/240 of partition height.
3. Deflection Limits for framed Tile and Other Hard Finish Surfaces: 1/360 of partition height.

1.4 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: Submit manufacturer's specifications and installation instructions for materials for gypsum drywall and backer board. Submit other data as required to show compliance with these specifications.

C. Samples: Full-size Sample in 12 inch long length for each trim accessory indicated. Provide full size sample of neoprene hangers and isolators.

D. Product Certificates: Submit manufacturer's certificates showing compliance with performance requirements for each type of gypsum board product from manufacturer.

E. Maintenance Data: Submit manufacturer's maintenance instructions or recommendations for gypsum board products to include in maintenance manuals.

1.5 QUALITY ASSURANCE

A. Gypsum Board Terminology Standard: GA-505 by Gypsum Association.

B. 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.

1. Provide gypsum board products designed to achieve fire ratings indicated on the Drawings.

C. 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.

1.6 DELIVERY, STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.7 FIELD CONDITIONS

A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

B. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 FRAMING SYSTEMS

A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.

1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.
2. Protective Coating: ASTM A 653, G60, hot-dip galvanized unless otherwise indicated.

B. Studs and Runners: ASTM C 645.

1. Steel Studs and Runners:

a. Minimum Base-Metal Thickness: Minimum 0.030 inch for interior partitions.
b. Depth: As indicated on the Drawings.

C. Slip-Type Head Joints: Where indicated, provide one of the following:

1. Single Long-Leg Runner System: ASTM C 645 top runner with 2 inch deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 12 inches of the top of studs to provide lateral bracing.
2. Double-Runner System: ASTM C 645 top runners, inside runner with 2 inch deep flanges in thickness not less than indicated for studs 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 applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.

D. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of the structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.

E. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.

1. Minimum Base-Metal Thickness: 0.030.

F. Cold-Rolled Channel Bridging: Steel, 0.053-inch minimum base-metal thickness, with minimum 1/2 inch wide flanges.

1. Depth: As indicated on the Drawings.
2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch thick, galvanized steel.

G. Hat-Shaped, Rigid Furring Channels: ASTM C 645.

1. Minimum Base-Metal Thickness: 0.030 inch.
2. Depth: As indicated on the Drawings.

H. Resilient Furring Channels: 1/2 inch deep, steel sheet members designed to reduce sound transmission.

1. Configuration: Asymmetrical or hat shaped.

I. Cold-Rolled Furring Channels: 0.053 inch uncoated-steel thickness, with minimum 1/2 inch wide flanges.

1. Depth: As indicated on the Drawings.
2. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum uncoated-steel thickness of 0.030 inch.
3. Tie Wire: ASTM A 641, Class 1 zinc coating, soft temper, 0.062 inch diameter wire, or double strand of 0.048 inch diameter wire.

J. Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4 inches, wall attachment flange of 7/8 inch, minimum uncoated-metal thickness of 0.030, and depth required to fit insulation thickness indicated.

2.2 SHAFT WALL FRAMING

A. Shaft Wall Studs: Provide "CH Studs" as manufactured by US Gypsum Company, or approved equal for repetitive members, corner and end members, and fire-resistance-rated assembly indicated.

1. Minimum Base-Metal Thickness: 0.030 inch.
2. Depth: 2-1/2 inches, minimum, or as indicated on the Drawings.

B. Jamb Struts: Manufacturer's standard J-profile strut with long-leg length of 3 inches, in depth matching studs, and not less than 0.030 inch thick.

C. Runner Tracks: Manufacturer's standard J-profile track with long-leg length as standard with manufacturer, but at least 2 inches long and in depth matching studs.

1. Minimum Base-Metal Thickness: 0.030 inch.

2.3 SUSPENSION SYSTEMS

A. Tie Wire: ASTM A 641, Class 1 zinc coating, soft temper, 0.062 inch diameter wire, or double strand of 0.048-inch diameter wire.

B. Hanger Attachments to Concrete:

1. Anchors: Fabricated from corrosion-resistant materials with holes or loops for attaching wire hangers and capable of sustaining, without failure, a load equal to 5 times that imposed by construction as determined by testing according to ASTM E 488 by an independent testing agency.

   a. Type: Cast-in-place or post-installed anchors, designed for attachment to concrete forms.

2. Powder-Actuated Fasteners: Suitable for application indicated, fabricated from corrosion-resistant materials with clips or other devices for attaching hangers of type indicated, and capable of sustaining, without failure, a load equal to 10 times that imposed by construction as determined by testing according to ASTM E 1190 by an independent testing agency.

C. Flat Hangers: Steel sheet, 1 by 3/16 inch by length indicated; or as shown on the Drawings.

D. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.035 inch and minimum 1/2-inch wide flanges, with ASTM A 653, G60, hot-dip galvanized zinc coating.

1. Depth: As indicated on the Drawings.

E. Main Runners: Carrying channels fabricated from cold rolled steel with rust inhibitive paint finish. Size shall be 1-1/2" deep, weighing 475 lbs/1000 l.f., for a hanger spacing of 4'-0" on center. Clips for attachment of hangers to carrying channels shall comply with seismic design requirements.

F. Furring Channels (Furring Members):

1. Cold-Rolled Channels: 0.030-inch uncoated-steel thickness, with minimum 1/2-inch-wide flanges, 3/4 inch deep.
2. Steel Studs and Runners: ASTM C 645.

   a. Minimum Base-Metal Thickness: 0.030 inch.
   b. Depth: As indicated on the Drawings.

3. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch deep.

   a. Minimum Base-Metal Thickness: 0.030 inch.

4. Resilient Furring Channels: Resilient isolation clips shall consist of rubber element designed to capture a 7/8 inch galvanized steel furring channel. The channel legs snap fit into the rubber element without any metal-to-metal or other rigid contact with building elements.

G. Grid Suspension System for Gypsum Board Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.

2.4 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. Georgia-Pacific Gypsum LLC.
2. National Gypsum Company.
3. USG Corporation.

B. Gypsum Board, Type X: ASTM C 1396.

1. Thickness: 5/8 inch.
2. Long Edges: Tapered.

C. Gypsum Liner Panel (for Shaft Walls): Comply with ASTM C 442.

1. Type X: Manufacturer's proprietary liner panels with moisture-resistant paper faces.

a. Core: 1 inch thick.
b. Long Edges: Double bevel.

2.5 BACKING PANELS

A. Glass-Mat, Water-Resistant Backing Board (for Wet Areas): ASTM C 1178, with manufacturer's standard edges.

1. Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

a. CertainTeed Corp.; GlasRoc Tile Backer.
b. Georgia-Pacific Gypsum LLC; DensShield Tile Backer.

2. Core: 5/8 inch, Type X.
3. Mold Resistance: ASTM D 3273, score of 10

B. Cementitious Backer Units (for Tile Substrates): ANSI A118.9 and ASTM C 1288 or 1325, with manufacturer's standard edges.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

a. CertainTeed Corp.; FiberCement BackerBoard.
b. Custom Building Products; Wonderboard.
c. National Gypsum Company, Permabase Cement Board.
d. USG Corporation; DUROCK Cement Board.
e. Approved equal.

2. Thickness: 1/2 inch, or as indicated.

2.6 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
2. Shapes:

   a. Cornerbead.
   b. Bullnose bead.
   c. LC-Bead: J-shaped; exposed long flange receives joint compound.
   d. L-Bead: L-shaped; exposed long flange receives joint compound.
   e. U-Bead: J-shaped; exposed short flange does not receive joint compound.
   f. Expansion (control) joint.
   g. Curved-Edge Cornerbead: With notched or flexible flanges.

B. Exterior Trim: ASTM C 1047.

1. Material: Hot-dip galvanized steel sheet, plastic, or rolled zinc.
2. Shapes:

   a. Cornerbead.
   b. LC-Bead: J-shaped; exposed long flange receives joint compound.
   c. Expansion (Control) Joint: One-piece, rolled zinc with V-shaped slot and removable strip covering slot opening.

2.7 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475.

B. Joint Tape:

1. Interior Gypsum Board: Paper.
2. Glass-Mat, Water-Resistant Backing Panel and Tile Backing Panels: As recommended by panel manufacturer.

C. Joint Compound:

1. Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

   a. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.

2. Glass-Mat, Water-Resistant Backing Panel and Tile Backing Panels: As recommended by backer unit manufacturer.

2.8 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.

B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.

1. Laminating adhesive shall have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

D. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
2. 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. Owens Corning.
b. Roxul Inc.
c. Thermafiber.
d. Approved equal.

E. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

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. Pecora Corporation; AC-20 FTR.
b. Specified Technologies, Inc.; Smoke N Sound Acoustical Sealant.
c. USG Corporation; SHEETROCK Acoustical Sealant.
d. Approved equal.

F. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

2.9 SPECIALTY ISOLATION AND SOUND RATED ASSEMBLIES

A. Ceilings Description: Sound barrier ceilings shall consist of multiple layers of gypsum board suspended by a series of neoprene hangers. Batt insulation thick shall be provided above the ceiling between the hangers and drywall. Isolators shall provide minimum 0.35 inch static deflection at the installed and operating conditions.

B. Isolators: Neoprene isolator elements within a steel retainer box.

1. Provide sufficient clearance between retainer box and spring hanger to permit minimum 15 degree rod misalignment in any direction; total 30 degrees.
2. Provided molded neoprene cup/bushing which holds spring and provides a bushing which lines the spring rod penetration within the retainer box.
3. Basis of Design: Subject to compliance with requirements, provide Iso-Max Sound Isolation Clips, as manufactured by Kinetics Noise Control, or approved equal from one of the following:

    a. Mason Industries.
    b. Kinetics Noise Control.
    c. Acoustical Solutions.

C. Neoprene Hangers: Hanger positions and sizing shall be coordinated with all services above the ceiling; ductwork, sprinklers, electrical, etc. Where spacing must exceed 4 feet on center, the proposed detail(s) must be approved by Commissioner. Support channels and furring strip location and sizing is also to be coordinated with proposed location of hangers.

D. Drywall Assemblies (as described above and as specified herein): Three layers of 5/8 inch drywall are to be applied on staggered joints. Fire rating shall to comply with local codes, if applicable. Layers of drywall shall be applied on staggered joints, overlapped minimum 6 inches.

E. Insulation: Batt insulation is to be laid on top of the entire ceiling system; minimum 3 lbs/cu-ft density, and minimum 3 inches thick.

F. Perimeter Closure: Provide continuous closed cell neoprene strip along the perimeter of the isolated ceiling, between the layers of drywall and isolated block wall. Compress strip to half thickness. Caulk entire perimeter with ever-resilient, non-shrinking caulking material.

G. Maintain maximum 1 inch gap around penetrations and pack with batt insulation and caulk.

H. Resilient Clips: Resilient clip consists of a rubber element designed to capture a galvanized steel furring channel. Clips shall be equipped galvanized steel brackets on each side of the rubber isolation element; of sufficient strength to carry the wall or ceiling weight without bending or failure.

1. Basis of Design: Subject to compliance with requirements, provide Iso-Max Sound Isolation Clips, as manufactured by Kinetics Noise Control, or approved equal from one of the following:

    a. Kinetics Noise Control.
    b. Acoustical Solutions.
    c. Sound Isolation Company.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates including welded hollow-metal frames and framing, with Installer present, for compliance with requirements and other conditions affecting performance.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.

1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.

3.3 FRAMING INSTALLATION, GENERAL

A. Installation Standard: ASTM C 754 and NYC Building Code RS 5-16.

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.

3.4 INSTALLING FRAMED ASSEMBLIES

A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

1. Stud Spacing: 16 o.c., unless otherwise indicated

B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

C. Install studs so flanges within framing system point in same direction.

D. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts 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.

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.
4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.

    a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.

5. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.

E. Direct Furring:

1. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.

F. Z-Furring Members:

1. Erect insulation vertically and hold in place with Z-furring members spaced 24 inches o.c.
2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches from corner and cut insulation to fit.

G. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

3.5 INSTALLING SUSPENSION SYSTEMS

A. Install suspension system components in sizes and spacings indicated on Drawings, but not less than those required by referenced installation standards for assembly types and other assembly components indicated.

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 required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.

    a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.

3. Flat Hangers: Secure to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or otherwise fail.
4. Do not attach hangers to steel roof deck or permanent metal. 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.
7. Sound Isolation Accessories, General: Install materials and components in accordance with the manufacturer's instructions and procedures.

    a. Spacing and location of sound isolation clips shall be determined by the manufacturer based on wall or ceiling type. Refer to installation drawing details provided by the manufacturer to assure optimum sound control and structural integrity of the system.

D. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.

E. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

F. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

3.6 APPLYING AND FINISHING PANELS, GENERAL

A. Comply with ASTM C 840.

B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

E. Form control and expansion joints with space between edges of adjoining gypsum panels.

F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc., except in chases braced internally.

1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. (0.7 sq. m) in area.
2. Fit gypsum panels around ducts, pipes, and conduits.
3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4 to 3/8 inch wide joints to install sealant.

G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4 to 1/2 inch wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

I. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.

J. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.7 APPLYING INTERIOR GYPSUM BOARD

A. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
2. On partitions/walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
    a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
    b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.
3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

B. Multilayer Application:

1. On ceilings, apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints one framing member, 16 inches minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.
2. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
3. On Z-furring members, apply base layer vertically (parallel to framing) and face layer either vertically (parallel to framing) or horizontally (perpendicular to framing) with vertical joints offset at least one furring member. Locate edge joints of base layer over furring members.
4. Fastening Methods: Fasten base layers and face layers separately to supports with screws.

3.8 APPLYING TILE BACKING PANELS

A. Cementitious Backer Units: ANSI A108.11, at locations indicated to receive tile.

B. Where tile backing panels abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.

3.9 INSTALLING TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

1. Trim: Install each type of trim in locations indicated on the Drawings.

B. Control Joints: Install control joints in accordance with ASTM C 840 and at locations indicated on the Drawings or approved by the Commissioner for visual effect.

3.10 INSTALLATION OF GYPSUM BOARD SHAFT-WALL ASSEMBLIES

A. General: Install gypsum board shaft-wall assemblies to comply with requirements of fire-resistance-rated assemblies indicated, manufacturer's written installation instructions, and the following:

1. ASTM C 754 for installing steel framing except comply with framing spacing indicated.

B. Do not bridge architectural or building expansion joints with shaft-wall assemblies; frame both sides of expansion joints with furring and other support.

C. Install supplementary framing in gypsum board shaft-wall assemblies around openings and as required for blocking, bracing, and support of gravity and pullout loads of fixtures, equipment, services, heavy trim, furnishings, and similar items that cannot be supported directly by shaft-wall assembly framing.

D. At penetrations in shaft wall, maintain fire-resistance rating of shaft-wall assembly by installing supplementary steel framing around perimeter of penetration and fire protection behind boxes containing wiring devices, and similar items.

E. Isolate perimeter of gypsum panels from building structure to prevent cracking of panels, while maintaining continuity of fire-rated construction.

F. Firestop Tracks: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.

G. Control Joints: Install control joints at locations indicated on Drawings, while maintaining fire-resistance rating of gypsum board shaft-wall assemblies.

H. Seal gypsum board shaft walls with acoustical sealant at perimeter of each assembly where it abuts other work and at joints and penetrations within each assembly. Install acoustical sealant to withstand dislocation by air-pressure differential between shaft and external spaces; maintain an airtight and smoke-tight seal; and comply with ASTM C 919 requirements or with manufacturer's written instructions, whichever are more stringent.

I. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

3.11 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints, rounded or beveled edges, and damaged surface areas.

C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.

D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:

1. Level 1: Ceiling plenum areas and concealed areas.
2. Level 2: Panels indicated as substrates for other surface finishes.
    a. Primer and its application to surfaces are specified in other Division 9 Sections.
3. Level 4: At panel surfaces that are exposed to view.
    a. Primer and its application to surfaces are specified in other Division 9 Sections
4. Level 5: At panel surfaces indicated.

E. Cementitious Backer Units: Finish according to manufacturer's written instructions.

3.12 PROTECTION

A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.

B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

END OF SECTION 092900

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SECTION 093100 - TILING

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide tiling in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Unglazed ceramic floor tile.
2. Glazed ceramic wall tile.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 PERFORMANCE REQUIREMENTS

A. Static Coefficient of Friction: For tile installed on walkway surfaces, provide products with the following values as determined by testing identical products per ASTM C 1028:

1. Level Surfaces: Minimum 0.6.

1.4 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.

4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: For each type of tile, setting material, and accessory product indicated, submit manufacturer's technical data, color charts, and installation instructions.

C. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.

D. Samples: Submit the following:

1. Full-size units of 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, at least 12 inches square and mounted on rigid panel. Use grout of type and in color or colors approved for completed work.
3. Full-size units of each type of trim and ceramic accessory.

E. Product Certificates: Submit certificates, signed by product manufacturer, showing compliance with requirements.

1.5 QUALITY ASSURANCE

A. Tile Manufacturing Standard: As applicable, furnish tile complying with the requirements of ANSI A137.1 for Standard Grade.

B. Installer Qualifications: Engage an experienced Installer who has successfully completed tile installations similar in material, design, and extent to that indicated for Project, for 3 years.

C. Source Limitations: Obtain all tile of same type and color or finish from one source or producer.

1. Tile: Obtain tile from same production run and of consistent quality in appearance and physical properties for each contiguous area.
2. Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacturer and each aggregate from one source or producer.

D. Mockups: Build mockups to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution.

1. Build mockup of each type of floor tile installation.
2. Build mockup of each type of wall tile installation.
3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

E. Preinstallation Conference: Conduct conference at Project site.

1. Review requirements in ANSI A108.01 for substrates and for preparation by other trades.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement in ANSI A137.1 for labeling sealed tile packages.

B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.

C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

D. Store liquid latexes and emulsion adhesives in unopened containers and protected from freezing.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

1.8 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed, for each type, composition, color, pattern, and size indicated.

PART 2 - PRODUCTS

2.1 PRODUCTS, GENERAL

A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.

1. Provide tile complying with Standard grade requirements.

B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced for setting and grouting, and ANSI standards referenced by TCA installation methods.

C. Colors, Textures, and Patterns: Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials complying with the following requirements:

1. Match the Commissioner's approved samples.

D. Factory Blending: For tile exhibiting color variations within ranges selected during Sample submittals, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.

E. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer.

1. Where tile is indicated for installation in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.

2.2 CERAMIC TILE MATERIALS

A. Porcelain Ceramic Floor Tile: Through-body vitrified porcelain composition, with unglazed/matte finish.

1. Size: 12 inch by 24 inches (nominal).
2. Thickness: 1/4 inch.
3. Finish/Color: Matte, Ebano
4. Selected Product: Subject to compliance with requirements, provide "Mikado", as manufactured by Nemo Tile, or approved equal from one of the following:

a. Nemo Tile.
b. American Olean; Division of Dal-Tile International Inc.
c. Crossville, Inc.
d. Daltile.

B. Ceramic Wall Tile: Ceramic tile sheets, with raised rounded discs, 3/4 inch in size; with glazed finish.

1. Size: 12 inch by 12 inch sheets.
2. Thickness: 1/4 inch.
3. Finish/Color: Glazed, SD-280.
4. Selected Product: Subject to compliance with requirements, provide "PennyRounds", as manufactured by Nemo Tile, or approved equal from one of the following:

a. Nemo Tile.
b. American Olean; Division of Dal-Tile International Inc.
c. Crossville, Inc.
d. Daltile.

C. Trim Units: Matching characteristics of adjoining flat tile and coordinated with sizes and coursing of adjoining flat tile where applicable. Provide shapes as follows, selected from manufacturer's standard shapes:

1. Base: Straight, module size as indicated.
2. External Corners: Surface bullnose.
3. Internal Corners: Field-butted square corners except with coved base and cap angle pieces designed to fit with stretcher shapes.

2.3 BACKING PANELS

A. Cementitious Backer Units: ANSI A118.9. Refer to Division 9 Section "Gypsum Board Assemblies" for materials and performance requirements.

2.4 SETTING AND GROUTING MATERIALS

A. Available Manufacturers:

1. Bostik.
2. LATICRETE International Inc.
3. MAPEI Corporation.

4. Approved equal.

B. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4, consisting of the following:

1. Prepackaged dry-mortar mix containing dry, redispersible, ethylene vinyl acetate additive to which only water must be added at Project site.

a. For wall applications, provide mortar that complies with requirements for nonsagging mortar in addition to the other requirements in ANSI A118.4.

C. Latex-Portland Cement Grout: ANSI A118.6, Latex additive (water emulsion) serving as a replacement for part or all of gauging water, added at job site to prepackaged dry grout mix.

D. Sand-Portland Cement Grout: ANSI A108.10, composed of white or gray cement and white or colored aggregate as required to produce color indicated by the Commissioner.

1. Use unsanded grout mixture for joints 1/8 and narrower.
2. Use sanded grout mixture for joints wider than 1/8.

2.5 ELASTOMERIC SEALANTS

A. General: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer and characteristics indicated that comply with applicable requirements of Division 7 Section "Joint Sealants", including ASTM C 920 as referenced by Type, Grade, Class, and Uses.

B. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints.

2.6 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. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.

C. Grout Sealer: Manufacturer's standard silicone product for sealing grout joints that does not change color or appearance of grout.

2.7 MIXING MORTARS AND GROUT

A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.

B. Add materials, water, and additives in accurate proportions.

C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.1 PREPARATION

A. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with adhesives or thin-set mortar with trowelable leveling and patching compound specifically recommended by tile-setting material manufacturer.

B. Prepare substrates to receive waterproofing by applying a reinforced mortar bed that complies with ANSI A108.1A and is sloped 1/4 inch per foot toward drains.

3.2 INSTALLATION, GENERAL

A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.

B. TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation." Comply with TCA installation methods indicated in ceramic tile installation schedules.

1. For the following installations, follow procedures in the ANSI A108 Series of tile installation standards for providing 95 percent mortar coverage:

a. Tile floors in wet areas.

C. Jointing Pattern: Lay tile in grid pattern. Align joints when adjoining tiles on floor, base, walls, and trim are same size.

1. Joint Widths: Install tile with joint widths of 1/16 inch

D. Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.

1. Locate joints in tile surfaces directly above joints in concrete substrates.
2. Prepare joints and apply sealants to comply with requirements in Division 7 Section "Joint Sealants."

3.3 FLOOR TILE INSTALLATION

A. Ceramic Floor Tile: Install ceramic tile to comply with requirements indicated below for setting bed methods, TCA installation methods related to types of subfloor construction, and grout.

1. Latex-Portland Cement Mortar: ANSI A108.5.

a. Latex-Portland Cement (thinset), Interior: TCA F113.
b. Grout: Latex-portland cement grout (use sanded grout for joints greater than 1/8 inch.

3.4 WALL TILE INSTALLATION

A. Wall Tile: Install types of wall tile indicated below for setting-bed methods, and TCA installation methods related to subsurface and grout.

1. Latex-Portland Cement Mortar: ANSI A108.5 (ANSI A108.11 for cementitious backer units).

   a. Cement Backer Board, Interior: TCA W244.
   b. Cement grout.

2. Latex-Portland Cement Mortar: ANSI A108.5.

   a. Glass Mat or Water-resistant Gypsum/Backer Board, Interior: TCA W245.
   b. Cement grout.

END OF SECTION 093100

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SECTION 096400 - WOOD FLOORING

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide wood flooring in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Field-finished plank wood flooring.
2. Masonite floor surfacing.
3. Plywood subfloor.

B. Alternates: In lieu of field finished Red Oak wood flooring (WD-2, WD-3), provide heat treated wood.

C. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).

5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: For each type of product indicated, submit manufacturer's specifications and instructions for wood flooring, including installation, storage, and finishing recommendations.

C. Shop Drawings: For each type of floor assembly and accessory, include plans, elevations, sections, details, and attachments to other work. Include expansion provisions and trim details.

D. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors finishes available for wood flooring.

E. Samples for Verification: For each type of wood flooring and accessory, with stain color and finish required, approximately 12 inches long and of same thickness, cut, and material indicated for the Work and showing the full range of normal color and texture variations expected.

1.4 QUALITY ASSURANCE

A. Hardwood Flooring: Comply with NOFMA's "Official Flooring Grading Rules" for species, grade, and cut.

1. Certification: Provide flooring that carries NOFMA grade stamp on each bundle or piece.

B. Build mockup of typical flooring area as shown on Drawings.

1. To set quality standards for sanding and application of field finishes, prepare finish mockup of floor area as shown on Drawings.
2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Commissioner specifically approves such deviations in writing.
3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

C. Wood flooring in exit corridors shall comply with Table 5- 4 of the Building Code of the City of New York.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver wood flooring materials in unopened cartons or bundles.

B. Protect wood flooring from exposure to moisture. Do not deliver wood flooring until after concrete, masonry, plaster, ceramic tile, and similar wet work is complete and dry.

C. Store wood flooring materials in a dry, warm, ventilated, weathertight location.

1.6 PROJECT CONDITIONS

A. Conditioning period begins not less than seven days before wood flooring installation, is continuous through installation, and continues not less than seven days after wood flooring installation.

1. Environmental Conditioning: Maintain an ambient temperature between 65 and 75 deg F and relative humidity planned for building occupants in spaces to receive wood flooring during the conditioning period.
2. Wood Flooring Conditioning: Move wood flooring into spaces where it will be installed, no later than the beginning of the conditioning period.

    a. Do not install flooring until it adjusts to relative humidity of, and is at same temperature as, space where it is to be installed.
    b. Open sealed packages to allow wood flooring to acclimatize immediately on moving flooring into spaces in which it will be installed.

B. After conditioning period, maintain relative humidity and ambient temperature planned for building occupants.

C. Install factory-finished wood flooring after other finishing operations, including painting, have been completed.

1.7 EXTRA MATERIALS

A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Wood Flooring: Equal to 1 percent of amount installed for each type of wood flooring indicated.

PART 2 - PRODUCTS

2.1 FIELD-FINISHED WOOD FLOORING

A. Solid-Wood Plank Flooring: Kiln dried to 6 to 9 percent maximum moisture content, tongue and groove and end matched, and with backs channeled.

1. Species and Grade: Red Oak.

    a. Add-Alternate: In lieu of field finished Red Oak wood flooring (WD-2, WD-3) specified above, provide Cambria by NFP heat treated Red Oak flooring, as manufactured by Cambria Wood, or approved equal.

2. Cut: Rift and quartered, to match approved samples.
3. Thickness: 3/4 inch.
4. Face Width: 5 inches, minimum.
5. Lengths: Manufacturer's standard.

B. Finish: Provide the manufacturer's recommended "hand-applied" Tung-Oil and shellac finish system.

1. Tung-oil finish shall be a deep penetrating sealer finish system manufactured from natural Tung- oil and phenolic resin complying with current ASTM standards. System shall be non-yellowing system applied in multiple coats/applications until wood is properly saturated and burnished to a hand rubber luster.

2. Shellac: Pure gum shellac (white or orange) cut in pure denatured alcohol using not less than four (4) lbs. of gum per gallon of alcohol.

C. Stain: Colored penetrating and nonfading type, as selected by the Commissioner. Provide stain that is compatible with tung oil shellac finish specified above.

1. Color: Ebony, matching approved samples.
2. Location: Where indicated on the Drawings or by the Commissioner.

D. Wood Filler: Compatible with finish system components and recommended by filler and finish manufacturers for use indicated. If required to match approved Samples, provide pigmented filler.

2.2 MASONITE FLOOR SURFACING

A. Masonite Floor Surfacing: Provide masonite floor on two layers of plywood, at locations indicated on the Drawings.

1. Tempered Hardboard (Masonite) Paneling: Class 1, S1S, tempered hardboard complying with AHA 135.4

a. Thickness: 1/4 inch, unless otherwise indicated.

B. Finish: As selected by the Commissioner.

2.3 ACCESSORY MATERIALS

A. Vapor Retarder: ASTM D 4397, polyethylene sheet not less than 6.0 mils thick.

B. Plywood Subflooring: Exterior, Structural I single-floor panels or sheathing.

1. Span Rating: Not less than 16.
2. Nominal Thickness: Not less than 3/4 inch, unless otherwise indicated.

C. Asphalt-Saturated Felt: ASTM D 4869, Type II.

D. Trowelable Leveling and Patching Compound: Latex-modified, hydraulic-cement-based formulation approved by wood flooring manufacturer.

E. Fasteners: As recommended by manufacturer, but not less than that recommended in NWFA's "Installation Guidelines: Wood Flooring."

1. Nails, Brads, and Staples: ASTM F 1667.
2. Power-Driven Fasteners: NES NER-272.
3. Wood Screws: ASME B18.6.1.

F. Thresholds and Saddles: To match wood flooring. Tapered on each side.

G. Base: Refer to Division 6 Section "Interior Architectural Woodwork".

H. Reducer Strips: To match wood flooring. 2 inches wide, tapered, and in thickness required to match height of flooring.

I. Cork Expansion Strip: Composition cork strip.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas and conditions, with Installer present, for compliance with requirements for maximum moisture content, installation tolerances, and other conditions affecting performance of wood flooring.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove coatings, including curing compounds, and other substances on substrates that are incompatible with installation adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.

B. Broom or vacuum clean substrates to be covered immediately before product installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 INSTALLATION

A. Comply with flooring manufacturer's written installation instructions, but not less than applicable recommendations in NWFA's "Installation Guidelines: Wood Flooring."

B. Wood Subfloor: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.

1. For Wood Flooring over Concrete: Loose lay 3/4 inch plywood panels over entire floor. Stagger plywood and joints every 4 feet by cutting the first sheet of every other run in half. Leave 3/4 inch space at all wall lines and 1/4 inch to 1/2 inch between panels. Cut plywood to fit within 1/8" near and around door jambs and other obstructions where finish trim will not be used.

    a. Subflooring Fastening Methods: Fasten panels as indicated below:

        1) Fasten the plywood with a powder-actuated concrete nailer or hammer-driven concrete nails.

2. For Carpet Finish over Catwalk Gratings: refer to Division 5 Section "Metal Fabrications" for materials and installation of grating catwalks. Anchor plywood deck/subfloor directly to grating substrate using grating manufacturer's recommended anchor bolts. Anchors shall be of size and spaced as required to pas through bars of grating and retain a washer and nut from the grating bottom, to secure plywood rigidly to grating surface.

C. Provide expansion space at walls and other obstructions and terminations of flooring as indicated on Drawings, but not less than 3/4 inch.

D. Vapor Retarder: Install over concrete substrates. Comply with NOFMA's "Installing Hardwood Flooring" for vapor retarder installation and the following:

1. Wood Flooring Nailed to Subfloor over Concrete: Install flooring over a layer of polyethylene sheet with edges overlapped over sleepers and turned up behind baseboards.

E. Solid-Wood Flooring: Blind nail or staple flooring to substrate.

3.4 MASONITE FLOOR SURFACING

A. Masonite Floor Surfacing: Screw and glue masonite to plywood substrate, as indicated.

3.5 FIELD FINISHING

A. Machine-sand flooring to remove offsets, ridges, cups, and sanding-machine marks that would be noticeable after finishing. Vacuum and tack with a clean cloth immediately before applying finish.

1. Comply with applicable recommendations in NWFA's "Installation Guidelines: Wood Flooring."

B. Fill open-grained hardwood.

C. Fill and repair wood flooring seams and defects.

D. Apply floor-finish materials in number of coats recommended by finish manufacturer for application indicated, but not less than one coat of floor sealer and three finish coats.

1. Apply stains to achieve an even color distribution matching approved Samples.
2. For water-based finishes, use finishing methods recommended by finish manufacturer to minimize grain raise.

E. Cover wood flooring before finishing.

F. Do not cover wood flooring after finishing until finish reaches full cure, and not before seven days after applying last finish coat.

3.6 PROTECTION

A. Protect installed wood flooring during remainder of construction period with covering of heavy kraft paper or other suitable material. Do not use plastic sheet or film that might cause condensation.

1. Do not move heavy and sharp objects directly over kraft-paper-covered wood flooring. Protect flooring with plywood or hardboard panels to prevent damage from storing or moving objects over flooring.

END OF SECTION 096400

SECTION 096513 – RESILIENT WALL BASE

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide resilient wall base in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Resilient rubber wall base.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: For each type of product indicated, include material descriptions, dimensions of individual components and profiles, installation instructions, and finish requirements for resilient wall base.

C. Samples: Submit 12 inch long samples of each type, color, and pattern of resilient wall base and accessory required.

D. Maintenance Data: Submit manufacturer's maintenance instructions or recommendations for resilient wall base to include in maintenance manuals

1.4 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.

1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F.

1.6 PROJECT CONDITIONS

A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive resilient products during the following time periods:

1. 48 hours before installation.
2. During installation.
3. 48 hours after installation.

B. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.

C. Install resilient products after other finishing operations, including painting, have been completed.

1.7 EXTRA MATERIALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Furnish not less than 10 linear feet for every 500 linear feet or fraction thereof, of each type, color, pattern, and size of resilient product installed.

PART 2 - PRODUCTS

2.1 RESILIENT BASE

A. Rubber Wall Base: ASTM F 1861. Type TP (rubber, thermoplastic).

1. Minimum Thickness: 0.125 inch.
2. Height: 2-1/2 inches.
3. Colors and Patterns: As selected by the Commissioner from full range of industry colors.
4. Basis of Design: Provide "Wall Base", as manufactured by Roppe Corporation, or approved equal from one of the following:

    a. Roppe Corporation.
    b. Armstrong World Industries, Inc.
    c. Johnsonite.

2.2 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.

B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.

C. Do not install resilient products until they are same temperature as the space where they are to be installed.

1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.

D. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

3.3 RESILIENT BASE INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient base.

B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

C. Install resilient base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.

D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

E. Do not stretch resilient base during installation.

F. Preformed Corners: Install preformed corners before installing straight pieces.

3.4 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protection of resilient products.

B. Perform the following operations immediately after completing resilient product installation:

1. Remove adhesive and other blemishes from exposed surfaces.
2. Sweep and vacuum surfaces thoroughly.
3. Damp-mop surfaces to remove marks and soil.

C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

D. Cover resilient products until Substantial Completion.

END OF SECTION 096513

SECTION 096516 – LINOLEUM FLOORING

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide linoleum flooring in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Linoleum sheet flooring.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: Submit manufacturer's technical information and specifications, performance characteristics, finish requirements and installation instructions for specified products.

C. Maintenance Instructions: Submit manufacturer's written instructions for recommended maintenance practices for each type of resilient flooring and each accessory.

D. Samples: Samples of all finishes, colors, and textures.

E. Samples for Verification: In manufacturer's standard size, but not less than 6-by-9-inch sections of each color and pattern of floor covering required

F. Heat-Welded Seam Samples: For each floor covering product and welding bead color and pattern combination required; with seam running lengthwise and in center of 6-by-9-inch Sample applied to rigid backing and prepared by Installer for this Project.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs workers for this Project who are competent in techniques required by manufacturer for floor covering installation.

1. Engage an installer who employs workers for this Project who are trained by manufacturer for installation techniques required.

B. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.

1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

C. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Build mockups for floor coverings including integral-flash-cove-base and accessories.

D. Size: Minimum 100 sq. ft. for each type, color, and pattern in locations directed by Commissioner.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store floor coverings and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 65 deg F or more than 90 deg F.

1. Sheet Flooring: Store rolls upright.

1.6 PROJECT CONDITIONS

A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive floor coverings during the following time periods:

1. 72 hours before installation.
2. During installation.
3. 72 hours after installation.

B. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.

C. Close spaces to traffic during floor covering installation.

D. Close spaces to traffic for 72 hours after floor covering installation.

E. Install floor coverings after other finishing operations, including painting, have been completed.

1.7 SEQUENCING AND SCHEDULING

A. Finishing Operations: Install tile flooring after finishing operations, including painting and ceiling operations, have been completed.

1.8 WARRANTY

A. Manufacturer's Warranty: Submit, for the Commissioner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights the City of New York may have under Contract Documents.

1. Warranty Period: Five (5) year limited warranty commencing on Date of Substantial Completion.

1.9 EXTRA MATERIALS

A. Deliver to the City of New York extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels.

1. Quantity: Furnish quantity of flooring units equal to 5% in roll form and in full roll width for each color, pattern, and type of sheet flooring installed.

PART 2 - PRODUCTS

2.1 LINOLEUM FLOORING

A. Basis of Design: Provide "Walton UNI" Linoleum Sheet flooring, as manufactured by Forbo Flooring, Inc., or approved equal from one of the following:

1. Forbo Flooring, Inc.
2. Armstrong World Industries, Inc.
3. Tarkett Inc.

B. Linoleum Sheet: ASTM F 2034, Type I.

1. Description: Homogeneous sheet of primarily natural materials consisting of linseed oil, wood flour, and rosin binders, mixed and calendered onto a polyester backing. Pattern and color shall extend throughout total thickness of tile material.

a. Size, Patterns, and Colors: As indicated on the Drawings.
b. Gauge: 1/10".
c. Backing: Polyester backing.

2.2 MISCELLANEOUS MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by manufacturer to suit products and substrate conditions indicated.

C. Heat Welding Rod: Type as recommended by flooring manufacturer.

D. Resilient Transition Strips: Homogeneous linoleum or rubber composition, tapered, with edge thickness as required for smooth transition from one finished floor material to another, color to match flooring, or as selected by the Commissioner from standard colors available; but not less than 1" inch wide.

E. Integral-Flash-Cove-Base Accessories:

1. Cove Strip: 1-inch radius provided or approved by manufacturer.
2. Cove-Base Cap Strip: Square metal, vinyl, or rubber cap provided or approved by manufacturer

F. Floor Polish: Provide protective liquid floor polish products as recommended by manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of floor coverings.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Concrete Substrates: Prepare according to ASTM F 710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Remove substrate coatings and other substances that are incompatible with floor covering adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
4. Moisture Testing: Perform tests recommended by manufacturer and as follows. Proceed with installation only after substrates pass testing.

a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.

B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.

C. Do not install floor coverings until they are same temperature as space where they are to be installed.

1. Move floor coverings and installation materials into spaces where they will be installed at least 72 hours in advance of installation.

D. Sweep and vacuum clean substrates to be covered by floor coverings immediately before installation.

3.3 INSTALLATION, GENERAL

A. Comply with manufacturer's written instructions for installing floor coverings.

B. Scribe and cut floor coverings to butt neatly and tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings.

C. Extend floor coverings into toe spaces, door reveals, closets, and similar openings.

D. Maintain reference markers, holes, or openings that are in place or marked for future cutting by repeating on floor coverings as marked on subfloor. Use chalk or other nonpermanent marking device.

E. Adhere floor coverings to substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

F. Heat-Welded Seams: Comply with ASTM F 1516. Rout joints and use welding bead to permanently fuse sections into a seamless floor covering. Prepare, weld, and finish seams to produce surfaces flush with adjoining floor covering surfaces.

3.4 LINOLEUM SHEET FLOORING INSTALLATION

A. Unroll sheet floorings and allow them to stabilize before cutting and fitting.

B. Lay out sheet floorings as follows:

1. Maintain uniformity of floor covering direction.
2. Minimize number of seams; place seams in inconspicuous and low-traffic areas, at least 6 inches away from parallel joints in floor covering substrates.
3. Match edges of floor coverings for color shading at seams.
4. Avoid cross seams.
5. Eliminate deformations that result from hanging method used during drying process (stove bar marks).

C. Integral-Flash-Cove Base: Cove linoleum floor covering 6 inches dimension indicated up vertical surfaces. Support floor covering at horizontal and vertical junction with cove strip. Butt at top against cap strip.

3.5 CLEANING AND PROTECTION

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 the City of New York's acceptance. Remove construction debris from project site and legally dispose of debris.

1. Remove visible adhesive and other surface blemishes using cleaning methods recommended by tile floor manufacturer.
2. Sweep and vacuum floor after installation.
3. Do not wash floor until after time period recommended by tile flooring manufacturer.
4. Damp-mop tile flooring to remove black marks and soil. After completion of project, and just prior to final inspection of work, thoroughly clean floors, bases and accessories.

B. Fully cover and protect finished floor until acceptance of Substantial Completion by the City of New York.

END OF SECTION 096516

SECTION 096816 - SHEET CARPETING

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide sheet carpeting in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Broadloom carpeting.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: For each type of product indicated, include manufacturer's written data on physical characteristics, durability, and fade resistance. Include installation recommendations for each type of substrate.

C. Shop Drawings: Submit shop drawings showing carpeting layout and seaming diagrams, carpet direction and types and directions of edge strips and other accessories. Indicate columns, doorways, partitions, built in cabinets, and other locations where cutouts are required:

1. The Installer shall be responsible for taking accurate job-site measurements for all dimensions related to the work prior to placing orders for carpeting.

D. Samples: For each of the following products and for each color and texture required, label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.

1. Carpet: 12 inch square Sample.
2. Exposed Edge, Transition, and other Accessory Stripping: 12 inch long Samples.

E. Product Test Reports: Submit test reports based on evaluation of comprehensive tests performed by a qualified testing agency.

F. Maintenance Data: For carpeting to include in maintenance manuals. Include the following:

1. Methods for maintaining carpeting, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
2. Precautions for cleaning materials and methods that could be detrimental to carpet.

G. Warranties: Submit copies of special warranties specified in this Section.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Firm acceptable to carpeting manufacturers and specializing in carpet installation with not less than 3 years of experience in installation of carpeting similar to that required for this project.

B. Fire-Test-Response Ratings: Where indicated, provide carpet identical to those of assemblies tested for fire response per NFPA 253 by a qualified testing agency.

C. Preinstallation Conference: Conduct conference at Project site. Review methods and procedures related to carpet installation including, but not limited to, the following:

1. Review delivery, storage, and handling procedures.
2. Review ambient conditions and ventilation procedures.

1.5 DELIVERY, STORAGE, AND HANDLING

A. General: Comply with the Carpet and Rug Institute's CRI 104, Section 5: "Storage and Handling."

B. Deliver materials to Project site in original factory wrappings and containers, labeled with identification of manufacturer, brand name, and lot number.

C. Store materials on-site in original undamaged packages, inside well-ventilated area protected from weather, moisture, soilage, extreme temperatures, and humidity. Lay flat, with continuous blocking off ground.

1.6 PROJECT CONDITIONS

A. Comply with CRI 104, Section 7.2, "Site Conditions; Temperature and Humidity" and Section 7.12, "Ventilation."

B. Environmental Limitations: Do not install carpeting until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

C. Do not install carpeting over concrete slabs until slabs have cured, are sufficiently dry to bond with adhesive, and have pH range recommended by carpeting manufacturers.

D. Where items are indicated for installation on top of carpeting, install carpeting before installing these items.

1.7 WARRANTY

A. Special Warranty for Carpeting: Manufacturer's standard form in which manufacturer agrees to repair or replace components of carpeting installation that fail in materials or workmanship within specified warranty period.

1. Warranty does not include deterioration or failure of carpeting due to unusual traffic, failure of substrate, vandalism, or abuse.
2. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, loss of tuft bind strength, excess static discharge, and delamination.

B. Warranty period is for the life of carpeting starting after the date of Substantial Completion.

1.8 EXTRA MATERIALS

A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Carpet: Full-width rolls equal to 5 percent of amount installed for each type indicated, but not less than 10 sq. yds.

PART 2 - PRODUCTS

2.1 BROADLOOM CARPETING

A. Available Manufacturers: Subject to compliance with requirements, provide carpeting as manufactured by one of the following, or approved equal:

1. Karastan Contract (Basis of Design).
2. Interface.
3. Mohawk.
4. Shaw Contract Group

B. CA1:

1. Product: Sisaltec II, by Karastan Contract.
2. Color: 46625 Agave.

3. Construction: Woven textured loop
4. Pile Weight: 23.0 oz. per sq. yd.
5. Pile Thickness: 0130 inch.
6. Backing: Manufacturers standard woven backing.
7. Dye Method: Skein Dyed.
8. Protection: Manufacturer's standard soil protection.
9. Performance Requirements:

    a. Flammability: ASTM E 648 Class 1.
    b. Smoke Density: ASTM E 662 Less than 450.
    c. Static Propensity: AATCC-134 Under 3.5 KV.

C. CA2:

1. Product: Jewel Cave, by Karastan Contract.
2. Color: 789 Moonstone.
3. Construction: Boradloom textured loop
4. Pile Weight: 23.0 oz. per sq. yd.
5. Pile Thickness: 0105 inch.
6. Backing: Manufacturers standard woven backing.
7. Dye Method: Solution Dyed.
8. Protection: Manufacturer's standard soil protection.
9. Performance Requirements:

    a. Flammability: ASTM E 648 Class 1.
    b. Smoke Density: ASTM E 662 Less than 450.
    c. Static Propensity: AATCC-134 Under 3.5 KV

D. CA3:

1. Product: Sisaltec II, by Karastan Contract.
2. Color: 51921 Peppergrass.
3. Construction: Woven textured loop
4. Pile Weight: 23.0 oz. per sq. yd.
5. Pile Thickness: 0130 inch.
6. Backing: Manufacturers standard woven backing.
7. Dye Method: Skein Dyed.
8. Protection: Manufacturer's standard soil protection.
9. Performance Requirements:

    a. Flammability: ASTM E 648 Class 1.
    b. Smoke Density: ASTM E 662 Less than 450.
    c. Static Propensity: AATCC-134 Under 3.5 KV.

E. Dye: Use dyes and dyeing methods recognized by the industry as successful for the type of fiber being dyed and to achieve the required colors and fade resistance. Achieve the fade resistance established by the Association of Textile Chemists and Colorists for carpeting when tested on the Atlas Fadeometer for 40 hours.

1. All dye lots of each color for all carpeting must match each other whether or not they are supplied by one or more manufacturers.
2. Dye Method: Provide carpeting that is solution dyed, matching approved sample.

2.2 INSTALLATION ACCESSORIES

A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpeting manufacturers.

B. Carpeting Adhesives: Water-resistant, mildew-resistant, nonstaining type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet and is recommended or provided by carpeting manufacturers.

1. VOC Limits: Provide adhesives with VOC content not more than 50g/L when calculated according to authority having jurisdiction.

C. Seam Adhesive: Hot-melt adhesive tape or similar product recommended by carpet manufacturers for sealing and taping seams and butting cut edges at backing to form secure seams and to prevent pile loss at seams.

D. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edge of carpeting, and of maximum lengths to minimize running joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpeting performance. Examine carpeting for type, color, pattern, and potential defects.

B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:

1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by carpeting manufacturers.
2. Subfloor finishes comply with requirements specified in Division 03 Section "Cast-in-Place Concrete" for slabs receiving carpeting.
3. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.

C. For wood subfloors, verify the following: Underlayment surface is free of irregularities and substances that may interfere with adhesive bond or show through surface. Refer to Division 9 Section "Wood Flooring."

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. General: Comply with CRI 104, Section 7.3, "Site Conditions; Floor Preparation," and with carpeting manufacturers written installation instructions for preparing substrates.

B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch wide or wider, and protrusions more than 1/32 inch, unless more stringent requirements are required by manufacturer's written instructions.

C. Broom and vacuum clean substrates to be covered immediately before installing carpeting.

3.3 INSTALLATION

A. Comply with CRI 104 and carpeting manufacturers written installation instructions for the following:

1. Direct-Glue-Down Installation, Sheet Carpet: Comply with CRI 104, Section 9, "Direct Glue-Down Installation."

B. Comply with carpeting manufacturers written recommendations and Shop Drawings for seam locations and direction of carpeting; maintain uniformity of carpeting direction and lay of pile. At doorways, center seams under the door in closed position.

1. Level adjoining border edges. Carpet cuts to be executed in such a manner as to prevent any unravel, fraying, partially-cut or damaged yarns and that prevents any damage to the stability and/or evenness of primary and/or secondary backing layers.

C. Do not bridge building expansion joints with carpeting.

D. Cut and fit carpeting to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpeting manufacturers.

E. Extend carpeting into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.

F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use nonpermanent, nonstaining marking device.

G. Install pattern parallel to walls and borders to comply with CRI 104, Section 15, "Patterned Carpet Installations" and with carpeting manufacturers written recommendations.

3.4 CLEANING AND PROTECTING

A. Perform the following operations immediately after installing carpeting:

1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpeting manufacturers.
2. Remove yarns that protrude from carpeting surfaces.
3. Vacuum carpeting using commercial machine with face-beater element.

B. Protect installed carpeting to comply with CRI 104, Section 16, "Protection of Indoor Installations."

C. Protect carpeting against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpeting manufacturers.

END OF SECTION 096816

SECTION 098436 - SOUND-ABSORBING CEILING UNITS

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide sound absorbing ceiling units in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Shop-fabricated, fabric-wrapped panel units tested for acoustical performance.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: For each type of product, include construction details, mounting, material descriptions, dimensions of individual components and profiles, and finishes for sound-absorbing ceiling units.

C. Shop Drawings: Submit detailed shop drawings for sound-absorbing ceiling units. Include plans, elevations, sections, mounting devices, details at joints and corners; and details at ceiling intersections and intersections with walls. Indicate panel edge and core materials.

1. Include reflected ceiling plans showing panel sizes and direction of fabric weave and pattern matching.

D. Samples: For the following products:

1. Fabric: Full-width by approximately 36-inch long Sample, but not smaller than required to show complete pattern repeat, from dye lot to be used for the Work, and with specified treatments applied. Mark top and face of fabric.
2. Panel Edge: 12-inch long Sample(s) showing each edge profile, corner, and finish.
3. Core Material: 12-inch square Sample at corner.
4. Mounting Devices: Full-size Samples.
5. Assembled Panels: Approximately 36 by 36 inches, including joints and mounting methods.

E. Coordination Drawings: Reflected ceiling plans and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Electrical outlets, switches, and thermostats.
2. Suspended ceiling components above sound-absorbing ceiling units.
3. Structural members to which suspension devices will be attached.
4. Items penetrating or covered by sound-absorbing ceiling units including the following:

a. Lighting fixtures.
b. Air outlets and inlets.
c. Speakers.
d. Alarms.
e. Sprinklers.
f. Access panels.

5. Show operation of hinged and sliding components covered by or adjacent to sound-absorbing ceiling units.

F. Product Certificates: For each type of sound-absorbing ceiling unit.

G. Sample Warranty: Submit copies of special warranties specified in this Section.

H. Maintenance Data: For sound-absorbing ceiling units to include in maintenance manuals. Include fabric manufacturer's written cleaning and stain-removal recommendations.

1.4 QUALITY ASSURANCE

A. General Requirements for Sound-Absorbing Ceiling Units: Provide sound-absorbing panels that comply 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."

B. Fire-Test-Response Characteristics: Provide sound-absorbing ceiling units meeting the following requirements as determined by testing identical products by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:

1. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

   a. Flame-Spread Index: 25 or less.
   b. Smoke-Developed Index: 450 or less.

2. Fire Growth Contribution: Comply with acceptance criteria of local code and authorities having jurisdiction when tested according to NFPA 265 or NFPA 286.

C. Source Limitations: Obtain sound-absorbing ceiling units from single source from single manufacturer.

D. Preinstallation Conference: Conduct conference at Project site.

E. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials, fabrication, and installation.

1. Build mockup of typical ceiling area as shown on Drawings or as directed by the Commissioner. Include intersection of wall and ceiling, corners, and perimeters.
2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Commissioner specifically approves such deviations in writing.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Comply with fabric and sound-absorbing ceiling unit manufacturers' written instructions for minimum and maximum temperature and humidity requirements for shipment, storage, and handling.

B. Deliver materials and units in unopened bundles and store in a temperature-controlled dry place with adequate air circulation.

1.6 FIELD CONDITIONS

A. Environmental Limitations: Do not install sound-absorbing ceiling units until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work at and above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

B. Lighting: Do not install sound-absorbing ceiling units until a permanent level of lighting is provided on surfaces to receive the units.

C. Air-Quality Limitations: Protect sound-absorbing ceiling units from exposure to airborne odors, such as tobacco smoke, and install units under conditions free from odor contamination of ambient air.

D. Field Measurements: Verify locations of sound-absorbing ceiling units and actual dimensions of openings and penetrations by field measurements before fabrication.

1.7 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of sound-absorbing ceiling units that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Acoustical performance.
b. Fabric sagging, distorting, or releasing from panel edge.
c. Warping of core.

2. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Core: Glass-Fiber Board, complying with ASTM C 612, Type standard with manufacturer; nominal density of 6 to 7 lb/cu. ft., unfaced, and dimensionally stable, molded rigid board; and with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

B. Wood and Plywood: Manufacturer's standard plywood or clear, vertical grain, straight, kiln-dried hardwood.

C. Facing Material: Fabric, as selected by the Commissioner.

1. Basis-of-Design Product: Subject to compliance with requirements, provide "Model FR-701 2100 380 Quartz", as manufactured by Guilford of Maine indicated or approved equal panel consisting of fabric and core material from one of the following:

a. Guilford of Maine.
b. Acoustical Panel Systems (APS), Inc.
c. Decoustics Limited; a CertainTeed Ceilings company.
d. Kinetics Noise Control, Inc.

D. Mounting Devices: Concealed on back of unit, recommended by manufacturer to support weight of unit.

2.2 SOUND-ABSORBING CEILING UNITS

A. Sound-Absorbing Ceiling Panel: Manufacturer's standard panel construction consisting of fabric facing material stretched over front face of edge-framed core and bonded or attached to edges and back of frame.

1. Mounting: Back mounted with manufacturer's standard metal clips or suspension system, secured to substrate.
2. Core: Rigid glass-fiber insulation board, 1 inch thick.
3. Edge Construction: Manufacturer's standard chemically hardened core with no frame.
4. Edge Profile: As indicated on the Drawings.
5. Facing Material: Fabric, as specified above, and selected by the Commissioner.
6. Acoustical Performance: Sound absorption NRC of 0.50 to 0.90 in accordance with ASTM C 423 and as per manufacturers selected product.
7. Panel Dimensions: As indicated on the Drawings.

2.3 FABRICATION

A. General: Use manufacturer's standard construction except as otherwise indicated, with facing material applied to face, edges, and back border of dimensionally stable core and with rigid edges to reinforce panel perimeter against warpage and damage.

B. Measure each area and establish layout of panels and joints of sizes indicated on Drawings within a given area.

C. Glass-Fiber Board Cores: Chemically harden core edges and areas of core where mounting devices are attached.

D. Facing Material: Apply fabric facing fully covering visible surfaces of unit; with material stretched straight, on the grain, tight, square, and free from puckers, ripples, wrinkles, sags, blisters, seams, adhesive, or other visible distortions or foreign matter.

1. Square Corners: Tailor corners.
2. Radius and Other Nonsquare Corners: Attach facing material so there are no seams or gathering of material.
3. Fabrics with Directional or Repeating Patterns or Directional Weave: Mark fabric top and attach fabric in same direction so pattern or weave matches adjacent units.

E. Dimensional Tolerances of Finished Units: Plus or minus 1/16 inch for the following:

1. Thickness.
2. Edge straightness.
3. Overall length and width.
4. Squareness from corner to corner.
5. Chords, radii, and diameters.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine fabric, fabricated units, substrates, areas, and conditions for compliance with requirements, installation tolerances, and other conditions affecting performance of sound-absorbing ceiling units.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install sound-absorbing ceiling units in locations indicated with edges in alignment with walls and other units, faces flush, and scribed to fit adjoining work accurately at borders and at penetrations.

B. Comply with sound-absorbing ceiling unit manufacturer's written instructions for installation of units using type of mounting devices indicated. Mount units securely to supporting substrate.

C. Align fabric pattern and grain with adjacent units.

3.3 INSTALLATION TOLERANCES

A. Variation from Alignment with Surfaces: Plus or minus 1/16 inch.

B. Variation from Level or Slope: Plus or minus 1/16 inch.

C. Variation of Panel Joints from Hairline: Not more than 1/16 inch wide.

3.4 CLEANING

A. Clip loose threads; remove pills and extraneous materials.

B. Clean panels on completion of installation to remove dust and other foreign materials according to manufacturer's written instructions.

END OF SECTION 098436

SECTION 099100 - PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide painting in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Painting of interior items and surfaces.
2. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.

B. Work Not Included:

1. Pre-Finished Items: Do not include painting when shop or factory finishing is specified for such items as elevator, and mechanical and electrical equipment.
2. Concealed Surfaces: Painting is not required on surfaces in concealed and generally inaccessible areas such as pipe spaces, duct shafts and elevator shafts.
3. Operating Parts: Moving parts of mechanical and electrical devices, motor and fan shafts will not require painting.

C. Labels: Do not paint over any code-required labels, such as Underwriters' Laboratories and Factory Mutual, or any equipment identification, performance rating, name, or nomenclature plates.

D. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.

2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: Submit product data that verify or are required to ensure compliance with the Contract Documents, to include technical information, shop drawings, samples, calculations, product test reports, etc.

1. Material List: Provide an inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
2. Certification by the manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).

C. Samples: Prior to painting, submit samples for Commissioner review of each required color and texture. Identify materials used on samples. Samples shall have each coat of paint exposed the same amount and tinted slightly different than other coats.

1. On 12" by 12" hardboard, submit three samples of each color, material and texture, until sheen, color, and texture are acceptable.

D. Product Certificates: Submit manufacturer's certificates showing compliance with performance requirements for each type of painting from manufacturer.

E. Maintenance Data: Submit manufacturer's maintenance instructions or recommendations for painting to include in maintenance manuals.

1.4 QUALITY ASSURANCE

A. Applicator Qualifications: Engage an applicator shall have 3 consecutive years of professional paint experience; and be acceptable to the paint manufacturer for the application of the specified systems.

B. Single Source Responsibility: Use only thinners approved by paint manufacturer, and use only within recommended limits.

C. Mockups: Provide a full-coat mock-up finish sample of each type of coating and substrate required on the Project. Duplicate finish of approved prepared samples.

1. The Commissioner will select one surface to represent surfaces and conditions for each type of coating and substrate to be painted.

a. Doors: Provide samples on at least 100 sq. ft. of wall surface.

2. After appropriate lighting has been determined, apply coatings to each surface according to the Schedule or as specified. Provide required sheen, color, and texture on each surface.

a. Final approval of colors will be from job-applied samples.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.6 PROJECT CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1.7 EXTRA MATERIALS

A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.

1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of Design Product: Subject to compliance with requirements, provide paint products as manufactured by Sherwin-Williams, or approved equal from one of the following

1. Sherwin-Williams.
2. Benjamin Moore & Co.
3. M.A.B. Paints.

2.2 PAINT, GENERAL

A. Material Quality: Provide best quality grade of various types of coatings as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying manufacturer's identification as a standard, best-grade product will not be acceptable.

1. Compatibility: Provide materials for use within each finish system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

B. Volatile Organic Materials: Provide paint and coating products to comply with applicable environmental regulations and local authorities. Federal numbers, where specified or referred to, are for guidelines only.

1. Provide paints that comply with current Green Seal standards for low VOC limits.

C. Undercoaters: Provide undercoaters recommended by the finish coating manufacturer for suitability with the substrate and compatibility with finish coats.

D. Colors: As selected by Commissioner from manufacturer's full range.

1. Match colors indicated by reference to manufacturer's standard color designations as scheduled.
2. Gloss: Refer to the Finish Schedule on the Drawings for sheen of painted finishes for different substrates.

E. Color Pigments: Pure, non-fading, to suit substrates and service.

1. Lead content in pigment, if any, is limited to contain not more than 0.5% lead, as lead metal based on the total non-volatile (dry-film) of paint by weight.

PART 3 - EXECUTION

3.1 PREPARATION

A. Do not begin to apply paint until unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.

1. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.

B. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.

1. Ferrous Metals: Clean nongalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with recommendations of the Steel Structures Painting Council.

a. Blast steel surfaces clean as recommended by the paint system manufacturer and in accordance with requirements of SSPC specification SSPC-SP 10 for interior surfaces and SSPC-SP 6 for exterior surfaces.
b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
c. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with same primer as the shop coat.

2. Galvanized Surfaces: Touch-up bare and damaged areas of the shop-applied prime coat that have been damaged; wire brush, mechanically clean and/or solvent clean such areas in compliance with the manufacturers recommendations.

a. Use the coating materials identical to those applied in the shop. Refer to other Sections of these specifications for materials and other requirements.

3. Cementitious Materials: Prepare concrete and concrete masonry block surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen, as required, to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
4. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.
5. Wood Substrates:

   a. Scrape and clean knots, and apply coat of knot sealer before applying primer.
   b. Sand surfaces that will be exposed to view, and dust off.
   c. Prime edges, ends, faces, undersides, and backsides of wood.
   d. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

6. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.2 APPLICATION

A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.

B. The number of coats and the film thickness required are the same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.

C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.

D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.

E. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn through or other defects due to insufficient sealing.

3.3 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Commissioner, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.4 INTERIOR PAINT SCHEDULE

A. Basis of Design Products: Provide the following interior paint systems for substrates as manufactured by Sherwin-Williams, or approved equal.

1. Provide Sherwin-Williams colors and gloss as indicated on the Drawings and Finish Schedules.

B. Concrete Floors:

1. Semi-gloss Polyamide Epoxy:

a. Prime and Finish Coats: Epoxy Floor Coat.

C. Concrete Masonry Units:

1. Semi-gloss Finish/Acrylic Epoxy:

a. Block Filler.
b. Finish: 2 acrylic semi-gloss enamel.

2. Vinyl Acrylic Latex Semi Gloss Finish:

a. Block Filler.
b. Finish Coats: Two coats of latex-based interior semi-gloss finish.

D. Gypsum Drywall; Ceiling locations:

1. Vinyl Acrylic Latex Flat Finish: 2 finish coats over a primer.

a. Primer Coat: Latex-based interior primer.
b. Two Coats: Interior flat latex base paint.

E. Gypsum Drywall; Wall locations:

1. 100% Acrylic Latex Finish, Eggshell:

a. Primer Coat: Latex Primer / Sealer.
b. Two Coats: Two coats of latex-based interior low-luster finish.

F. Metal, Ferrous, Piping, Ductwork, HVAC:

1. 100% Acrylic Latex Finish, Semi-Gloss:

a. Primer: Interior enamel primer.
b. Finish Coats: Two coats of latex-based interior semi-gloss finish.

G. Zinc-coated Metal:

1. 100% Acrylic Latex Finish:

a. Primer: Interior enamel primer.
b. Finish Coats: Two coats of latex-based interior semi-gloss finish.

H. Wood (paint):

1. 100% Acrylic Latex Finish: 2 finish coats.

a. Base/Finish Coat: Two coats of latex-based interior satin finish.

I. Wood (stain):

1. Waterborne Clear Acrylic Over Stain System:.

a. Stain Coat: Interior wood stain (semitransparent).
b. Three Finish Coats: Waterborne clear acrylic (satin).

END OF SECTION 099100

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SECTION 101400 - IDENTIFYING DEVICES

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

B. General Requirements, LEED BUILDING: The City of New York requires the Contractor to implement practices and procedures to meet the environmental performance goals for the Project, which include achieving LEED™ certification. Specific project goals which may impact this and the other sections of this specification include: use of materials with recycled content; use of low-emitting materials; construction waste recycling; and the implementation of a construction indoor air quality management plan. The Contractor shall ensure that the requirements related to these goals, 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 his Subcontractors shall not be allowed if such changes compromise the stated LEED BUILDING criteria.

1.2 SECTION INCLUDES

A. The Work of this Section includes all labor, materials, equipment, and services necessary to complete the identifying devices as shown on the drawings and/or specified herein.

1. Unframed signs, with photopolymer face bonded to acrylic backing plaque, for interior and exterior applications.

1.3 RELATED SECTIONS

A. VOC Limits for Adhesives, Sealants, Paints and Architectural Coatings (LEED Building) - Section 010150.

B. Sustainable Design Requirements (LEED Building) - Section 013520.

C. Construction Waste Requirements - Section 015050.

D. Construction IAQ Requirements - Section 015150.

E. General Commissioning Requirements - Section 019100.

F. Electrical - Section 265100, for exit signs.

1.4 QUALITY ASSURANCE

A. Supplier: Obtain all products in this section from a single supplier.

B. Regulatory Requirements: Products shall meet requirements of the Americans With Disabilities Act Accessibility Guidelines (ADAAG) and local amendments and modifications.

C. Installer: For installation of signage, use only personnel who are thoroughly familiar with the manufacturer's recommended methods of installation and who are completely trained in the required skills.

1.5 SUBMITTALS

A. LEED BUILDING Submittal Requirements: Any substitution must also comply with the LEED requirements listed for the specified item.

B. The contractor and their subcontractors shall submit the LEED Building certification items in accordance with Section 013520: Sustainable Design Requirements. LEED Building submittals shall include the following, as applicable:

1. A completed GREEN BUILDING MATERIALS REPORTING FORM. Information to be provided for this form shall include:

   a. Cost breakdowns for the materials included in the contractor's or subcontractor's work. Cost breakdowns must include total installed cost and material-only cost (excluding labor and equipment).
   b. The percentage (by weight) of post-consumer and pre-consumer recycled content in the submitted product(s), if any.
   c. Indication of whether the extraction, harvesting, or recovery as well as manufacturing location for the supplied product(s) is within 500 miles of the project site. If the product is only partially manufactured within a 500 mile radius, the percentage (by weight) that complies.
   d. For field applied interior adhesives, sealants, coatings and paints, provide the VOC content in grams/Liter (g/L).
   e. Identification of engineered wood, composite wood, agrifiber products and the use of laminating adhesives with added urea-formaldehyde resins, if applicable.

2. Letters of Certification, provided from the product manufacturer on the manufacturer's letterhead, to verify the product information supplied for the GREEN BUILDING MATERIALS REPORTING FORM.

3. Material Safety Data Sheets, for all applicable products. Applicable products include, but are not limited to adhesives, sealants, carpets, paints and coatings applied on the interior of the building. Material Safety Data Sheets shall indicate the Volatile Organic Compound (VOC) content of products submitted (If an MSDS does not include a product's VOC content, 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 content).

4. The LEED Building Submittal information shall be assembled into one package per Specification section (or per subcontractor), and sent to the Commissioner for review. Incomplete or inaccurate LEED Building submittals may be used as the basis for the Commissioner's rejection of products or assemblies.

C. Product Data: Submit manufacturer's technical data and installation instructions for each type of identifying device required. Include material details for each sign specified.

D. Samples: Submit samples of each type of identifying device showing finishes, colors, surface textures and qualities of manufacture and design of each sign component including graphics.

E. Shop Drawings: Submit shop drawings for fabrication and erection of identifying devices. Include plans, elevations, and large scale details of sign wording and lettering layout. Show anchorage and accessory items. Furnish location template drawings for items supported or anchored to permanent construction.

1.6 LEED PERFORMANCE CRITERIA

A. Field applied adhesives or sealants used for work in this section shall meet the requirements of Section 010150, "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Architectural Coatings" where applicable. Certification of these products shall be in accordance with the LEED Building Submittal Requirements.

B. All composite wood, engineered wood, or agrifiber products (e.g., plywood, particleboard, medium density fiberboard, laminate flooring) shall contain no added urea-formaldehyde resins. Acceptable resins and binders include, but are not limited to, phenol formaldehyde and methyl diisocyanate (MDI). Certification of these products shall be in accordance with the LEED submittal requirements of Section 013520.

C. Products harvested, extracted, recovered, as well as manufactured within 500 miles (by air) of the project site shall be documented in accordance with the LEED Building Submittal Requirements of this Section.

1.7 PRODUCT HANDLING

A. Protection: Use all means necessary to protect the materials of this Section before, during, and after installation, and to protect the installed work and materials of all other trades.

B. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

C. Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

D. Deliver products in manufacturer's original, unopened, undamaged containers with identification labels intact.

E. Store products protected from weather, temperature, and other harmful conditions as recommended by supplier.

F. Handle products in accordance with manufacturer's instructions.

1.8 WARRANTY

A. Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Deterioration of plastic/finishes beyond normal weathering.
b. Deterioration of embedded graphic image, colors, and sign lamination.

B. Warranty Period: One (1) year from product ship date.

PART 2 PRODUCTS

2.1 SIGNAGE SYSTEMS

A. Acceptable Manufacturers:

1. ASI Signage (Basis of Design)

2. Mohawk

3. Best Signs

B. Acceptable Product (Interior Signs): InTouch ADA- Ready Sign System or approved equal from Acceptable Manufacturers.

C. Acceptable Product (Exterior Sign): InTouch ADA- Ready Sign System with Exterior-rated option or approved equal from Acceptable Manufacturers.

D. Materials, thickness, finish colors, designs, shapes, sizes and details, shall be selected by the Commissioner.

E. Fire egress, floor, and other signs required by code, and other identifying devices as scheduled to conform to City of New York identifying device standards.

1. Tactile Characters: Characters and Grade 2 Braille raised 1/32 inch above surfaces, in contrasting color.

2.2 SIGN MATERIALS

A. Face: Photopolymer Face, in matte (non-glare) finish.

B. Backing Plate: Acrylic.

2.3 FABRICATION OPTIONS

A. Tactile Graphics and Text:

1. Fabrication process: Provide tactile copy and grade 2 Braille raised 1/32 inch minimum from plaque first surface by manufacturer's photopolymer bonded process. Signface of single material, tactile characters and Braille integral to photopolymer. Adhesive-fixed characters are not acceptable.

2. Provide lettering and graphics precisely formed, uniformly opaque to comply with relevant ADA regulations and requirements indicated for size, style, spacing, content, position, and colors. Tactile characters to be raised min. 1/32" from surface. Computerized translation of sign copy to be responsibility of the manufacturer.

B. Mounting Panel Options:

1. Size: same size as sign.

2. Thickness: .125 inch thick matte finished acrylic.

C. Background appearance options, tactile lettering and graphics color options, letter style, color, letter size and layout position to be selected by Commissioner.

D. Overall panel size: 8"x12". Final size of each sign to be selected by Commissioner.

E. Shape: standard rectangular.

F. Text schedule: Refer to signage schedule.

2.4 INSTALLATION METHOD

A. Attachment: Secure with four (4) counter sunk theft-resistant mechanical fasteners and double sided adhesive per Manufacturer's instructions.

2.5 FABRICATION - GENERAL

A. General: Comply with requirements indicated for materials, thicknesses, finishes, colors, designs, shapes, sizes, and details of construction.

B. Preassemble signs in the shop to the greatest extent possible to minimize field assembly. Disassemble signs only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation, in a location not exposed to view after final assembly.

C. Conceal fasteners if possible; otherwise, locate fasteners to appear inconspicuous.

D. Form panels to required size and shape. Comply with requirements indicated for design, dimensions, finish, color, and details of construction.

E. Coordinate dimensions and attachment methods to produce message panels with closely fitting joints. Align edges and surfaces with one another in the relationship indicated.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where identifying devices are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

A. Install units and components at the locations directed by the Commissioner, securely mounted with concealed theft-resistant fasteners. Attach to substrates in accordance with the manufacturer's instructions.

B. Install level, plumb, and at the proper height. Cooperate with other trades for installation of sign units to finish surfaces. Install units and components at the locations directed by the Commissioner, using mounting methods recommended by sign Manufacturer and free from distortion, warp, or defect adversely affecting appearance.

C. Repair or replace damaged units as directed by the Commissioner.

D. Mounting Locations: Mount name plates and number plates adjacent to door jamb as shown on the drawings.

E. Install product at heights to conform to Americans with Disabilities Act Accessibility Guidelines (ADAAG) and applicable local amendments and regulations.

F. Install signs within the following tolerances and in accordance with manufacturer's recommendations:

1. Interior Signs: Within 1/4 inch vertically and horizontally of intended location.

3.3 CLEANING, PROTECTION, AND REPAIR

A. Repair scratches and other damage which might have occurred during installation. Replace components where repairs were made but are still visible to the unaided eye from a distance of 5 feet.

B. Remove temporary coverings and protection to adjacent work areas. Clean installed products in accordance with manufacturer's instructions prior to Commissioner's acceptance. Remove construction debris from project in accordance with provisions in Division 1.

3.4 SIGN SCHEDULE

A. Schedule: Refer to signage schedule and Drawings for sizes, locations, and layout of signage types, sign text copy, and graphics.

END OF SECTION

SECTION 102800 – TOILET ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide toilet accessories in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Public use bathroom accessories.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: For each type of product indicated, include the following:

1. Construction details and dimensions.
2. Anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
3. Material and finish descriptions.

C. Samples: Full size, for each accessory item to verify design, operation, and finish requirements.

1. Approved full-size Samples will be returned and may be used in the Work.

D. 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.

E. Maintenance Data: For toilet and bath accessories to include in maintenance manuals.

1.4 QUALITY ASSURANCE

A. Source Limitations: For products listed together in the same Part 2 articles, obtain products from single source from single manufacturer.

1.5 COORDINATION

A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.

B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Stainless Steel: ASTM A 666, Type 304, 0.031-inch minimum nominal thickness unless otherwise indicated.

B. Steel Sheet: ASTM A 1008, Designation CS (cold rolled, commercial steel), 0.036-inch minimum nominal thickness.

C. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper-and-theft resistant where exposed, and of galvanized steel where concealed.

2.2 PUBLIC-USE WASHROOM ACCESSORIES

A. Toilet Tissue Holder:

1. Description: U-shaped toilet tissue holder, with pvc wall bracket.
2. Material/Finish: Stainless steel; satin/ polished finish.

3. Selected Product: Provide F109.0 Toilet Tissue Holder, as manufactured by D Line, or approved equal from one of the following:

   a. D Line.
   b. Bobrick Washroom Equipment, Inc.
   c. Franklin Brass.
   d. Waterworks.

B. Paper Towel Dispenser:

1. Description: Box-type paper towel dispenser, wall mounted.
2. Material/Finish: Stainless steel; satin/ polished finish.
3. Selected Product: Provide F112.0 Paper Towel Dispenser, as manufactured by D Line, or approved equal from one of the following:

   a. D Line.
   b. Bobrick Washroom Equipment, Inc.
   c. Franklin Brass.
   d. Waterworks.

C. Soap Dispenser:

1. Description: Built-in, refillable soap dispenser, counter/surface mounted.
2. Material/Finish: Stainless steel; satin/ polished finish.
3. Selected Product: Provide Z.536.062 Soap Dispenser, as manufactured by KWC America, or approved equal from one of the following:

   a. KWC America.
   b. Bobrick Washroom Equipment, Inc.
   c. D Line
   d. Franklin Brass.
   e. Waterworks.

D. Grab Bars:

1. Description: Grab bars, wall mounted with escutcheon plates, in 42", 30" and 18" lengths, as indicated.
2. Material/Finish: Stainless steel; satin/ polished finish.
3. Selected Product: Provide grab bars as manufactured by one of the following, or approved equal:

   a. Bobrick Washroom Equipment, Inc.
   b. D Line
   c. Franklin Brass.
   d. Waterworks.

2.3 FABRICATION

A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.

B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to City of New York's representative.

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.

B. Grab Bars: Install to withstand a downward load of at least 250 lbf, when tested according to ASTM F 446.

3.2 ADJUSTING AND CLEANING

A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.

B. Remove temporary labels and protective coatings.

C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

END OF SECTION 102800

SECTION 104400 - FIRE PROTECTION SPECIALTIES

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide fire protection specialties in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Portable fire extinguishers.
2. Fire protection cabinets for portable fire extinguishers.
3. Mounting brackets.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: For each type of product indicated, include construction details, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher, mounting brackets, and cabinets.

1. Fire Protection Cabinets: Include roughing-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type, trim style, and panel style.

C. Shop Drawings: For fire protection cabinets, include plans, elevations, sections, details, and attachments to other work.

D. Product Certificates: Submit manufacturer's certificates showing compliance with performance requirements for each type of fire protection specialty from manufacturer.

E. Maintenance Data: Submit manufacturer's maintenance instructions or recommendations for fire protection specialty to include in maintenance manuals.

1.4 QUALITY ASSURANCE

A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."

B. Fire-Rated, Fire Protection Cabinets: Listed and labeled to comply with requirements in ASTM E 814 for fire-resistance rating of walls where they are installed.

C. Preinstallation Conference: Conduct conference at Project site.

1. Review methods and procedures related to fire protection cabinets including, but not limited to, the following:

a. Schedules and coordination requirements.

1.5 COORDINATION

A. Coordinate size of fire protection cabinets to ensure that type and capacity of fire extinguishers indicated are accommodated.

B. Coordinate sizes and locations of fire protection cabinets with wall depths.

1.6 SEQUENCING

A. Apply decals on field-painted, fire protection cabinets after painting is complete.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide fire protection specialties as manufactured by one of the following:

1. J. L. Industries, Inc.
2. Larsen's Manufacturing Company.
3. Potter Roemer LLC.
4. Approved equal.

2.2 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008, Commercial Steel (CS), Type B.

B. Stainless-Steel Sheet: ASTM A 666, Type 304.

C. Tempered Break Glass: ASTM C 1048, Kind FT, Condition A, Type I, Quality q3, 1.5 mm thick.

2.3 FIRE EXTINGUISHERS

A. General: Provide fire extinguishers for each extinguisher cabinet and other locations indicated, in color and finishes selected by the Commissioner from manufacturer's standard which comply with requirements of governing authorities.

1. Fill and service extinguishers to comply with requirements of governing authorities and manufacturer.

B. Multi-Purpose Dry Chemical Type Extinguisher: UL-rated 4-A:60-B:C, 10-lb nominal capacity, in enameled steel container, for Class A, Class B and Class C fires as indicated.

2.4 FIRE PROTECTION CABINETS

A. Cabinet Construction: Manufacturer's standard steel box, equipped with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated. Weld joints and grind smooth.

1. Rating: Nonrated.

B. Semirecessed Cabinet: Cabinet box partially recessed in walls of sufficient depth to suit style of trim indicated; with one-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend). Provide where walls are of insufficient depth for recessed cabinets but are of sufficient depth to accommodate semirecessed cabinet installation.

1. Square-Edge Trim: 1-1/4- to 1-1/2-inch backbend depth.

C. Door Material: Stainless-steel sheet.

1. Door Style: Fully glazed panel with frame
2. Door Glazing: Tempered break glass.
3. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated.

a. Provide manufacturer's standard hinge permitting door to open 180 degrees.
b. Door Lock: Cam lock that allows door to be opened during emergency by pulling sharply on door handle.

D. Accessories:

1. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Location, color and orientation as directed by the Commissioner.

a. Identify fire extinguisher in fire protection cabinet with the words "FIRE EXTINGUISHER."

1) Location: Applied to cabinet door.

2) Application Process: Decals.
3) Lettering Color: Black.
4) Orientation: Vertical.

2.5 MOUNTING BRACKETS

A. Mounting Brackets: Manufacturer's standard galvanized steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or baked-enamel paint finish.

B. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated by the Commissioner.

1. Identify bracket-mounted fire extinguishers with the words "FIRE EXTINGUISHER" in red letter decals applied to mounting surface.

a. Orientation: Vertical.

2.6 FABRICATION

A. Fire Protection Cabinets: Provide manufacturer's standard box (tub) with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated.

1. Weld joints and grind smooth.
2. Provide factory-drilled mounting holes.
3. Prepare doors and frames to receive locks.
4. Install door locks at factory.

B. Cabinet Doors: Fabricate doors according to manufacturer's standards, from materials indicated and coordinated with cabinet types and trim styles selected.

1. Fabricate door frames with tubular stiles and rails and hollow-metal design, minimum 1/2 inch thick.
2. Miter and weld perimeter door frames.

C. Cabinet Trim: Fabricate cabinet trim in one piece with corners mitered, welded, and ground smooth.

2.7 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Baked-Enamel or Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils. Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

1. Color and Gloss: As selected by the Commissioner from manufacturer's full range.

C. Stainless Steel Finishes:

1. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
2. Polished Finish: Grind and polish surfaces to produce uniform finish, free of cross scratches. Run grain of directional finishes with long dimension of each piece.
3. Directional Satin Finish: No. 4.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Proceed with installation only after unsatisfactory conditions have been corrected.

B. Install fire extinguishers, mounting brackets, and fire protection cabinets in locations and at mounting heights indicated or, if not indicated, at heights indicated below:

1. Fire Protection Cabinets: 54 inches above finished floor to top of cabinet.
2. Mounting Brackets: 54 inches above finished floor to top of fire extinguisher

C. Fire Protection Cabinets: Fasten cabinets to structure, square and plumb.

1. Unless otherwise indicated, provide recessed fire protection cabinets. If wall thickness is not adequate for recessed cabinets, provide semirecessed fire protection cabinets.
2. Fasten mounting brackets to inside surface of fire protection cabinets, square and plumb.

D. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

E. Identification: Apply decals or vinyl lettering at locations indicated.

3.2 ADJUSTING AND CLEANING

A. Remove temporary protective coverings and strippable films, if any, as fire protection cabinets are installed unless otherwise indicated in manufacturer's written installation instructions.

B. Adjust fire protection cabinet doors to operate easily without binding. Verify that integral locking devices operate properly.

C. On completion of fire protection cabinet installation, clean interior and exterior surfaces as recommended by manufacturer.

D. Touch up marred finishes, or replace fire protection cabinets that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by fire protection cabinet and mounting bracket manufacturers.

E. Replace fire protection cabinets that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 104400

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SECTION 112600 - UNIT KITCHENS

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide unit kitchens in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Factory-fabricated and-assembled unit kitchens with cabinets, countertops, fixtures, appliances, and accessories.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, finishes, furnished specialties, and accessories.

1. Include rated capacities, operating characteristics, and utility requirements of appliances.

C. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Wiring Diagrams: Power wiring.

D. Samples for Initial Selection: For units with factory-applied color finishes.

E. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below.

1. Metal finish for cabinets, 12 inches square.
2. Solid surfacing for countertops, 12 inches square.
3. One full-size unit of each type of exposed hardware.

F. Product Certificates: For each type of unit kitchen, signed by product manufacturer.

G. Manufacturer Certificate: Signed by manufacturer certifying that it complies with requirements.

H. Maintenance Data: For unit kitchen appliances to include in maintenance manuals.

I. Warranty: Special warranty specified in this Section.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer that fabricates unit kitchens and their components. Manufacturers that only assemble components obtained from other sources are not acceptable.

B. Source Limitations: Obtain unit kitchens through one source from a single manufacturer.

C. Regulatory Requirements: Where unit kitchens are indicated to comply with accessibility requirements, comply with the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)".

D. 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.

1. Built-in Refrigerators: Listed and labeled for recessed installation. Mount label to be visible after installation of unit; include electrical rating, type of refrigerant, and minimum installation clearances.

E. Appliance Standards:

1. Refrigerators and Freezers: UL 250.
2. Electric Ranges: UL 858.
3. Microwave Ovens: UL 923.

F. ENERGY STAR Rating: Provide appliances that qualify for the EPA/DOE ENERGY STAR product labeling program.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver factory-assembled units, individually factory packaged and protected. Label with manufacturer's name, product name, and model number.

B. Do not deliver unit kitchens until spaces to receive them are clean, dry, and ready for their installation.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Do not install unit kitchens until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

B. Field Measurements: Verify the following by field measurements and indicate measurements on Shop Drawings:

1. Concealed framing, blocking, and reinforcements that support unit kitchens before they are enclosed.
2. Actual locations of walls, columns, and other construction contiguous with unit kitchens.

1.7 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of work specified in other Sections to ensure that unit kitchens can be supported and installed as indicated.

B. Coordinate wiring requirements and current characteristics of unit kitchens with building electrical system. Refer to applicable Division 26 Sections.

C. Coordinate layout and installation of plumbing, mechanical, and electrical services for unit kitchens.

1.8 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of unit kitchens that fail in materials or workmanship within specified warranty period.

1. Microwave Oven: Five-year limited warranty for in-home service on defects in the magnetron tube.
2. Refrigerator/Freezer: Five-year limited warranty for in-home service on the sealed refrigeration system.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of Design Product: Subject to compliance with requirements, provide prefabricated kitchen units by Dwyer Kitchens, or approved equal from one of the following:

1. Dwyer Kitchens.
2. Acme Kitchenettes Corp.
3. Cervitor Kitchens, Inc.
4. Kitchen Systems, Inc.

B. Provide (ADA) compliant unit kitchens, unless otherwise indicated.

2.2 MATERIALS

A. Stainless-Steel Sheet: ASTM A 666, Type 304.

B. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.

C. Adhesives: Do not use adhesives that contain urea formaldehyde.

2.3 BASE CABINETS

A. Stainless-Steel Base Cabinets: Fabricate frames and sides from 0.038-inch- thick, stainless-steel sheet; welded and reinforced with internal gussets and bracing.

1. Door and Drawer Fronts: 0.038-inch-thick, stainless-steel sheet; welded, reinforced, and sound deadened.

2.4 COUNTERTOPS

A. Countertop for Drop-in Sink: Seamless, one-piece countertop with integral backsplash and side splashes.

1. Stainless Steel: 0.038-inch thick sheet bonded to 3/4-inch plywood.

2.5 FIXTURES

A. Stainless-Steel Drop-in Sinks: 0.050 inch thick; seamless; single compartment.

B. Supplies: NPS 3/8 chrome-plated copper with stops.

C. Sink Faucet: Separate hot and cold controls; polished chrome-plated mixing faucet with limited-swing spout and aerator.

D. Drain Piping: NPS 1-1/2 chrome-plated cast-brass trap, tubular brass waste to wall, and wall escutcheon.

2.6 APPLIANCES

A. Built-in, Undercounter Refrigerators: Fabricated with one-piece seamless steel or ABS plastic inner liner; refrigerator compartment with slide-out or removable shelves and meat tray; adjustable automatic temperature control; door with magnetic gaskets and storage shelves; interior light; closed compartment for 25-lb minimum storage of prefrozen food and two ice cube trays; 115-V ac.

1. Minimum Capacity: 3.2 cu. ft. minimum, or as standard with selected product.
2. Defrost System: Automatic defrost timer.
3. Compressor: Cushion-mounted, self-oiling, and hermetically sealed compressor; fan or gravity cooled.
4. Finish Panel: Manufacturer's standard door trim kit with filler panel or integral finish panel; match material and finish of base cabinets.

B. Convection/Microwave Ovens with Exhaust Hood: Wall mounted, minimum 1.4-cu. ft. capacity with 900-W cooking power; electronic touch controls, variable power control, digital clock timer, interior light, turntable, tempered glass door, and exhaust hood with integral light and two-speed fan control; 120-V ac, with three-conductor, grounded power cord.

1. Exhaust Hood: Recirculating, nonventing type, with replaceable charcoal filter.

2.7 FABRICATION

A. General: Factory fabricate and assemble unit kitchens, with base cabinets, sink, refrigerator, and countertop shipping as a one-piece assembly. Securely fasten components, fixtures, and appliances together.

1. Provide manufacturer's standard hardware including concealed, adjustable plated-steel hinges; steel drawer slides with nylon rollers; and catches and rubber bumpers on doors and drawers. Unless otherwise indicated, provide chromium-plated metal or satin-finished stainless steel for exposed hardware.

2.8 FINISHES

A. Stainless-Steel Finishes: Remove tool and die marks and stretch lines, or blend into finish. Grind and polish surfaces to produce uniform, directionally textured, polished finish indicated, free of cross scratches. Run grain with long dimension of each piece. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

1. Bright, Directional Polish: No. 4 finish.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine walls and floors, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

B. Examine walls and partitions for proper backing for unit kitchens.

C. Examine roughing-in for electrical power plumbing system(s) to verify actual locations of connections before installation of unit kitchens.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install level, plumb, and true; shim as required, using concealed shims. Provide fasteners, clips, backing materials, brackets, anchors, fillers, scribes, trim, and accessories necessary for complete installation.

1. Anchor unit kitchens at ends and at intervals recommended by manufacturer, but not more than 36 inches o.c. Install anchors through backup reinforcing plates, channels, or blocking as required to prevent material distortion, using concealed fasteners.

B. Comply with requirements specified in Division 22 for connecting unit kitchens to plumbing system(s).

C. Comply with requirements specified in Division 26 for connecting unit kitchens to electrical power system.

3.3 ADJUSTING AND CLEANING

A. Test, adjust, and verify operation of each appliance, plumbing fixture, and component of unit kitchens. Repair or replace items found to be defective or operating below rated capacity.

B. Verify that operating parts work freely and fit neatly, and that clearances are adequate to properly and freely operate appliances.

C. Clean, lubricate, and adjust hardware. Adjust doors and latches to operate easily without binding.

D. After completing unit kitchen installation, remove protective coverings if any.

E. Repair or replace damaged parts, dents, buckles, abrasions, and other defects affecting appearance or serviceability. Touch up factory-applied finishes to restore damaged or soiled areas.

END OF SECTION 112600

SECTION - 11 55 80 PIPE GRID

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

A. Drawings and general of provisions of the Contract including General and Supplementary Conditions and Division 1 Specification Sections apply to this Section.

1.2 WORK SUMMARY

A. Provide all plant, labor, tools, appliances, equipment, materials and services required for the work indicated on the drawings and specified in this section.

B. Pipe grid including hardware and materials required for supporting stage lighting within the theater.

C. Materials, components, modifications, assemblies, equipment and services shall be provided as specified herein. These include:

1. Verification of dimensions and conditions at the job site.

2. Submission of shop drawings and samples for review prior to fabrication.

3. Fabrication, assembly and installation in accordance with the Specifications, Drawings, equipment manufacturer's recommendations and applicable code requirements. Furnishing the system shall include delivery, unloading, unpacking and removal of all related packaging and debris from the job site.

4. Inspection, alignment and final adjustment of completed installation, demonstration for review and instruction for operating personnel.

1.3 QUALITY ASSURANCE

A. Qualifications:

1. This Contractor shall maintain and operate his own shops and fabricate or assemble all components with the exception of standard hardware, materials and equipment.

B. All systems shall be supplied by a single Contractor who shall be responsible for the proper installation and fit.

C. The safety parameters set forth herein are intended to reflect safeguards and precautions related not only to normal use of the equipment under ideal operating and loading conditions but, additionally, to anticipate equipment misuse, human error, and misjudgment. These parameters shall in no way relieve this Contractor from responsibility or liability arising from the Work.

D. Regulatory Agencies:

1. Work shall be carried out in conformance with the most recent revision of applicable Building codes, the requirements of OSHA and the applicable provisions American Institute of Steel Construction, American Welding Society,

Associated Wire Rope Fabricators, Iron Casting Society, National Electrical Manufacturers Association, National Fire Protection Association.

E. Specific and Supplemental References:

1. The following are specific and supplemental codes, references and standards applicable to the work, they in no way negate, or alter other codes, references and standards applicable to the work.

2. ASTM material specifications:

a. A-36 - Specification for structural steel.

b. A-120 - Specification for black and hot dipped galvanized steel pipe for ordinary use.

3. A.I.S.C. Code of Standard Practice.

4. Occupational Safety and Health Act of 1970 (OSHA) as amended to date.

1.4 DEFINITION OF TERMS

A. The term Contractor as used herein refers to the party responsible for furnishing and performing the Work specified herein and in related Contract Documents. The term Contractor refers to the party responsible for the purchase and installation of the systems specified herein, resulting in a complete system ready for operation.

1.5 INTERFACE WITH ADJACENT SYSTEMS

A. Pipe grid described in this section shall in no way damage or adversely effect architectural or structural systems, components or construction.

B. Pipe grid installation shall be coordinated with the requirements of all adjacent and intersecting Work, including but not limited to Fire Protection / Life Safety Systems, Electrical Systems, Lighting, Flooring and Mechanical Systems.

C. Notwithstanding the detailed information contained in this Specification, it is the responsibility of this Contractor to supply working overall systems. This Contractor shall be responsible, prior to bidding, for verifying the completeness of the parts list, the correctness of the type numbers and the overall suitability of the systems to meet the purposes of the Contract Documents.

D. Additional components or auxiliary steel needed in order to meet the requirements stated above, even if not specifically mentioned herein or on the Drawings, shall be supplied by this Contractor without claim for additional payment.

1.6 OPERATIONAL ABILITY AND DESIGN SAFETY

A. The following is to establish minimum safety requirements for the system. Where Federal, State and Local Legislation address these topics, the more stringent requirement shall take precedence. Factors listed below in no way relieve This Contractor from sole responsibility for furnishing safe system.

1. Maximum Pipe Grid Load: 30 pounds per linear foot.

B. Where dimensions and loading capacities have been omitted from the Contract Documents, they are to be determined by this Contractor in accordance with the requirements and intent set forth in the Contract Documents.

C. This Contractor shall in no way be relieved of the primary responsibility to provide a safe, fully functional system.

1.7 DRAWINGS AND SPECIFICATIONS

A. Drawing and Specifications represented in this area of the Contract Documents are generally diagrammatic and are intended to convey the scope of work and general arrangement of equipment and systems.

B. The location of all items shown on the Drawings or called for in this Specification that are not definitely fixed by dimensions are approximate only. The exact locations necessary to secure the best conditions and results shall be determined at the project and shall have approval before installation. Do not scale drawings.

C. Follow Drawings in laying out work and checking drawings of other trades to verify spaces in which work will be installed. Maintain maximum headroom and space conditions at all locations. Where headroom and space conditions appear inadequate, City of New York shall be notified before proceeding with the work.

D. If directed by the City of New York, without extra charge, make reasonable modifications in the layout needed to prevent conflict with work of other trades or for proper execution of the work.

1. 8 SUBMITTALS

A. Shop Drawings:

1. Submit shop drawings and samples for review prior to fabrication. Site dimensions and conditions affecting the Work shall be verified prior to commencement of final submission of Shop Drawings.

2. Drawings shall be submitted no later than sixty days after award of contract for coordination. Shop and field connections of auxiliary steel items shall be clearly distinguished and complete information on connections to other work shall be given.

a. Mechanical Assembly Drawings (1/2"= 1' minimum)

b. Mechanical Detail Drawings. (1"=1' minimum)

c. Mechanical General Layout. (1/4"= 1' minimum)

d. Component Equipment Drawings. (1"=1' minimum)

3. Review of shop drawings is only for general conformance with system design concept of the project and general compliance with the Contract Documents. Action indicated is subject to the requirements of the Drawings and Specifications. This Contractor is responsible for dimensions and measurements which shall be confirmed and correlated at the job site, for correct quantities, materials, fabrication processes and techniques of construction and for the coordination of his work with other trades.

4. Architectural, structural, mechanical, electrical and other system's characteristics shall be determined by complete examination of the contract documents and site verification.

5. Manufacturer's Data:

   a. Submit copies of materials' manufacturer's detailed technical product data and installation instructions for each component to be included in the pipe grid system.

1.9 PRODUCT HANDLING

A. The equipment to be furnished hereunder shall be delivered to the building upon notice from the General Contractor. Delivering hereunder shall include unloading the vehicle, transportation to final destination within the building, removing all shipping containers and assembling all components into a complete system. The delivery shall also include the work of removing from the delivery location all rubbish and debris originating from such packing operation.

B. Components and materials delivered to the site shall be protected from adverse environmental conditions that may cause damage to components and materials. Installation of components susceptible to environmental damage shall not take place before the building is closed in.

E. Liaison shall be made between this Contractor and authorized personnel at the project site, for the receipt of components being shipped. The requirements for safe handling and storage of these components shall be coordinated between these two parties.

F. Materials, components and elements damaged or disfigured during delivery, storage or installation shall be repaired and repainted at no additional cost to the project. Damaged materials, components and elements which have had their structural or operational integrity diminished shall be replaced at no additional cost.

1.10 SITE CONDITIONS

A. Prior to execution of Shop Drawings visit the site and verify dimensions and conditions. Survey existing conditions and become familiar with the conditions which shall affect the execution and completion of the Work.

B. Investigate the nature and location of the Work, the general and local conditions, particularly those bearing upon the Work required such as transportation, disposal, handling and storage of materials, availability of labor, electric power and physical conditions at the site and character of equipment and facilities needed for and during the prosecution of the Work. Obtain all information which can affect the Work or cost thereof under the Contract.

1.11 GUARANTEE AND SERVICE

A. Contractor shall warrant systems and equipment to be free of defective components, faulty workmanship or improper adjustment for a period of one (1) year from the date of acceptance. Paint and exterior finishes are excluded. Items showing evidence of defective materials or workmanship (including installation workmanship) in the opinion of the City of New York shall be replaced within thirty (30) days after notification. Replacement shall be made without cost.

B. Guarantees shall be designated on the date of system acceptance.

C. This Contractor shall be required to answer all service calls within twenty-four hours of a request being made.

PART 2 - PRODUCTS

2.1 CONTRACTORS

A. The pipe grid shall be provided by a qualified rigging contractor who shall be responsible for the integration of various components of the system. The following are contractors are approved:

1. Pook, Diemont and Ohl, Inc.
701 East 132nd Street
Bronx, NY 10454
718-402-2677

2. I Weiss & Sons Rigging
2-07 Borden Avenue
Long Island City, NY 11101
718-706-8139

3. Approved Equal.

2.2 MATERIALS AND COMPONENTS

A. Items, materials and equipment shall be new and undamaged.

B. Assemblies, cable components, connections, equipment, hardware and linkages employed in supporting, in whole or in part, overhead loads shall be rated and designed for that application.

C. Pipe shall be 1-1/2" nominal Schedule 40 Black Wrought Steel Pipe (ANSI B36.10-1970).

D. Sleeve Splice Members: 18" long x 7/32" wall thickness steel mechanical tubing for use with 1-1/2" nominal Schedule 40 Black Steel Pipe.

E. Connections:

1. The contact surfaces of bolted and welded connections shall be cleaned and left unpainted. The several pieces forming any built-up or joint shall be straight and close fitting, free from twists, bends or open joints in the finished assembly.

2. Furnish and assume responsibility for the location and maintenance in proper position of sleeves, inserts and anchor bolts required for the work. In the event that failure to do so requires cutting and patching of finished work, it shall be done without additional cost.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine work prepared by others to receive work of this Section and report defects affecting installation to the General Contractor for correction. Commencement of the work shall be construed as complete acceptance of preparatory work by others. The scope of inspections shall include but not be limited to:

1. Assurance mounting surfaces are ready to accept the Work.

2. Verification of flatness, plumb and level of mounting conditions.

3. Inspection of components of the Work to insure no damage has occurred during shipping or storage.

3.1 PREPARATION

A. This Contractor shall verify field measurements at the site prior to installation and modify the system accordingly.

B. This Contractor shall coordinate the Work with related trades and the General Contractor. This shall include the preparation of schedules and coordination of equipment delivery and storage.

C. Storage at the site shall be coordinated with the General Contractor and shall insure the materials and components are undamaged.

D. The surrounding environment shall be protected from damage by the work.

3.3 INSTALLATION AND ERECTION

A. The installation workmanship shall provide straight, plumb, true and aligned components throughout. Connections shall be tight fitting with a minimum safety factor of eight and arranged in an orderly manner.

B. This Contractor shall conform to the best trade practices, fabricating and installing items in accordance with manufacturers' recommendations and shall coordinate with trades doing adjoining work.

C. During the course of his work, this Contractor shall daily remove to collection points at the job site, rubbish, loose trash and scrap materials. At the completion of his work, he shall leave related work areas broom clean.

D. Installation shall be complete with all members and materials, and all bolts, nuts, washers, clips, fittings, supports, or other items required for attaching all equipment specified to the existing construction.

E. This Contractor shall do required cutting, drilling, tapping and fitting to properly install and secure his work in place. Cutting or drilling existing structural work shall have the prior review of the City of New York.

F. The mechanical fabrication and workmanship shall incorporate neat and mechanically acceptable practices such as clean drilled and punched holes without flash, hard smooth finish for sheared, machined, and cut edges, and proper fit of component and contiguous parts without irregularity where marching is intended. Welding shall meet qualifications of A.I.S.C. manual and shall be without spatter and other evidence of poor practice. Welding of load bearing elements shall be carried out by certified welders. Moving parts shall have specified tolerances, shaft sizes, bearings, mounting, connections, and accessories coordinated into the work in a manner acceptable to the City of New York.

G. The fabrication of equipment shall incorporate only new and unused materials. This includes metal components in various shapes required such as plate, bar, rod, castings, stampings, clamps, bolts, bearings, chain, pipe, sleeves, clips, cable and other accessories not mentioned.

3.4 INSPECTION AND TESTING

A. Final inspection shall be made by the City of New York following receipt in writing or notification from this Contractor that the installation is completed. If inspection reveals any detail of construction, fabrication, or installation not in strict accord with the specification and contract requirements, approval shall be withheld and Contractor shall be given thirty days to replace the rejected items with those conforming to specification requirements.

END OF SECTION

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SECTION 122200 – ROLL DOWN CURTAINS

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide roll down curtains in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Manually operated roll down fabric curtains, with end weights.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).
5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: For each type of product indicated, submit manufacturer's technical literature, performance criteria and installation instructions.

C. Shop Drawings: Submit detailed shop drawings showing operation, installation, and anchorage details.

1. Fabric Curtains: Show sizes, locations, and details of installation.

D. Samples:

1. Rollers: 18 inches long, with carriers, controls, and accessories.
2. Fabrics Samples for Verification: For each color and pattern indicated, full width by 36 inches long, from dye lot to be used for the Work and with specified textile treatments applied. Show complete pattern repeat if any. Mark top and face of fabric.

E. Coordination Drawings: For roller installation; reflected ceiling plans drawn to scale and coordinating track installation with openings and ceiling-mounted items. Show the following:

1. Suspended ceiling components.

F. Product Certificates: For each fabric treated with flame retardant, signed by fabric supplier and indicating treatment durability and cleaning procedures required to maintain treatment effectiveness.

G. Maintenance Data: For products to include in maintenance manuals.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Fabricator of curtains and rollers.

B. Source Limitations: For fabrics, obtain each color and pattern of fabric and trim from one dye lot.

C. Fire-Test-Response Characteristics: For fabrics treated with fire retardants, provide products that pass NFPA 701 as determined by testing of fabrics that were treated using treatment-application method intended for use for this Project by a testing and inspecting agency acceptable to authorities having jurisdiction

D. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.

1. Build mockup at location and in size shown on Drawings.
2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 FIELD CONDITIONS

A. Field Measurements: Verify dimensions by field measurements before curtain fabrication, and indicate measurements on Shop Drawings.

B. Scheduling: Do not deliver or install curtain until after other finish work, including painting, is complete and spaces are otherwise ready for occupancy.

PART 2 - PRODUCTS

2.1 ROLL DOWN CURTAINS

A. Manually Operated Curtains: Provide curtain assemblies consisting of single aluminum roller, with captured fabric curtain, and operated by continuous loop bead chain, clutch, and cord tensioner system.

B. Rollers: 6063-T6 Extruded-aluminum tube of diameter and wall thickness required to support and internal components of operating system and the weight and width of fabric curtain and end weights without sagging.

C. Mounting Brackets: Galvanized or zinc-plated steel sheet; wall jamb or ceiling mounted as indicated. Provide center support brackets as required to span or weight loads.

D. Curtains: Single woven fabric, flame resistant; of type, content, color, size and weight as selected by the Commissioner. Curtains shall be hung flat with specified hemming and seams. Fabricate curtains using standard accepted industry methods. Provide double-fold hems, blind stitch at all curtain ends.

1. Bottom Hems: Double-turned hems consisting of three layers of fabric, and weighted and blindstitched so that weights and stitches are not visible on face of drapery.

    a. Sew in square lead weights at each seam and at panel corners. Add weights as required to keep curtains in the down (open) position.

E. Operation: Manual roller curtains shall be equipped with continuous loop bead chain, clutch, and cord tensioner and bracket lift operator.

1. Position of Operator: As indicated on the Drawings.
2. Clutch: Capacity to lift size and weight of curtains; sized to fit roller.
3. Lift-Assist Mechanism: Manufacturer's standard spring assist for balancing roller curtains weight and lifting curtains.
4. Loop Length: Length required to make operation convenient from floor level, or as indicated on the Drawings.
5. Bead Chain: Stainless steel.
6. Operating Function: Stop and hold shade at any position in ascending or descending travel.

F. Installation Fasteners: Sized to support curtain and roller assembly, and fabricated from metal compatible with track, brackets, and supporting construction. Provide two fasteners to fasten each bracket to supporting construction.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install roller and mounting systems according to manufacturer's written instructions, level and plumb, and at height and location in relation to adjoining openings as indicated on Drawings.

B. Isolate metal parts of roller and brackets from concrete, masonry, and mortar to prevent galvanic action. Use tape or another method recommended in writing by track manufacturer.

3.2 CURTAIN INSTALLATION

A. Where curtains abut overhead construction, hang so that clearance between headings and overhead construction is 1/4 inch.

B. Where curtains extend to floor, install so that bottom hems clear finished floor by not more than 1 inch and not less than 1/2 inch.

3.3 ADJUSTING

A. After hanging curtains, test and adjust each track to produce unencumbered, smooth operation.

B. Steam and dress down curtains as required to produce crease- and wrinkle-free installation.

C. Remove and replace curtains that are stained or soiled.

END OF SECTION 122200

SECTION 126100 - FIXED AUDIENCE SEATING

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide fixed audience seating in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include, but not be limited to, the following:

1. Fixed audience seating with standard mounting.
2. Upholstered chairs.
3. Self-rising seat mechanism.
4. Power and data service to individual seats.

B. Related Sections:

1. Division 1 Section "Volatile Organic Compound (VOC) Limits for Adhesives, Sealants, Paints and Coatings" (LEED Building).
2. Division 1 Section "Sustainable Design Requirements (LEED Building)".
3. Division 1 Section "Construction Waste Requirements".
4. Division 1 Section "Construction IAQ Requirements".

1.2 LEED BUILDING, GENERAL REQUIREMENTS

A. The City of New York requires the Contractor to implement practices and procedures to meet the project's environmental goals, which include achieving a LEED™ Green Building rating. Specific project goals which may impact this area of work are listed in the applicable paragraphs of this specification section. The Contractor shall ensure that the requirements related to these goals, 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.

1.3 SUBMITTALS

A. LEED BUILDING Submittal Requirements: The contractor or subcontractor shall submit the following LEED BUILDING certification items:

1. Material cost breakdowns, submitted in the format of the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, per Division 1 "Sustainable Design Requirements" of these specifications.
2. Additional information to complete the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
3. Letters of Certification, Product Cut Sheets, Material Safety Data Sheets, or other items to support the information provided in the ENVIRONMENTAL BUILDING MATERIALS CERTIFICATION FORM, as requested by the Commissioner.
4. Material Safety Data Sheets, for all applicable products. 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).

5. The LEED BUILDING Submittal information shall be assembled into one package per specification section (or per subcontractor), and sent to the Commissioner for review.

B. Product Data: For each type of product indicated, include construction details, material descriptions, electrical characteristics, dimensions of individual components and profiles, and finishes for fixed audience seating.

C. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Seating Layout: Show seating layout, aisle widths, row-lettering and chair-numbering scheme, chair widths, and chair spacing in each row.
2. Accessories: Show accessories, including locations of left- and right-hand tablet arms, electrical devices, accessibility provisions, and attachments to other work.
3. Wiring Diagrams: For power, signal, and control wiring.

D. Samples for Initial Selection: For each type of exposed finish, color, texture, and pattern indicated.

E. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:

1. Molded Plastic: Manufacturer's standard-size unit, not less than 3 inches square.
2. Baked-on Coating Finishes: Manufacturer's standard-size unit, not less than 3 inches square.
3. Aluminum Finishes: Manufacturer's standard-size unit, not less than 3 inches square.
4. Wood and Plywood Materials and Finishes: Manufacturer's standard-size unit, not less than 3 inches square.
5. Upholstery Fabric: Full width by 36-inch long section of fabric from dye lot to be used for the Work, with specified treatments applied. Show complete pattern repeat. Mark top and face of fabric.
6. Row-Letter and Chair-Number Plates: Full-size units with letters and numbers marked.
7. Aisle Lighting: Full-size unit.
8. Power and Data Service Devices: Full-size units.
9. Exposed Fasteners: Full-size units of each type.

F. Product Certificates: For each type of flame-retardant treatment of fabric, from manufacturer.

G. Field quality-control reports.

H. Maintenance Data: For fixed audience seating to include in maintenance manuals. Include the following:

1. Methods for maintaining upholstery fabric.
2. Precautions for cleaning materials and methods that could be detrimental to seating finishes and performance.

I. Warranty: Submit copies of special warranties specified in this Section.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of seating required, including accessories and mounting components, from single source from single manufacturer.

1. Upholstery Fabric: Obtain fabric of a single dye lot for each color and pattern of fabric required.

B. Fire-Test-Response Characteristics of Upholstered Chairs:

1. Fabric: Class 1 according to DOC CS 191 and 16 CFR 1610.61, tested according to California Technical Bulletin 117.
2. Padding: Comply with California Technical Bulletin 117.
3. Full-Scale Fire Test: Comply with California Technical Bulletin 133.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

D. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.

1. Build mockups for the following types of fixed audience seating including fabric, finishes, and accessories:

a. Size: Two typical seats or a typical two-seat unit.

2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Commissioner specifically approves such deviations in writing.
3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

E. Preinstallation Conference: Conduct conference at Project site.

1.5 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install seating until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above ceilings is complete, and temporary or permanent HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

B. Field Measurements: Verify actual dimensions of seating layout and construction contiguous with seating by field measurements before fabrication.

1.6 COORDINATION

A. Coordinate layout and installation of electrical wiring and devices with seating layout to ensure that floor junction boxes for electrical devices are accurately located to allow connection without exposed conduit.

1. Coordinate wiring and power receptacles installed in seating with requirements in Division 26 Sections.

B. Coordinate layout and installation of diffuser pedestals with HVAC work and with properties of diffuser pedestals to ensure alignment, proper air diffusion, and correct seat locations.

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of fixed audience seating that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

   a. Structural failures including standards, beams, and pedestals.
   b. Faulty operation of self-rising seat mechanism.
   c. Faulty operation of electrical components.
   d. Wear and deterioration of fabric and stitching beyond normal use.
   e. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.

2. Warranty Periods: As follows, from date of Substantial Completion.

   a. Structural Standards: Five years.
   b. Operating Mechanisms: Five years.
   c. Plastic, Wood, and Paint Components: Five years.

1.8 EXTRA MATERIALS

A. Furnish extra materials from the same production run that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Chair Seats and Backs: Furnish a quantity of full-size units equal to 5 percent of amount installed for each type and size of chair seat and back.
2. Upholstered, Slip-on Cushions: Furnish a quantity of full-size units equal to 5 percent of amount installed for each type and size of cushion.
3. Tablet Arms: Furnish a quantity of full-size units equal to 5 percent of amount installed for each type and size of tablet arm.
4. Armrests: Furnish a quantity of full-size units equal to 5 percent of amount installed for each type of armrest.
5. Power Receptacles: Furnish a quantity of full-size units equal to 5 percent of amount installed.
6. Data Ports: Furnish a quantity of full-size units equal to 5 percent of amount installed.

PART 2 - PRODUCTS

2.1 MATERIALS AND FINISHES

A. Steel: ASTM A 36 plates, shapes, and bars; ASTM A 513 mechanical tubing; ASTM A 1008 cold-rolled sheet; and ASTM A 1011 hot-rolled sheet and strip.

B. Cast Iron: ASTM A 48, Class 25, gray iron castings free of blow holes and hot checks with parting lines ground smooth.

C. Cast Aluminum: ASTM B 85 aluminum-alloy die castings.

D. Metal Finish: Finish exposed metal parts with manufacturer's standard baked-on powder coating.

   1. Color: As selected by Commissioner from manufacturer's full range.

E. Medium-Density Fiberboard: ANSI A208.2, Grade MD, made with binder containing no urea formaldehyde.

F. Plywood: HPVA HP-1, Face Grade A, hardwood veneer core with color-matched hardwood-veneer faces, made with adhesive containing no urea formaldehyde

G. Hardwood Lumber and Veneer Faces: Species as selected; free of visible defects.

1. Stain and Finish: As selected by Commissioner from manufacturer's full range.

H. Fabric: Woven nylon, polyolefin fabric, or other fabrics available from manufacturer for selected products, meeting requirements of the 1968 New York City Building Code, Table 5-4 for fire resistive performance characteristics. Flame retardance shall be inherent and permanent.

1. Weight: 16 oz./linear yd (minimum), unless otherwise indicated.
2. Color and Pattern: As selected by Commissioner from manufacturer's full range.
3. Acceptable Manufacturers: Subject to compliance with requirements, provide products as manufactured by one of the following, or approved equal:

a. JB Martin Premier. (Basis of Design #13026 Forest)
b. DesignTex Samba.
c. Momentum Era.

I. Upholstery Padding: Flexible, cellular, molded or slab polyurethane foam.

2.2 FIXED AUDIENCE SEATING

A. Fixed Audience Seating: Interior assembly-space seating in permanent arrangement as shown on the Drawings.

1. Basis of Design: Subject to compliance with requirements, provide "Model 171786" as manufactured by Irwin Seating Company, with the following components:

a. Backs: No. 17 Davies.
b. Seats: No.17 Allegro.
c. Ends: No. 86 Keystone.
d. Veneer: No. 24 Classic Walnut/Maple, as indicated.

2. Or approved equal from one of the following:

a. Irwin Seating Company
b. American Seating Company.
c. Hussey Seating Company.

B. Chair Mounting Standards: Floor attached, fabricated from one of the following material:

1. Steel: One-piece heavy-tube or reinforced sheet with welded mounting plate and welded connections for seat pivots, backs, armrests, and end panels. Provide steel castings or sockets with integral mounting points and attachment anchoring points for seat pivots, backs, and armrests.

C. End /Aisle Panels:

1. Material: Veneer faced medium density fiberboard (MDF).
2. Style: Rectangular.

D. Fabric Upholstered Chairs:

1. Backs: 7/16" thick hardwood plywood, and padded with polyurethane foam cemented to the panel, with one piece fabric cover, securely fastened to the hardwood inner panel with upholstery staples.

a. Padding Thickness: 3 inches.
b. Rear Panel: Hardwood-veneer plywood.
c. Top Corners: Rounded.

2. Seats: One part, fully upholstered molded polyurethane foam cushions.

a. Padding Thickness: Minimum 2-1/4 inch, at front and rear edge.
b. Seat Underside: Hardwood-veneer-faced, formed plywood shell.
c. One piece fabric cover, securely fastened to the hardwood inner panel with upholstery staples.

E. Chair Width: As indicated.

F. Back Height: Standard style backs, as indicated.

G. Back Pitch: Fixed.

H. Chair Seat Hinges: Self-lubricating, compensating type with noiseless self-rising seat mechanism passing ASTM F 851 and with positive internal stops cushioned with rubber or neoprene.

I. Chair Back Hinges: Self-lubricating type with noiseless mechanism that raises back to vertical position when chair is unoccupied.

J. Self-Rising Seat Mechanism: Spring or gravity-actuated, full fold.

K. Armrests: Hardwood with rounded edges, concealed mounting.

L. Aisle Lighting Fixtures: Manufacturer's standard concealed in armrest fixtures.

1. Bulb: LED.
2. Power: Low voltage, non-hazardous 12 volt, D.C., system.

M. Power and Data Service Package: Service to individual seats including terminal devices and wiring with 450 mm of extra length and as follows.

1. Power Receptacles: 120 V; suitable for conversion to 12 volt, D.C; with wiring and receptacle as specified in Division 26.
2. Data Ports: Data port terminal with wiring and receptacle jack as specified in Division 27.
3. Location: Manufacturer's standard location.

N. Row-Letter and Chair-Number Plates: Manufacturer's standard.

1. Material: Solid brass with black embossed characters.
2. Attachment: Minimum of two mechanical fasteners or escutcheon pins.

O. Accessible Seating:

1. Provide removable or swing-away chairs where wheelchair spaces are indicated.
2. Provide chairs with retractable or with fold-up arm on aisle side in locations indicated, but not less than 5 percent of aisle seats. Identify these seats with a sign or marker.

2.3 FABRICATION

A. Floor Attachments: Fabricate to conform to floor slope, if any, so that standards and pedestals are plumb and chairs are maintained at same angular relationship to vertical throughout Project.

B. Upholstery: Fabricate fabric-covered cushions with molded padding beneath fabric and with fabric covering free of welts, creases, stretch lines, and wrinkles. For each upholstered component, install pile and pattern run in a consistent direction.

C. Upholstered Chairs: Fabricate as follows:

1. Two-Part Upholstered Back: In length required to protect seat in raised position, with padded cushion glued to a curved steel, plywood, or molded-plastic support panel covered with easily replaceable fabric, and with curved rear shell that fully encloses upholstery edges.
2. Seats: An upholstered cushion with formed padding over a plywood panel, with fabric cover conforming to shape of cushion to conceal inner seat structure and hinge mechanism.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine floors, risers, and other adjacent work and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.

B. Examine locations of electrical connections.

C. Examine locations of HVAC supply ducts.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install seating in locations indicated and fastened securely to substrates according to manufacturer's written installation instructions.

1. Use installation methods and fasteners that produce fixed audience seating assemblies with individual chairs capable of supporting an evenly distributed 272 kg static load without failure or other conditions that might impair the chair's usefulness.
2. Install standards and pedestals plumb.

B. Install seating with chair end standards aligned from first to last row and with backs and seats varied in spacing to optimize sightlines.

C. Install riser-mounted attachments to maintain uniform chair heights above floor.

D. Install chairs in curved rows at a smooth radius.

E. Install seating so moving components operate smoothly and quietly.

F. Install wiring conductors and cables concealed in components of seating and accessible for servicing.

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
2. Tests for Power Receptacles: As specified in Division 26 Sections.

B. Prepare test and inspection reports.

3.4 ADJUSTING

A. Adjust chair backs so that they are aligned with each other in straight rows.

B. Adjust self-rising seat mechanisms so seats in each row are aligned when in upright position.

C. Verify that all components and devices are operating properly.

D. Verify that seating returns to correct at-rest position.

E. Repair minor abrasions and imperfections in finishes with coating that matches factory-applied finish.

F. Replace upholstery fabric damaged during installation.

END OF SECTION 126100

CONTRACT # 2

PLUMBING WORK

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SECTION 220013 – PLUMBING CONTRACTOR WORK

ALLOWANCE FOR INCIDENTAL ASBESTOS ABATEMENT

1.01 SCOPE FOR ASBESTOS ABATEMENT WORK

A. The "General Conditions" apply to the work of this Section.

B. The Asbestos abatement contractor shall remove asbestos containing materials as needed to perform the other work of this Contract when discovered during the course of work. When required, the Asbestos abatement contractor shall replace the ACM with non-asbestos containing materials. An allowance of **$5,000.00** for the **Plumbing Contractor** is herein established for this incidental work when so ordered and authorized by the Commissioner.

C. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE RULES AND REGULATIONS OF THE ASBESTOS CONTROL PROGRAM AS PROMULGATED BY TITLE 15 CHAPTER I OF RCNY AND NEW YORK STATE DEPARTMENT OF LABOR INDUSTRIAL CODE RULE 56 CITED AS 12 NYCRR, PART 56 WHICHEVER IS MORE STRINGENT AS PER LATEST AMENDMENTS TO THESE LAWS AND AS MODIFIED HEREIN BY THESE SPECIFICATIONS.

D. ALL DISPOSAL OF ASBESTOS CONTAMINATED MATERIAL SHALL BE PER LOCAL LAW 70/85.

E. THE ASBESTOS ABATEMENT CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT CERTAIN METHODS OF ASBESTOS ABATEMENT ARE PROTECTED BY PATENTS. TO DATE, PATENTS HAVE BEEN ISSUED WITH RESPECT TO "NEGATIVE PRESSURE ENCLOSURE" OR "NEGATIVE-AIR" OR "REDUCED PRESSURE" AND "GLOVE BAG".

F. THE ASBESTOS ABATEMENT CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR AND SHALL HOLD THE DEPARTMENT OF DESIGN AND CONSTRUCTION AND THE CITY HARMLESS FROM ANY AND ALL DAMAGES, LOSSES AND EXPENSES RESULTING FROM ANY INFRINGEMENT BY THE ASBESTOS ABATEMENT CONTRACTOR OF ANY PATENT, INCLUDING BUT NOT LIMITED TO THE PATENTS DESCRIBED ABOVE, USED BY THE ASBESTOS ABATEMENT CONTRACTOR DURING PERFORMANCE OF THIS AGREEMENT.

G. "Asbestos" shall mean any hydrated mineral silicate separable into commercially usable fibers, including but not limited to chrysotile (serpentine), amosite (cumingtonite-grunerite), crocidolite (riebeckite), tremolite, anthrophyllite and actinolite.

H. Prior to starting, the Asbestos abatement contractor must notify the Commissioner of the Department of Design and Construction if he/she anticipates any difficulty in performing the Work as required by these Specifications. The Asbestos abatement contractor is responsible to prepare and submit all filings, notifications, etc. required by all City, State and Federal regulatory agencies having jurisdiction.

The Asbestos abatement contractor is responsible for submitting the Asbestos Project Notification Form (ACP-7 Form) to the Department of Environmental Protection, Asbestos Control Program, as per Title 15, Chapter I of RCNY and to the NYSDOL as per Industrial Code Rule 56.

The Asbestos abatement contractor is responsible for preparing, and submitting Asbestos Variance Application (ACP-9). If a Variance is required, the Asbestos abatement contractor is responsible to retain a NYSDOL Asbestos Project Designer, as defined in Title 15, Chapter 1 of the RCNY to prepare and submit the required variance.

The Asbestos abatement contractor is responsible for preparing and submitting an Asbestos Abatement Permit and/or Work Place Safety Plans (WPSP) that may be required for the completion of the Contract or incidental work. If such plans are required, the Asbestos abatement contractor is responsible to retain a NYSDOL Licensed Design Professional as defined in Title 15, Chapter 1 of the RCNY to prepare and submit the required plans.

The Asbestos abatement contractor is responsible for the submission of all required documents to the NYCDEP to acquire the appropriate Asbestos Project Conditional Closeout (ACP-20) and/or Asbestos Project Completion Forms (ACP-21) on a timely basis for the completion of the incidental work encountered under this contract.

The Asbestos abatement contractor will be required to attend an on-site job meeting with the Construction Project Manager prior to the start of work to examine conditions and plan the sequence of operations, etc.

The Asbestos abatement contractor shall have a NYSDOL/NYCDEP Asbestos Supervisor onsite to oversee the work and conduct a final visual inspection as required by both Title 15, Chapter 1 of the RCNY and NYSDOL Industrial Code Rule 56.

I. All work shall be done during regular working hours unless the Asbestos abatement contractor requests authorization to work in other then regular working hours and such authorization is granted by the Commissioner. (Regular work hours are those hours during which any given facility, in which work is to be done, is customarily open and functioning, normally between the hours of 8:00 A.M. and 4:00 P.M. Monday - Friday.) If such work schedule is authorized by the Commissioner, the work shall be done at no additional cost to the City.

J. The Commissioner may order that work be done in other than regular working hours as herein by defined and this order may require the Asbestos abatement contractor to pay premium or overtime wages to complete the work. If the Commissioner orders work in other than regular working hours, the Asbestos abatement contractor shall multiply the unit price for that portion of the work requiring premium wages by 1.50 when computing payment in accordance with Paragraph 1.09. All requests for premium payment must be supported by certified payroll sheets and field sheets approved by the Construction Project Manager.

1.02 QUALIFICATIONS OF ASBESTOS ABATEMENT CONTRACTOR

A. Requirements: The asbestos abatement contractor must demonstrate compliance with the special experience requirements set forth in subparagraphs (1) through (5) below. The asbestos abatement contractor must, submit documentation demonstrating compliance with all listed requirements. Such documentation shall include without limitation, all required licenses, certificates, and documentation.

1. The asbestos abatement contractor must, whether an individual, corporation, partnership, joint venture or other legal entity, must demonstrate for the three year period prior to the work, that it has been licensed by the New York State Department of Labor, as an "Asbestos abatement contractor".

2. The asbestos abatement contractor must, for the three year period prior to the work, have been in the business of providing asbestos abatement services as a routine part of its daily operations.

3. The asbestos abatement contractor proposing to do asbestos abatement work must be thoroughly experienced in such work and must provide evidence of having successfully performed and completed in a timely fashion at least five (5) asbestos abatement projects of similar size and complexity. The aggregate cost of these projects must be at least $250,000.00 in each of the three years.

4. For each project submitted to meet the experience requirements set forth above, the asbestos abatement contractor must submit the following information for the project; name and location of the project; name title and telephone number of the owner or the owner's representative who is familiar with the asbestos abatement contractor's work, brief description of the work completed as a prime or sub-asbestos abatement contractor; amount of contract or subcontract and the date of completion.

5. The asbestos abatement contractor must demonstrate that it has the financial resources, supervisory personnel and equipment necessary to carry out the work and to comply with the required performance schedule, taking into consideration other business commitments. The asbestos

abatement contractor must submit such documentation as may be required by the Department of Design and Construction to demonstrate that it has the requisite capacity to perform the required services of this contract.

B. Insurance Requirements: The asbestos abatement contractor must provide asbestos liability insurance in the following amount: 1 million dollars per occurrence, 2 million dollars aggregate (combined single limit). The City of New York shall be named as an additional insured on such insurance policy.

C. Throughout the specifications, reference is made to codes and standards which establish qualities and types of workmanship and materials, and which establish methods for testing and reporting on the pertinent characteristics thereof.

1.03 ASBESTOS ABATEMENT CONTRACTOR RESPONSIBILITIES

The Asbestos abatement contractor will visit the subject location within one (1) working day of notification to ascertain actual work required. If the project is identified as being "urgent", then work shall commence no later than 48 hours from the time of notification. In this event, the asbestos abatement contractor shall immediately notify when applicable EPA NESHAPS Coordinator, NYSDOL Asbestos Control Bureau and NYCDEP Asbestos Control Program of start of the work and file the necessary Asbestos Notifications and any applicable Variance Applications with the regulatory agencies cited above..

In the event that the project is not classified as "urgent" the Asbestos abatement contractor shall notify the EPA NESHAPS Coordinator, NYSDOL and NYCDEP by submitting the requisite asbestos project notification forms, postmarked 10 days before activity begins if 260 linear feet or more and/or 160 square feet or more of asbestos containing material will be disturbed.

The following information must be included in the notification:

A. Name and address of building City or operator;

B. Project description:

1. Size - square feet, number of linear feet, etc;

2. Age - date of construction and renovations (if known);

3. Use - i.e., office, school, industrial, etc.

4. Scope - repair, demolition, cleaning, etc.

C. Amount of asbestos involved in work and an explanation of techniques used to determine the amount;

D. Building location/address, including Block and Lot numbers;

E. Work schedule including the starting and completion dates;

F. Abatement methods to be employed;

G. Procedures for removal of asbestos-containing material;

H. Name, title and authority of governmental representative sponsoring project.

1.04 WORK INCLUDED IN UNIT PRICE

The Asbestos abatement contractor will be paid a basic unit price of **$25.00** per square feet for the removal and disposal of asbestos containing material and replacement of the same with non-asbestos containing materials.

Unit price shall include all costs necessary to do the work of this Contract, including but not limited to: labor, materials, equipment, utilities, disposal, insurance, overhead and profit.

1.05 AIR MONITORING – ASBESTOS ABATEMENT CONTRACTOR

A. "Air Sampling" shall mean the process of measuring the fiber content of a known volume of air collected during a specific period of time. The procedure utilized for asbestos follows the N1OSH Standard Analytical Method 7400 or the provisional transmission electron microscopy methods developed by the USEPA and/or National Institute of Standard and Technology which are utilized for lower detectability and specific fiber identification.

B. Air monitoring of Asbestos abatement contractor's personnel will be performed in conformance with OSHA requirements, (All costs associated with this work are deemed included in the unit price.).

C. Qualifications of Testing Laboratory:

The industrial hygiene laboratory shall be a current proficient participant in the American Industrial Hygiene Association (AIHA) PAT Program. The laboratory identification number shall be submitted and approved by the City. The laboratory shall be accredited by the AIHA and New York State Department of Health Environmental Laboratory Approval Program (ELAP).

Note: Work area air testing and analysis before, during and upon completion of work (clearance testing) will be performed by a Third Party Air Monitor under separate Contract with the City.

1.06 THIRD PARTY MONITORING AND LABORATORY

A. The NYCDDC, at its own expense, will employ the services of an independent Third Party Air Monitoring Firm and Laboratory. The Third Party Air Monitor will perform air sampling activities and project monitoring at the Work Site.

B. The Laboratory will perform analysis of air samples utilizing Phase Contrast Microscopy (PCM) and/or Transmission Electron Microscopy (TEM).

C. The Third Party Air Monitoring Firm and the designated Project Monitor shall have access to all areas of the asbestos removal project at all times and shall continuously inspect and monitor the performance of the Asbestos abatement contractor to verify that said performance complies with this Specification. The Third-Party Air Monitor shall be on site throughout the entire abatement operation.

D. The NYCDDC will be responsible for costs incurred with the Third Party Air Monitoring Firm and laboratory work. Any subsequent additional testing required due to limits exceeded during initial testing shall be paid for by the Asbestos abatement contractor.

1.07 PAYMENT REQUEST DOCUMENTATION

B. The following information shall be included for each payment request:

1. Description of work performed.
2. Linear footage and pipe sizes involved.
3. Square footage for boiler & breaching insulation removed.
4. Square footage of non pipe and boiler areas removed, patched, enclosed, sealed, or painted.
5. Square footage of encapsulation, sealing, patching, and painting involved.
6. Total cost associated with compliance with the assigned task.
7. Architectural, Electrical, HVAC, Plumbing, etc. work incidental to the Asbestos Abatement Work.
8. A certified copy (in form 4312-39) to the Comptroller or Financial Officer of the New York City to the effect that the financial statement is true.
9. A signed copy (in form 6506q-6) of certificate of compliance with non-discriminatory provisions of the Contract.
10. Attach a copy of valid workmen compensation insurance.

11. Valid asbestos insurance per occurrence.

12. General liability insurance when required.

C. Each payment request shall include a grand total for all work completed that billing period, the landfill waste manifests and a copy of waste transporter permit. The Department of Design and Construction will inspect the work performed, review the cost and approve or disapprove requests for payment.

D. EXPOSURE LOG: With this final payment, the Asbestos abatement contractor shall submit a listing of the names and social security numbers of all employees actively engaged in the abatement work of this Contract. This list shall include a summary showing each part of the abatement work in which the employee was engaged and the dates thereof.

1.08 QUANTITY CALCULATIONS

In order to determine the square footage involved for the various pipe sizes of pipe insulation that might be encountered, the following table is to be used.

PIPE INSULATION SIZE O.D.	PIPE SIZE O.D.	SQUARE FOOTAGE PER LINEAR FOOT
2-1/2"	1/2"	0.65
2-3/4"	3/4"	0.72
3"	1"	0.79
3-1/4"	1-1/4"	0.85
3-1/2"	1-1/2"	0.92
4"	2"	1.05
4-1/2"	2-1/2"	1.18
5"	3"	1.31
6"	3-1/4"	1.57
7"	3-1/2"	1.83
8"	4"	2.09
9"	5"	2.36
10"	6"	2.62
12"	8"	3.14
14"	10"	3.67
16"	12"	4.19
18"	14"	4.71

1.09 METHOD OF PAYMENT

Payment shall be made in accordance with Items A through R below. Payment shall be calculated based on the actual quantity of the item performed by the asbestos abatement contractor, times the unit price specified below. Credits may apply to certain times, as specified below.

A. **REMOVAL, DISPOSAL AND REPLACEMENT OF ASBESTOS CONTAINING PIPE INSULATION:** Actual linear footage, multiplied by the square footage factor listed for the respective pipe size in Section 1.09, multiplied by the unit price in Section 1.05.

EXAMPLE: 100 lin.ft. of 1/2" pipe and 100 lin.ft. of 6" pipe, including elbows, tees. Flanges, etc.

100 X 0.65 = 65 sq.ft. 65 x unit price = Payment

100 X 2.62 = 262 sq.ft. 262 x unit price = Payment

B. **REMOVAL, DISPOSAL AND REPLACEMENT OF BOILER INSULATION:** (all types including Silicate Block and including the removal/replacement of metal jacketing) Payment shall be made at 1.5 times the unit price per square foot.

EXAMPLE: Item B. removal and replacement of 1000 S.F. of boiler insulation (incl. Silicate block)

1000 S.F. X (1.5) X the Unit Price = Payment

C. **REMOVAL, DISPOSAL AND REPLACEMENT OF TANK INSULATION:** (all types including removal/replacement of metal jacketing) Payment shall be made at 1.5 times the unit price per square foot.

D. **REMOVAL, DISPOSAL AND REPLACEMENT OF BOILER UPTAKE, & BREACHING INSULATION:** (all types including stiffening angles and wire lath) Payment shall be made at 2.0 times the unit price per square foot.

E. **REMOVAL, DISPOSAL AND REPLACEMENT OF DUCT INSULATION:** Payment shall be made at 1.0 times the unit price per square foot.

F. **REMOVAL, DISPOSAL AND REPLACEMENT OF SOFT ASBESTOS CONTAINING MATERIAL:** (Including sprayed-on fire proofing and sound proofing) Payment shall be made at 1.0 times the unit price per square foot of surface area. Area of irregular surfaces must be calculated and confirmed with DDC representative.

G. **ACOUSTIC PLASTER REPAIR AND/OR ENCAPSULATION:** Payment shall be made at 0.5 times the unit price per square foot.

H. **PATCHING OR REPAIR** of items listed in A through F will be paid at 0.33 times the unit price per square foot.

I. **REMOVAL, DISPOSAL AND REPLACEMENT OF WATERPROOFING ASBESTOS CONTAINING MATERIAL:** (including friable and non-friable waterproofing material from interior and exterior walls, floors, foundations, penetrations, louvers, vents and openings other than windows, doors and skylights) Payment shall be made at 0.5 times the unit price per square foot.

J. **REMOVAL, DISPOSAL AND REPLACEMENT OF ASBESTOS CONTAINING ELECTRICAL WIRING INSULATION:** (including friable and non-friable wiring insulation) Payment shall be made at 0.33 times the unit price per square foot.

K. **PAINTING:** Payment shall be made at 0.05 times the unit price per square foot.

L. **REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING PLASTER:** from ceilings and walls, including any wire lath and disposal as asbestos containing waste. Payment shall be made at 0.80 times the unit price per square foot.

M. **REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING FLOOR TILES, CEILING TILES, TRANSITE PANELS:** (including any adhesive, glue, mastic and/or underlayment) and disposal as asbestos containing waste. Payment shall be made at 0.40 times the unit price per square foot. If multiple layers are discovered, each additional layer shall be paid at 0.20 times the unit price per square foot.

N. **ADDITIONAL CLEAN UP/HOUSEKEEPING OF WORK AREA:** (excluding pre-cleaning of work area required by regulations) HEPA vacuuming and wet cleaning of asbestos contaminated surface. Payment shall be made at 0.20 times the unit price per square foot. When GLOVE BAG is employed to remove ACM, cost of HEPA vacuuming and wet cleaning of floor area up to 3 feet on each side of glove-bag shall be included in unit price and no extra payment will be made.

O. **REMOVAL, DISPOSAL OF ASBESTOS-CONTAINING ROOFING MATERIAL:** including mastic, flashing and sealant compound and provide temporary asbestos-free roof covering consisting of one layer of rolled roofing paper sealed with asphaltic roofing compound. Payment shall be made at 0.8 times the unit price per square foot. Credit at a rate of 0.33 times the unit price will be taken for each square foot of temporary roof covering which the Asbestos abatement contractor is directed not to install.

P. **PICK-UP AND DISPOSAL OF GROSS DEBRIS:** (excluding any waste generated from abatement under Item A-R) at a rate of $150 per cubic yard for asbestos contaminated waste and $75 per cubic yard for non-asbestos

contaminated waste. This cost includes all labor and material cost associated with work.

Q. **REMOVAL OF ASBESTOS-CONTAINING BRICK, BLOCK, MORTAR, CEMENT OR CONCRETE:** along with all surfacing materials including wire lath and/or other supporting structures and disposal as ACM waste. Payment shall be made at a rate of $25.00 per cubic foot of material removed.

R. **REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING WINDOW/DOOR CAULKING:** including friable and non-friable caulking, weather-stripping, glazing, sealants or other waterproofing materials applied to windows, doors, skylights, etc. Payment shall be made at the rate of $400.00 per opening regardless of size or configuration. This cost includes labor, consumable materials, set-up/breakdown, removal and disposal, as required.

Note 1: CREDIT: For items listed in A through F, a credit at a rate of 0.33 times the unit price, times the respective multiplier (for each item) will be taken for each square foot of insulation which the asbestos abatement contractor is not directed to reapply.

Note 2: MINIMUM PAYMENT: The minimum payment per call at any individual job sites or various job sites during the same day will be eight hundred dollars ($800.00).

Note 3: All payments shall be made as described in paragraph 1.09 herein.

Note 4: WORKING HIGHER THAN 12 FEET ABOVE FLOOR LEVEL OR WORK REQUIRING COMPLEX SCAFFOLDING OR CONSTRUCTION WORK PLATFORMS: Provisions are made in this Contract to compensate the Asbestos abatement contractor for work performed in locations that are difficult to access due to work at elevations that are significantly higher than the normal work level. The unit price for these items will be paid at 1.20 times the unit price described in Paragraphs 1.09, A through R for those portions of the work that are more than twelve (12) feet above the grade for that would be judged as the normal working level.

1.10 GUARANTEE

A. Work performed in compliance with each task shall be guaranteed for a period of one year from the date the completed work is accepted by the Department of Design and Construction.

B. The Commissioner of The Department of Design and Construction will notify the Asbestos abatement contractor in writing regarding defects in work under the guarantee.

1.11 OCCUPANCY OF SITE NOT EXCLUSIVE

Attention is specifically drawn to the fact that contractors, performing the work of other Contracts, may be brought upon any of the work sites of this Contract. Therefore, the

Asbestos abatement contractor shall not have exclusive rights to any site of his work and shall fully cooperate and coordinate his work with the work of other contractors who may be brought upon any site of the work of this Contract. This paragraph applies to those areas outside the regulated Work Area as defined by Title 15, Chapter I of RCNY.

1.12 SUBMITTALS

A. Pre-Construction Submittals:

1. Attend a pre-construction meeting scheduled by the City of New York Department of Design and Construction. This meeting shall also be attended by a designated representative of the City of New York third party air monitoring firm, facility manager and the Construction Project Manager. At this meeting, the Asbestos abatement contractor shall present three copies of the following items:
   a. Asbestos abatement contractor's scope of work, work plan and schedule.

   b. Asbestos project notifications, approved variances and plans to Government Agencies.

   c. Copies of Permits, clearance and licenses if required.

   d. Schedules: the Asbestos abatement contractor shall provide to the Construction Project Manager a copy of the following schedules for approval. Once approved, schedules shall be maintained and updated as received. Asbestos abatement contractor shall post a copy of all schedules at the site:

      (1) A construction schedule stating critical dates of the project including, but not limited to, mobilization, Work Area preparation, demolition, gross removal, fine cleaning, encapsulation, inspections, clearance monitoring, and phase of refinishing and final inspections. The schedule shall be updated biweekly, at a minimum.

      (2) A schedule of staffing stating number of workers per shift per activity, name and number of supervisor(s) per shift, shifts per day, and total days to be worked.

      (3) Submit all changes in schedule or staffing to the Construction Project Manager prior to implementation.

e. Written description of emergency procedures to be followed in case of injury or fire. This section must include evacuation procedures, source of medical assistance (name and telephone number to nearest hospital) and procedures to be used for access by medical personnel (examples: first aid squad and physician). NOTE: Necessary Emergency Procedures Shall Take Priority Over All Other Requirements of These Specifications.

f. Material Safety Data Sheets (MSDS) for encapsulants, sealants, firestopping foam, cleaners/disinfectants, spray adhesive and any and all potentially hazardous materials that may be employed on the project. No work involving the aforementioned will be allowed to proceed until MSDS are reviewed.

g. Worker Training and Medical Surveillance: The Asbestos abatement contractor shall submit a list of the persons who will be employed by him /her to perform the removal work. Present evidence that workers have received proper training required by the regulations and the medical examinations required by OSHA 29 CFR 1926.1101.

h. Logs: Specimen copies of daily progress log, visitor's log, and disposal log.

(1) The Asbestos abatement contractor shall provide a permanently bound log book of minimum 8-1/2" x 11" size at the entrance to the Worker and Waste Decontamination enclosure system as hereinafter specified. Log book shall contain on title page the project name, name, address and phone number of the Asbestos abatement contractor; name, address and phone number of Asbestos abatement contractor and City's third party air monitoring firm; emergency numbers including, but not limited to local Fire/Rescue Department. Log book shall contain a list of personnel approved for entry into the Work Area.

(2) All entries into the log shall be made in non-washable, permanent ink and such pen shall be strung to or otherwise attached to the log to prevent removal from the log-in area. Under no circumstances shall pencil entries be permitted. Any significant events occurring during the abatement project shall be entered into the log. Upon completion of the job, the Asbestos abatement contractor shall submit the logbook containing a day-to-day record of personnel log entries countersigned by the Construction Project Manager every day.

i. Worker's Acknowledgments: Submit statements signed by each employee that the employee has received training in the proper handling of ACM, understands the health implications and risks involved; and understands the use and limitations of the respiratory equipment to be used.

B. During Construction Submittals:

1. Security and safety logs showing names of person entering workspace, date and time of entry and exit, record of any accident, emergency evacuation, and any other safety and/or health incident.

2. Progress logs showing the number of workers, supervisors, hours of work and tasks completed shall be submitted daily to the Construction Project Manager.

3. Floor plans indicating Asbestos abatement contractor's current work progress shall be submitted for review by the Construction Project Manager.

4. All Asbestos abatement contractors' air monitoring and inspection results.

C. Project Closeout Submittals:

Upon completion of the project and as a condition of acceptance, the Asbestos abatement contractor shall present two copies of the following items, bound and indexed:

1. Lien Waivers from Asbestos abatement contractor, Sub-Asbestos abatement contractors and Suppliers,

2. Daily OSHA air monitoring results,

3. All Waste Manifests (Asbestos and Construction Debris), seals and disposal logs,

4. Field Sign-In/Sign-Out Logs for every shift,

5. Copies of all Building Department Forms and Permits,

6. A Letter of Compliance stating that all the work on this project was performed in accordance with the Specifications and all applicable Federal, State and Local regulations,

7. All Warranties as stated in the Specifications,

a. Fully executed disposal certificates and transportation manifest.

8. Project Record: The Asbestos abatement contractor shall maintain a project record for all small and large asbestos projects. During the project, the project record shall be kept on site at all times. Upon completion of the project, the project record shall be maintained by the City of New York. The project record shall be submitted to DDC as part of the close out documents. The project record shall consist of:

   a. Copies of licenses of all asbestos abatement contractors involved in the project;

   b. Copies of NYCDEP and NYSDOL supervisor and handler certificates for all workers engaged in the project;

   c. Copies of all project notifications and reports filed with NYCDEP, NYSDOL and USEPA for the project, with any amendments or variances;

   d. Copies of all asbestos abatement permits, including associated approved plans and work place safety plan;

   e. A copy of the air sampling log and all air sampling results;

   f. A copy of the abatement asbestos abatement contractor's daily log book;

   g. Copies of all asbestos waste manifests;

   h. A copy of all Project Monitor's Reports (ACP-15).

   i. A copy of each ATR-1 Form completed for the asbestos project (if required).

   j. A copy of each Asbestos Project Conditional Closeout Report (ACP-20) if required.

   k. A copy of the Asbestos Project Completion Form (ACP-21).

1.13 PROTECTION OF FURNITURE AND EQUIPMENT

Cover all furniture and equipment that cannot be removed from Work Areas. Movable furniture and equipment will be removed from Work Areas by the Asbestos abatement contractor prior to start of work. At the conclusion of the work (after final air testing), the Asbestos abatement contractor will remove all plastic covering on walls, floors, furniture, equipment and reinstall furniture and equipment. He shall remove and store all sheaths, curtains and drapes, and reinstall same following final clean up.

1.14 UTILITIES

A. General:

All temporary facilities shall be subject to the approval of the Commissioner. Prior to starting work at any site, locations and/or sketches (if required) of temporary facilities must be submitted to the Construction Project Manager for the required approval.

B. Water:

The Department of Design and Construction will furnish all water needed for construction, at no cost to the Asbestos abatement contractor in buildings under their jurisdiction. However, it is the responsibility of the Asbestos abatement contractor to ensure that hot water is provided for showering in the decontamination unit. The Asbestos abatement contractor shall furnish, install and maintain any needed equipment to meet these requirements at his own expense.

C. Electricity:

The Department of Design and Construction will furnish all electricity needed for construction, at no cost to the Asbestos abatement contractor in a building, under their jurisdiction. The Asbestos abatement contractor is responsible for routing the electric power to the abatement Work Area.

All temporary lighting and temporary electrical service for Work Area shall be in weatherproof enclosures and be ground fault protected.

D. In leased spaces, arrangements for water supplies and electricity must be made with the landlord. However, all such arrangements must be made through and are subject to approval of the Department of Design and Construction. Utilities will be provided at no cost to the Asbestos abatement contractor. However, it is the Asbestos abatement contractor's (or the Plumbing contractor's) responsibility to furnish and install a suitable distribution system to the Work Area. This system will be provided at no cost to the City.

1.15 FEES

The Asbestos abatement contractor shall be responsible for any and all fees or charges imposed by Local, State or Federal Law, Rule and Regulation applicable to the work specified herein, including fees or charges which may be imposed subsequent to the date of the Bid opening.

END OF SECTION

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SECTION 22 05 03

PIPES AND TUBES FOR PLUMBING PIPING AND EQUIPMENT

PART 1 GENERAL

1.1 SUBMITTALS

A. See DDC General Conditions:

B. Shop Drawings: Indicate layout of piping systems, including equipment, critical dimensions, and sizes. Submit shop drawings sealed by registered professional engineer.

C. Product Data: Submit data on pipe materials and fittings. Submit manufacturers catalog information.

D. Design Data: Indicate pipe sizes. Indicate pipe sizing methods. Indicate calculations used. sealed by registered professional engineer.

1.2 QUALITY ASSURANCE

A. Perform Work in accordance with ASME B31.9 code for installation of piping systems and ASME Section IX for welding materials and procedures.

B. Perform Work in accordance with NY and NYC standard.

C. Maintain one copy of each document on site.

1.3 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum 3 years documented experience.

B. Installer: Company specializing in performing work of this section with minimum 3 years documented experience.

C. Design piping systems pipe hangers and supports under direct supervision of Professional Engineer experienced in design of this Work and licensed In State of NY.

1.4 PRE-INSTALLATION MEETINGS

A. See DDC General Conditions.

B. Convene minimum one week prior to commencing work of this section.

1.5 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions.

B. Furnish temporary end caps and closures on piping and fittings. Maintain in place until

installation.

C. Protect piping from entry of foreign materials by temporary covers, completing sections of the Work, and isolating parts of completed system.

1.6 ENVIRONMENTAL REQUIREMENTS

A. See DDC General Conditions.

B. Do not install underground piping when bedding is wet or frozen.

1.7 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.8 COORDINATION

A. See DDC General Conditions

B. Coordinate installation of buried piping with trenching.

PART 2 PRODUCTS

2.1 DOMESTIC WATER PIPING, ABOVE GRADE

A. Copper Tubing: ASTM B88, Type L hard drawn.
1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper and bronze.
2. Joints: Solder, lead free, ASTM B32,]95-5 tin-antimony, or tin and silver, with melting range 430 to 535 degrees F.

2.2 SANITARY SEWER PIPING, ABOVE GRADE

A. Cast Iron Pipe: ASTM A74, service weight.
1. Fittings: Cast iron, ASTM A74.
2. Joints: ASTM C564, rubber gasket joint devices or lead and oakum.

B. Cast Iron Pipe: CISPI 301, hub-less, service weight.
1. Fittings: Cast iron, CISPI 301.
2. Joints: CISPI 310, neoprene gaskets and stainless steel clamp-and-shield assemblies.

PART 3 EXECUTION

3.1 INSTALLATION - ABOVE GROUND PIPING

A. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.

B. Install piping to maintain headroom without interfering with use of space or taking more space than necessary.

C. Group piping whenever practical at common elevations.

D. Sleeve pipe passing through partitions, walls and floors. Refer to Section 22 05 29.

E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment. Refer to Section 23 05 48.

F. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings. Refer to Section 22 07 00.

G. Provide access where valves and fittings are not accessible. Coordinate size and location of access doors with Section 08 31 13.

H. Install non-conducting dielectric connections wherever jointing dissimilar metals.

I. Establish invert elevations, slopes for drainage to1/8 inch per foot minimum. Maintain gradients.

J. Slope piping and arrange systems to drain at low points.

K. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the Work, and isolating parts of completed system.

L. Install valves in accordance with Section 22 05 23.

M. Install piping specialties in accordance with Section 22 05 23.

N. Insulate piping. Refer to Section 22 07 00.

3.2 INSTALLATION - DOMESTIC WATER PIPING SYSTEMS

A. Install domestic water piping system in accordance with ASME B31.9.

B. Install domestic water piping system in accordance with Section 22 11 00.

3.3 INSTALLATION - SANITARY WASTE AND VENT PIPING SYSTEMS

A. Install sanitary waste and vent piping systems in accordance with local NYC plumbing code.

B. Support cast iron drainage piping at every joint.

3.4 FIELD QUALITY CONTROL

A. DDC General Conditions - Quality Requirements and Execution /Closeout Requirements: Field inspecting, testing, adjusting, and balancing.

B. Test domestic water piping system in accordance with applicable code.

C. Test sanitary waste and vent piping system in accordance with applicable code.

3.5 CLEANING

A. DDC General Conditions - Execution and Closeout Requirements: Requirements for

cleaning.

B. Clean and disinfect domestic water distribution system in accordance with Section PC 610 of NYC Plumbing Code.

END OF SECTION

SECTION 22 05 23

GENERAL-DUTY VALVES FOR PLUMBING PIPING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Gate valves.
2. Ball valves.
3. Plug valves.
4. Butterfly valves.
5. Check valves.

B. Related Sections:
1. Section 22 05 03 - Pipes and Tubes for Plumbing Piping and Equipment: Product and installation requirements for piping materials applying to various system types.
2. Section 22 05 29 - Hangers and Supports for Plumbing Piping and Equipment: Product and installation requirements for pipe hangers and supports.
3. Section 22 07 00 - Plumbing Insulation: Product and installation requirements for insulation for valves.
4. Section 22 11 00 - Facility Water Distribution: Product and installation requirements for piping, and equipment used in domestic water systems.

1.2 REFERENCES

A. ASTM International:
1. ASTM D1784 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
2. ASTM D4101 - Standard Specification for Propylene Injection and Extrusion Materials.

B. Manufacturers Standardization Society of the Valve and Fittings Industry:
1. MSS SP 67 - Butterfly Valves.
2. MSS SP 70 - Cast Iron Gate Valves, Flanged and Threaded Ends.
3. MSS SP 71 - Cast Iron Swing Check Valves, Flanged and Threaded Ends.
4. MSS SP 78 - Cast Iron Plug Valves, Flanged and Threaded Ends.
5. MSS SP 80 - Bronze Gate, Globe, Angle and Check Valves.
6. MSS SP 110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.

1.3 SUBMITTALS

A. See DDC General Conditions.

B. Product Data: Submit manufacturers catalog information with valve data and ratings for

each service.

C. Manufacturer's Installation Instructions: Submit hanging and support methods, joining procedures.

D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.4 CLOSEOUT SUBMITTALS

A. See DDC General Conditions.

B. Project Record Documents: Record actual locations of valves

C. Operation and Maintenance Data: Submit installation instructions, spare parts lists, exploded assembly views.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with NYC standard.

B. Maintain one copy of each document on site.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years' experience.

B. Installer: Company specializing in performing work of this section with minimum 3 year experience.

1.7 PRE-INSTALLATION MEETINGS

A. See DDC General Conditions.

B. Convene minimum one week prior to commencing work of this section.

1.8 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions.

B. Accept valves on site in shipping containers with labeling in place. Inspect for damage.

C. Provide temporary protective coating on cast iron and steel valves.

1.9 ENVIRONMENTAL REQUIREMENTS

A. See DDC General Conditions.

B. Do not install valves underground when bedding is wet or frozen.

1.10 WARRANTY

A. See DDC General Conditions.

B. Furnish five year manufacturer warranty for valves excluding packing.

1.11 EXTRA MATERIALS

A. See DDC General Conditions.

B. Furnish two packing kits for each size valve.

PART 2 PRODUCTS

2.1 GATE VALVES

A. Manufacturers:
1. Crane Valve, North America Model.
2. Hammond Valve Model.
3. Milwaukee Valve Company Model.
4. NIBCO, Inc. Model.
5. Stockham Valves & Fittings Model.
6. Approved Equal .

B. Furnish materials in accordance with NYS & NYC.

C. 2 inches (50 mm) and Smaller: MSS SP 80, Class 125, bronze body, bronze trim, inside screw solid wedge disc.

D. 2-1/2 inches (65 mm) and Larger: MSS SP 70, Class 125, cast iron body, bronze trim, bolted bonnet, hand-wheel, outside screw and yoke, solid wedge disc with bronze seat rings, flanged ends. Furnish chain-wheel operators for valves 6 inches (150 mm) and larger mounted over 8 feet (2400 mm) above floor.

2.2 BALL VALVES

A. Manufacturers:
1. Crane Valve, North America Model.
2. Hammond Valve Model.
3. Milwaukee Valve Company Model.
4. NIBCO, Inc. Model.
5. Stockham Valves & Fittings Model.
6. Approved Equial.

B. Furnish materials in accordance with NYC standards.

C. 2 inches (50 mm) and Smaller: MSS SP 110, 400 psi (2760 kPa), bronze body, chrome plated brass ball, regular port, teflon seats, blow-out proof stem, solder or threaded ends with union.

D. 2 inches (50 mm) and Smaller: MSS SP 110, Class 150 bronze, two piece body, chrome plated bronze ball, regular port, teflon seats, blow-out proof stem, solder or threaded ends with union.

E. 2 inches (50 mm) and Smaller: MSS SP 110, Class 150, bronze, three piece body, chrome plated bronze ball, regular port, teflon seats, blow-out proof stem, solder or threaded ends with balancing stops.

F. 2 inches (50 mm) and Smaller: MSS SP 110, Class 150 Stainless steel body, stainless steel ball, teflon seats and stuffing box ring, threaded ends, handle with balancing stops.

G. 2 inches (50 mm) and Smaller: 150 psi (1035 kPa) at 73 degrees F (55 degrees C) water temperature, maximum service temperature: 140 degrees F (60 degrees C) ASTM D1784 PVC body and ball, double lever handle, EPDM seals, teflon seats, regular port, single union type with threaded ends.

H. 2 inches (50 mm) and Smaller: 150 psi (1035 kPa) at 73 degrees F (55 degrees C) water temperature, maximum service temperature: 210 degrees F (100 degrees C), ASTM D1784 CPVC body and ball, double lever handle, EPDM seals, teflon seats, regular port, single double union type with threaded ends.

I. 2 inches (50 mm) and Smaller: 150 psi (1035 kPa) at 100 degrees F (40 degrees C) water temperature, maximum service temperature 180 degrees F (82 degrees C), ASTM D4101 natural polypropylene body and ball, double lever handle, EPDM seals, teflon seats, regular port, single union type with threaded ends.

J. 2 inches (50 mm) and Smaller: 150 psi (1035 kPa) at 73 degrees F (55 degrees C) water temperature, maximum service temperature: 180 degrees F (82 degrees C), ASTM D4101 black polypropylene body and ball, double lever handle, EPDM seals, teflon seats, regular port, single union type with threaded ends.

2.3 PLUG VALVES

A. Manufacturers:
1. DeZURIK, Unit of SPX Corp. Model.
2. Flow Control Equipment, Inc. Model.
3. Homestead Valve Model.
4. Approved Equial.

B. Furnish materials in accordance with NYS &NYC.

C. 2 inches and Smaller: MSS SP 78, Class 150, semi-steel construction, round port, pressure lubricated, teflon packing, threaded ends. Furnish one plug valve wrench for every ten plug-valves with minimum of one wrench.

D. 2-1/2 inches and Larger: MSS SP 78, Class 150, semi-steel construction, round port, pressure lubricated, teflon packing, flanged ends.

2.4 BUTTERFLY VALVES

A. Manufacturers:
1. Crane Valve, North America Model.
2. Hammond Valve Model.
3. Milwaukee Valve Company Model.
4. NIBCO, Inc. Model.
5. Stockham Valves & Fittings Model.
6. Approved Equal.

B. Furnish materials in accordance with NYS & NYC.standards.

C. 2-1/2 inches (65 mm) and Larger: MSS SP 67, Class 150.

1. Body: Cast or ductile iron, wafer or grooved ends, stainless steel stem, extended neck.
2. Disc: Nickel-plated ductile.
3. Seat: Resilient replaceable EPDM
4. Handle and Operator: 10 position lever handle

D. 2 inches (50 mm) through 10 inches: 150 psi (1035 kPa) at 73 degrees F (55 degrees C) water temperature, maximum service temperature: 140 degrees F (60 degrees C), two piece body, ASTM D1784 PVC, lug type flange facing, disc encapsulated with EPDM, stainless steel shaft, locking lever handle.

E. 2 inches (50 mm) through 10 inches: 150 psi (1035 kPa) at 73 degrees F (55 degrees C) water temperature, maximum service temperature 210 degrees F (100 degrees C), two piece body, ASTM D1784 CPVC, lug type flange facing, disc encapsulated with EPDM, stainless steel shaft, locking lever handle.

2.5 CHECK VALVES

A. Horizontal Swing Check Valves:

1. Manufacturers:
   a. Crane Valve, North America Model.
   b. Hammond Valve Model.
   c. Milwaukee Valve Company Model.
   d. NIBCO, Inc. Model.
   e. Stockham Valves & Fittings Model.
   f. Approved Equal.

2. Furnish materials in accordance with NYS & NYC.

3. 2 inches (50 mm) and Smaller: MSS SP 80, Class 150, bronze body and cap, bronze seat, teflon disc, solder or threaded ends.
4. 2-1/2 inches (65 mm) and Larger: MSS SP 71, Class 125, cast iron body, bolted cap, bronze or cast iron disc, flanged ends.
5. 2-1/2 inches (65 mm) and Larger: MSS SP 71, Class 125, cast iron body, bronze swing disc, flanged ends.

B. Spring Loaded Check Valves:
1. Manufacturers:
   a. Crane Valve, North America Model.
   b. Hammond Valve Model.
   c. Milwaukee Valve Company Model.
   d. NIBCO, Inc. Model.
   e. Stockham Valves & Fittings Model.
   f. Approved Equal

2. Furnish materials in accordance with NYS & NYC standards.

3. 2 inches (50 mm) and Smaller: MSS SP 80, Class 250, bronze body, in-line spring lift check, silent closing, teflon disc, integral seat, solder or threaded ends.

4. 2-1/2 inches (65 mm) and Larger: MSS SP 71, Class 125, wafer style, cast iron body, bronze seat, center guided bronze disc, stainless steel spring and screws, flanged ends.

PART 3 EXECUTION

3.1 EXAMINATION

A. See DDC General Conditions.

B. Verify piping system is ready for valve installation.

3.2 INSTALLATION

A. Install valves with stems upright or horizontal, not inverted.

B. Install brass male adapters each side of valves in copper piped system. Solder adapters to pipe.

C. Install 3/4 inch gate, ball valves with cap for drains at main shut-off valves, low points of piping, bases of vertical risers, and at equipment.

D. Install valves with clearance for installation of insulation and allowing access.

E. Provide access where valves and fittings are not accessible. Coordinate size and location of access doors with Section 08 31 13.

F. Refer to Section 22 05 29 for pipe hangers

G. Refer to Section 22 07 00 for insulation requirements for valves.

H. Refer to Section 22 05 03 for piping materials applying to various system types.

I. For installation of valves in domestic water systems refer to Section 22 11 00.

J. Install Work in accordance with NYC standards.

3.3 VALVE APPLICATIONS

A. Install shutoff and drain valves at locations indicated on Drawings in accordance with this Section.

B. Install ball butterfly or gate valves for shut-off and to isolate equipment, part of systems, or vertical risers.

C. Install ball, butterfly or globe valves for throttling, bypass, or manual flow control services.

D. Install spring loaded check valves on discharge of water pumps.

E. Install lever and weight check valves on discharge of pumps in pumped sanitary, pumped storm water piping.

F. Install lug end butterfly valves adjacent to equipment when functioning to isolate equipment.

G. Install ball, butterfly and gate valves in domestic water systems for shut-off service.

H. Install ball, butterfly and gate valves in domestic water systems for throttling service.

I. Install ball, butterfly and gate valves in sanitary systems for shut-off service.

J. Install ball, butterfly and gate valves in storm water systems for shut-off service.

END OF SECTION

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SECTION 22 05 29

HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Pipe hangers and supports.
2. Hanger rods.
3. Inserts.
4. Flashing.
5. Sleeves.
6. Mechanical sleeve seals.
7. Formed steel channel.
8. Firestopping relating to plumbing work.
9. Firestopping accessories.
10. Equipment bases and supports.

B. Related Sections:
1. Section 03 30 00 - Cast-In-Place Concrete: Execution requirements for placement of concrete housekeeping pads specified by this section.
2. Section 07 84 13 – Penetration Firestopping: Product requirements for firestopping for placement by this section.
3. Section 07 92 00 - Joint Sealants: Product requirements for sealant materials for placement by this section.
4. Section 09 91 00 – Painting Product and execution requirements for painting specified by this section.
5. Section 22 05 03 - Pipes and Tubes for Plumbing Piping and Equipment: Execution requirements for placement of hangers and supports specified by this section.
6. Section 22 11 00 - Facility Water Distribution: Execution requirements for placement of hangers and supports specified by this section.

1.2 REFERENCES

A. American Society of Mechanical Engineers:
1. ASME B31.1 - Power Piping.
2. ASME B31.5 - Refrigeration Piping.
3. ASME B31.9 - Building Services Piping.

B. ASTM International:
1. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.

2. ASTM E119 - Method for Fire Tests of Building Construction and Materials.
3. ASTM E814 - Test Method of Fire Tests of Through Penetration Firestops.
4. ASTM F708 - Standard Practice for Design and Installation of Rigid Pipe Hangers.
5. ASTM E1966 - Standard Test Method for Fire-Resistive Joint Systems.

C. American Welding Society:
1. AWS D1.1 - Structural Welding Code - Steel.

D. FM Global:
1. FM - Approval Guide, A Guide to Equipment, Materials & Services Approved By Factory Mutual Research For Property Conservation.

E. Manufacturers Standardization Society of the Valve and Fittings Industry:
1. MSS SP 58 - Pipe Hangers and Supports - Materials, Design and Manufacturer.
2. MSS SP 69 - Pipe Hangers and Supports - Selection and Application.
3. MSS SP 89 - Pipe Hangers and Supports - Fabrication and Installation Practices.

F. Underwriters Laboratories Inc.:
1. UL 263 - Fire Tests of Building Construction and Materials.
2. UL 723 - Tests for Surface Burning Characteristics of Building Materials.
3. UL 1479 - Fire Tests of Through-Penetration Firestops.
4. UL 2079 - Tests for Fire Resistance of Building Joint Systems.
5. UL - Fire Resistance Directory.

G. Intertek Testing Services (Warnock Hersey Listed):
1. WH - Certification Listings.

1.3 DEFINITIONS

A. Firestopping (Through-Penetration Protection System): Sealing or stuffing material or assembly placed in spaces between and penetrations through building materials to arrest movement of fire, smoke, heat, and hot gases through fire rated construction.

1.4 SYSTEM DESCRIPTION

A. Firestopping Materials: ASTM E119, ASTM E814, UL 263,UL 1479 to achieve fire ratings as noted on Drawings for adjacent construction, but not less than 1 hour fire rating.
1. Ratings may be 3-hours for firestopping in through-penetrations of 4-hour fire rated assemblies unless otherwise required by applicable codes.

B. Surface Burning: ASTM E84, UL 723 with maximum flame spread / smoke developed rating of 25/450.

C. Firestop interruptions to fire rated assemblies, materials, and components.

1.5 PERFORMANCE REQUIREMENTS

A. Firestopping: Conform to applicable code, FM, UL, WH for fire resistance ratings and surface burning characteristics.

B. Firestopping: Provide certificate of compliance from authority having jurisdiction indicating approval of materials used.

1.6 SUBMITTALS

A. See DDC General Conditions.

B. Shop Drawings: Indicate system layout with location including critical dimensions, sizes, and pipe hanger and support locations and detail of trapeze hangers.

C. Product Data:
1. Hangers and Supports: Submit manufacturers catalog data including load capacity.
2. Firestopping: Submit data on product characteristics, performance and limitation criteria.

D. Firestopping Schedule: Submit schedule of opening locations and sizes, penetrating items, and required listed design numbers to seal openings to maintain fire resistance rating of adjacent assembly.

E. Design Data: Indicate load carrying capacity of trapeze, multiple pipe, and riser support hangers. Indicate calculations used to determine load carrying capacity of trapeze, multiple pipe, and riser support hangers.

F. Manufacturer's Installation Instructions:
1. Hangers and Supports: Submit special procedures and assembly of components.
2. Firestopping: Submit preparation and installation instructions.

G. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

H. Engineering Judgements: For conditions not covered by UL or WH listed designs, submit judgements by licensed professional engineer suitable for presentation to authority having jurisdiction for acceptance as meeting code fire protection requirements.

1.7 QUALITY ASSURANCE

A. Through Penetration Firestopping of Fire Rated Assemblies: UL 1479 or ASTM E814 with 0.10 inch water gage (24.9 Pa) minimum positive pressure differential to achieve fire F-Ratings and temperature T-Ratings as indicated on Drawings, but not less than 1-hour.
1. Wall Penetrations: Fire F-Ratings as indicated on Drawings, but not less than 1-hour.

2. Floor and Roof Penetrations: Fire F-Ratings and temperature T-Ratings as indicated on Drawings, but not less than 1-hour.

a. Floor Penetrations Within Wall Cavities: T-Rating is not required.

B. Through Penetration Firestopping of Non-Fire Rated Floor and Roof Assemblies: Materials to resist free passage of flame and products of combustion.
1. Noncombustible Penetrating Items: Noncombustible materials for penetrating items connecting maximum of three stories.
2. Penetrating Items: Materials approved by authorities having jurisdiction for penetrating items connecting maximum of two stories.

C. Fire Resistant Joints in Fire Rated Floor, Roof, and Wall Assemblies: ASTM E1966 or UL 2079 to achieve fire resistant rating as indicated on Drawings for assembly in which joint is installed.

D. Fire Resistant Joints Between Floor Slabs and Exterior Walls: ASTM E119 with 0.10 inch water gage (24.9 Pa) minimum positive pressure differential to achieve fire resistant rating as indicated on Drawings for floor assembly.

E. Surface Burning Characteristics: 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

F. Perform Work in accordance with applicable authority, AWS D1.1 for welding hanger and support attachments to building structure.

G. Perform Work in accordance with NY & NYC standards.

H. Maintain one of each document on site.

1.8 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum 3 years documented experience.

B. Installer: Company specializing in performing Work of this section with minimum 3 years documented experience.

1.9 PRE-INSTALLATION MEETINGS

A. DDC General Conditions.

B. Convene minimum one week prior to commencing work of this section.

1.10 DELIVERY, STORAGE, AND HANDLING

A. DDC General Conditions - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Accept materials on site in original factory packaging, labeled with manufacturer's identification.

C. Protect from weather and construction traffic, dirt, water, chemical, and damage, by

storing in original packaging.

1.11 ENVIRONMENTAL REQUIREMENTS

A. See DDC General Conditions.

B. Do not apply firestopping materials when temperature of substrate material and ambient air is below 60 degrees F (15 degrees C).

C. Maintain this minimum temperature before, during, and for minimum 3 days after installation of firestopping materials.

D. Provide ventilation in areas to receive solvent cured materials.

1.12 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.13 WARRANTY

A. DDC General Conditions

B. Furnish five year manufacturer warranty for pipe hangers and supports.

PART 2 PRODUCTS

2.1 PIPE HANGERS AND SUPPORTS

A. Manufacturers:
1. Carpenter & Paterson Inc.
2. Creative Systems Inc.
3. Flex-Weld, Inc.
4. Approved Equal.

B. Furnish materials in accordance with NY, NYC standards.

C. Plumbing Piping - DWV:
1. Conform to ASME B31.9, ASTM F708, MSS SP58, MSS SP69, MSS SP89.
2. Hangers for Pipe Sizes 1/2 to 1-1/2 inch (13 to 38 mm): Carbon steel, adjustable swivel, split ring.
3. Hangers for Pipe Sizes 2 inches (50 mm) and Larger: Carbon steel, adjustable, clevis.
4. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.

rods.

5. Wall Support for Pipe Sizes 3 inches (75 mm) and Smaller: Cast iron hook.
6. Wall Support for Pipe Sizes 4 inches (100 mm) and Larger: Welded steel bracket and wrought steel clamp.
7. Vertical Support: Steel riser clamp.
8. Floor Support: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
9. Copper Pipe Support: Copper-plated, carbon-steel adjustable, ring.

D. Plumbing Piping - Water:
1. Conform to ASME B31.9, ASTM F708, MSS SP58, MSS SP69, MSS SP89.
2. Hangers for Pipe Sizes 1/2 to 1-1/2 inch (13 to 38 mm): Carbon steel, adjustable swivel, split ring.
3. Hangers for Cold Pipe Sizes 2 inches (50 mm) and Larger: Carbon steel, adjustable, clevis.
4. Hangers for Hot Pipe Sizes 2 to 4 inches (50 to 100 mm): Carbon steel, adjustable, clevis.
5. Hangers for Hot Pipe Sizes 6 inches (150 mm) and Larger: Adjustable steel yoke, cast iron roll, double hanger.
6. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.
7. Multiple or Trapeze Hangers for Hot Pipe Sizes 6 inches (150 mm) and Larger: Steel channels with welded spacers and hanger rods, cast iron roll.
8. Wall Support for Pipe Sizes 3 inches (76 mm) and Smaller: Cast iron hook.
9. Wall Support for Pipe Sizes 4 inches (100 mm) and Larger: Welded steel bracket and wrought steel clamp.
10. Wall Support for Hot Pipe Sizes 6 inches (150 mm) and Larger: Welded steel bracket and wrought steel clamp with adjustable steel yoke and cast iron roll.
11. Vertical Support: Steel riser clamp.
12. Floor Support for Cold Pipe: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
13. Floor Support for Hot Pipe Sizes 4 inches (100 mm) and Smaller: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
14. Floor Support for Hot Pipe Sizes 6 inches (150 mm) and Larger: Adjustable cast iron roll and stand, steel screws, and concrete pier or steel support.
15. Copper Pipe Support: Copper-plated, Carbon-steel ring.

2.2 ACCESSORIES

A. Hanger Rods: Mild steel threaded both ends, threaded on one end, or continuous threaded.

2.3 INSERTS

A. Manufacturers:
1. Carpenter & Paterson Inc.
2. Creative Systems Inc.

3. Flex-Weld, Inc.
4. Approved Equal.

B. Inserts: Malleable iron case of galvanized steel shell and expander plug for threaded connection with lateral adjustment, top slot for reinforcing rods, lugs for attaching to forms; size inserts to suit threaded hanger rods.

2.4 FLASHING

A. Metal Flashing: 26gage thick galvanized steel.

B. Metal Counter flashing: 22 gage thick galvanized steel.

2.5 SLEEVES

A. Sleeves for Pipes through Non-fire Rated Floors: 18 gage (1.2 mm) thick galvanized steel.

B. Sleeves for Pipes through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Steel pipe or 18gage thick galvanized steel.

C. Sealant: Acrylic. Refer to Section 07 92 00.

2.6 FIRESTOPPING

A. Manufacturers:
1. Dow Corning Corp.
2. Fire Trak Corp.
3. Hilti Corp.
4. Approved Equal.

B. Furnish materials in accordance with NY & NYC standards.

C. Product Description: Different types of products by multiple manufacturers are acceptable as required to meet specified system description and performance requirements; provide only one type for each similar application.

1. Silicone Firestopping Elastomeric Firestopping: Single or Multiple component silicone elastomeric compound and compatible silicone sealant.
2. Foam Firestopping Compounds: Single or Multiple component foam compound.
3. Formulated Firestopping Compound of Incombustible Fibers: Formulated compound mixed with incombustible non-asbestos fibers.
4. Fiber Stuffing and Sealant Firestopping: Composite of mineral or ceramic fiber stuffing insulation with silicone elastomer for smoke stopping.
5. Mechanical Firestopping Device with Fillers: Mechanical device with incombustible fillers and silicone elastomer, covered with sheet stainless steel jacket, joined with collars, penetration sealed with flanged stops.
6. Intumescent Firestopping: Intumescent putty compound which expands on

exposure to surface heat gain.

7. Firestop Pillows: Formed mineral fiber pillows.

D. Color: Dark gray, Black, or as selected from manufacturer's full range of colors.

2.7 FIRESTOPPING ACCESSORIES

A. Primer: Type recommended by firestopping manufacturer for specific substrate surfaces and suitable for required fire ratings.

B. Dam Material: Permanent:
1. Mineral fiberboard.
2. Mineral fiber matting.
3. Sheet metal.
4. Plywood or particle board.
5. Alumina silicate fire board.

C. Installation Accessories: Provide clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.

D. General:
1. Furnish UL listed products.
2. Select products with rating not less than rating of wall or floor being penetrated.

E. Non-Rated Surfaces:
1. Stamped steel, chrome plated, hinged, split ring escutcheons or floor plates or ceiling plates for covering openings in occupied areas where piping is exposed.
2. For exterior wall openings below grade, furnish mechanical sealing device to continuously fill annular space between piping and cored opening or water-stop type wall sleeve.

PART 3 EXECUTION

3.1 EXAMINATION

A. See DDC General Conditions.

B. Verify openings are ready to receive sleeves.

C. Verify openings are ready to receive firestopping.

3.2 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter affecting bond of firestopping material.

B. Remove incompatible materials affecting bond.

C. Install backing damming materials to arrest liquid material leakage.

D. Obtain permission from Architect/Engineer before using powder-actuated anchors.

E. Do not drill or cut structural members.

3.3 INSTALLATION - INSERTS

A. Install inserts for placement in concrete forms.

B. Install inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.

C. Provide hooked rod to concrete reinforcement section for inserts carrying pipe 4 inches (100 mm) and larger.

D. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.

E. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut above slab.

3.4 INSTALLATION - PIPE HANGERS AND SUPPORTS

A. Install in accordance with ASME B31.1, ASME B31.5, ASME 31.9, ASTM F708, MSS SP 58, MSS SP 69, MSS SP 89.

B. Support horizontal piping as scheduled.

C. Install hangers with minimum 1/2 inch (13 mm) space between finished covering and adjacent work.

D. Place hangers within 12 inches (300 mm) of each horizontal elbow.

E. Use hangers with 1-1/2 inch (38 mm) minimum vertical adjustment.

F. Support horizontal cast iron pipe adjacent to each hub, with 5 feet (1.5 m) maximum spacing between hangers.

G. Support vertical piping at every floor. Support vertical cast iron pipe at each floor at hub.

H. Where piping is installed in parallel and at same elevation, provide multiple pipe or trapeze hangers.

I. Support riser piping independently of connected horizontal piping.

J. Provide sheet lead packing between hanger or support and piping.

K. Design hangers for pipe movement without disengagement of supported pipe.

L. Prime coat exposed steel hangers and supports. Refer to Section 09 91 00.

M. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling

spaces are not considered exposed.

N. Provide clearance in hangers and from structure and other equipment for installation of insulation. Refer to Section 22 07 00.

3.5 INSTALLATION - FLASHING

A. Provide flexible flashing and metal counter flashing where piping penetrates weather or waterproofed walls, floors, and roofs.

B. Flash vent and soil pipes projecting 3 inches (75 mm) minimum above finished roof surface with lead worked 1 inch (25 mm) minimum into hub, 8 inches (200 mm) minimum clear on sides with 24 x 24 inches (600 x 600 mm) sheet size. For pipes through outside walls, turn flanges back into wall and caulk, metal counter-flash, and seal.

C. Flash floor drains in floors with topping over finished areas with lead, 10 inches (250 mm) clear on sides with minimum 36 x 36 inch (910 x 910 mm) sheet size. Fasten flashing to drain clamp device.

D. Seal floor, shower, mop sink, drains watertight to adjacent materials.

E. Adjust storm collars tight to pipe with bolts; caulk around top edge. Use storm collars above roof jacks. Screw vertical flange section to face of curb.

3.6 INSTALLATION - SLEEVES

A. Exterior watertight entries: Seal with mechanical sleeve seals.

B. Set sleeves in position in forms. Provide reinforcing around sleeves.

C. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

D. Extend sleeves through floors and above finished floor level. Caulk sleeves.

E. Where piping penetrates floor, ceiling, or wall, close off space between pipe and adjacent work with firestopping insulation and caulk. Provide close fitting metal collar or escutcheon covers at both sides of penetration.

F. Install chrome plated steel, plastic or stainless steel escutcheons at finished surfaces.

3.7 INSTALLATION - FIRESTOPPING

A. Install material at fire rated construction perimeters and openings containing penetrating sleeves, piping and other items, requiring firestopping.

B. Apply primer where recommended by manufacturer for type of firestopping material and substrate involved, and as required for compliance with required fire ratings.

C. Apply firestopping material in sufficient thickness to achieve required fire and smoke

rating, to uniform density and texture.

D. Compress fibered material to maximum 40 percent of its uncompressed size.

E. Place foamed material in layers to ensure homogenous density, filling cavities and spaces. Place sealant to completely seal junctions with adjacent dissimilar materials.

F. Place intumescent coating in sufficient coats to achieve rating required.

G. Remove dam material after firestopping material has cured.Dam material to remain.

H. Fire Rated Surface:
1. Seal opening at floor, wall, partition, ceiling, and roof as follows:
   a. Install sleeve through opening and extending beyond minimum of 1 inch (25 mm) on both sides of building element.
   b. Size sleeve allowing minimum of 1 inch (25 mm) void between sleeve and building element.
   c. Pack void with backing material.
   d. Seal ends of sleeve with UL listed fire resistive silicone compound to meet fire rating of structure penetrated.
2. Where cable tray, bus, cable bus, conduit, wireway, trough, and penetrates fire rated surface, install firestopping product in accordance with manufacturer's instructions.

I. Non-Rated Surfaces:
1. Seal opening through non-fire rated wall, partition floor, ceiling, as follows:
   a. Install sleeve through opening and extending beyond minimum of 1 inch (25 mm) on both sides of building element.
   b. Size sleeve allowing minimum of 1 inch (25 mm) void between sleeve and building element.
   c. Install type of firestopping material recommended by manufacturer.
2. Install escutcheons floor plates or ceiling plates where conduit, penetrates non-fire rated surfaces in occupied spaces. Occupied spaces include rooms with finished ceilings and where penetration occurs below finished ceiling.
3. Exterior wall openings below grade: Assemble rubber links of mechanical sealing device to size of piping and tighten in place, in accordance with manufacturer's instructions.
4. Interior partitions: Seal pipe penetrations at clean rooms, laboratories, hospital spaces, computer rooms, telecommunication rooms, data rooms
   And Apply sealant to both sides of penetration to completely fill annular space between sleeve and conduit.

3.8 FIELD QUALITY CONTROL

A. See DDC General Conditions
Requirements: Field inspecting, testing, adjusting, and balancing.

B. Inspect installed firestopping for compliance with specifications and submitted schedule.

3.9 CLEANING

A. See DDC General Conditions.

B. Clean adjacent surfaces of firestopping materials.

3.10 PROTECTION OF FINISHED WORK

A. see DDC General Conditions.

B. Protect adjacent surfaces from damage by material installation.

3.11 SCHEDULES

PIPE HANGER SPACING		
PIPE MATERIAL	MAXIMUM HANGER SPACING Feet (m)	HANGER ROD DIAMETER Inches (mm)
ABS (All sizes)	4 (1.2)	3/8 (9)
Aluminum (All sizes)	10 (3)	1/2 (13)
Cast Iron (All Sizes)	5 (1.5)	5/8 (15)
Cast Iron (All Sizes) with 10 foot (3 m) length of pipe	10 (3)	5/8 (15)
CPVC, 1 inch (25 mm) and smaller	3 (0.9)	1/2 (13)
CPVC, 1-1/4 inches (32 mm) and larger	4 (1.2)	1/2 (13)
Copper Tube, 1-1/4 inches (32 mm) and smaller	6 (1.8)	1/2 (13)
Copper Tube, 1-1/2 inches (38 mm) and larger	10 (3)	1/2 (13)
Fiberglass	4 (1.2)	1/2 (13)
Glass	8 (2.4)	1/2 (13)
Polybutylene	2.67 (0.8)	3/8 (9)
Polypropylene	4 (1.2)	3/8 (9)
PVC (All Sizes)	4 (1.2)	3/8 (9)
Steel, 3 inches (75 mm) and smaller	12 (3.7)	1/2 (13)
Steel, 4 inches (100 mm) and larger	12 (3.7)	5/8 (15)

END OF SECTION

SECTION 22 07 00

PLUMBING INSULATION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Plumbing piping insulation, jackets and accessories.
2. Plumbing equipment insulation, jackets and accessories.

B. Related Sections:
1. Section 07 84 13 – Penetrating Firestopping: Product requirements for firestopping for placement by this section.
2. Section 09 91 00 - Painting Execution requirements for painting insulation jackets and covering specified by this section.

1.2 REFERENCES

A. ASTM International:
1. ASTM A167 - Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
2. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
3. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric).
4. ASTM C195 - Standard Specification for Mineral Fiber Thermal Insulating Cement.
5. ASTM C449/C449M - Standard Specification for Mineral Fiber Hydraulic-Setting Thermal Insulating and Finishing Cement.
6. ASTM C450 - Standard Practice for Prefabrication and Field Fabrication of Thermal Insulating Fitting Covers for NPS Piping, Vessel Lagging, and Dished Head Segments.
7. ASTM C533 - Standard Specification for Calcium Silicate Block and Pipe Thermal Insulation.
8. ASTM C534 - Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form.
9. ASTM C547 - Standard Specification for Mineral Fiber Pipe Insulation.
10. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications.
11. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
12. ASTM C585 - Standard Practice for Inner and Outer Diameters of Rigid Thermal Insulation for Nominal Sizes of Pipe and Tubing (NPS System).
13. ASTM C591 - Standard Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation.
14. ASTM C612 - Standard Specification for Mineral Fiber Block and Board

Thermal Insulation.

15. ASTM C795 - Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel.
16. ASTM C921 - Standard Practice for Determining the Properties of Jacketing Materials for Thermal Insulation.
17. ASTM C1136 - Standard Specification for Flexible, Low Permeance Vapor Retarders for Thermal Insulation.
18. ASTM D1784 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
19. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
20. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.

B. National Fire Protection Association:
1. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.

C. Underwriters Laboratories Inc.:
1. UL 723 - Tests for Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

A. See DDC General Conditions.

B. Product Data: Submit product description, thermal characteristics and list of materials and thickness for each service, and location.

C. Samples: Submit two samples of representative size illustrating each insulation type.

D. Manufacturer's Installation Instructions: Submit manufacturers published literature indicating proper installation procedures.

E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.4 QUALITY ASSURANCE

A. Test pipe insulation for maximum flame spread index of 25 and maximum smoke developed index of not exceeding 450 in accordance with ASTM E84, UL 723, and NFPA 255.

B. Pipe insulation manufactured in accordance with ASTM C585 for inner and outer diameters.

C. Factory fabricated fitting covers manufactured in accordance with ASTM C450.

D. Perform Work in accordance with NY & NYC standard.

E. Maintain one copy of each document on site.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section

with minimum 3 years documented experience.

B. Applicator: Company specializing in performing Work of this section with minimum 3 years documented experience.

1.6 PRE-INSTALLATION MEETINGS

A. See DDC General Conditions.

B. Convene minimum one week prior to commencing work of this section.

1.7 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions.

B. Accept materials on site in original factory packaging, labeled with manufacturer's identification, including product density and thickness.

C. Protect insulation from weather and construction traffic, dirt, water, chemical, and damage, by storing in original wrapping.

1.8 ENVIRONMENTAL REQUIREMENTS

A. See DDC General Conditions.

B. Install insulation only when ambient temperature and humidity conditions are within range recommended by manufacturer.

C. Maintain temperature before, during, and after installation for minimum period of 24 hours.

1.9 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.10 WARRANTY

A. See DDC General Conditions.

B. Furnish 10 year manufacturer warranty for man made fiber.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Manufacturers for Glass Fiber and Mineral Fiber Insulation Products:
1. CertainTeed.
2. Knauf.
3. Johns Manville.
4. Owens-Corning.

5. Approved Equal

2.2 PIPE INSULATION

A. TYPE P-1: ASTM C547, molded glass fiber pipe insulation. Conform to ASTM C795 for application on Austenitic stainless steel.
   1. Thermal Conductivity: 0.23 at 75 degrees F.
   2. Operating Temperature Range: 0 to 850 degrees F.
   3. Vapor Barrier Jacket: ASTM C1136, Type I, factory applied reinforced foil kraft with self-sealing adhesive joints.
   4. Jacket Temperature Limit: minus 20 to 150 degrees F.

2.3 PIPE INSULATION ACCESSORIES

A. Vapor Retarder Lap Adhesive: Compatible with insulation.

B. Covering Adhesive Mastic: Compatible with insulation.

C. Piping 1-1/2 inches diameter and smaller: Galvanized steel insulation protection shield. MSS SP-69, Type 40. Length: Based on pipe size and insulation thickness.

D. Piping 2 inches diameter and larger: Wood insulation saddle, hard maple. Inserts length: not less than 6 inches long, matching thickness and contour of adjoining insulation.

E. Closed Cell Elastomeric Insulation Pipe Hanger: Polyurethane insert with aluminum stainless steel jacket single piece construction with self adhesive closure. Thickness to match pipe insulation.

F. Tie Wire: 0.048 inch stainless steel with twisted ends on maximum 12 inch centers.

G. Mineral Fiber Hydraulic-Setting Thermal Insulating and Finishing Cement: ASTM C449/C449M.

H. Insulating Cement: ASTM C195; hydraulic setting on mineral wool.

I. Adhesives: Compatible with insulation.

2.4 EQUIPMENT INSULATION

A. TYPE E-1: ASTM C553; glass fiber, flexible or semi-rigid, noncombustible.
   1. Thermal Conductivity: 0.24 at 75 degrees F
   2. Operating Temperature Range: 0 to 450 degrees F
   3. Density: 2.3pound per cubic foot

PART 3 EXECUTION

3.1 EXAMINATION

A. See DDC General Conditions.

B. Verify piping and equipment has been tested before applying insulation materials.

C. Verify surfaces are clean and dry, with foreign material removed.

3.2 INSTALLATION - PIPING SYSTEMS

A. Piping Exposed to View in Finished Spaces: Locate insulation and cover seams in least visible locations.

B. Continue insulation through penetrations of building assemblies or portions of assemblies having fire resistance rating of one hour or less. Provide intumescent firestopping when continuing insulation through assembly. Finish at supports, protrusions, and interruptions. Refer to Section 07 84 13 for penetrations of assemblies with fire resistance rating greater than one hour.

C. Piping Systems Conveying Fluids Below Ambient Temperature:
1. Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, pump bodies,and expansion joints.

D. Hot Piping Systems less than 140 degrees F
1. Furnish factory-applied or field-applied standard jackets. Secure with outward clinch expanding staples or pressure sensitive adhesive system on standard factory-applied jacket and butt strips or both.
2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with glass cloth and adhesive or PVC fitting covers.
3. Do not insulate unions and flanges at equipment, but bevel and seal ends of insulation at such locations.

E. Inserts and Shields:
1. Piping 1-1/2 inches Diameter and Smaller: Install [galvanized] steel shield between pipe hanger and insulation.
2. Piping 2 inches Diameter and Larger: Install insert between support shield and piping and under finish jacket.
   a. Insert Configuration: Minimum 6 inches long, of thickness and contour matching adjoining insulation; may be factory fabricated.
   b. Insert Material: Compression resistant insulating material suitable for planned temperature range and service.
3. Piping Supported by Roller Type Pipe Hangers: Install galvanized steel shield between roller and inserts.

F. Pipe Exposed in Mechanical Equipment Rooms or Finished Spaces (less than 10 feet above finished floor): Finish with canvas jacket sized for finish painting PVC jacket and fitting covers ABS jacket and fitting covers aluminum jacket.

G. Heat Traced Piping Interior to Building: Insulate fittings, joints, and valves with insulation of like material, thickness, and finish as adjoining pipe. Size large enough to enclose pipe and heat tracer.

H. Heat Traced Piping Exterior to Building: Insulate fittings, joints, and valves with insulation of like material, thickness, and finish as adjoining pipe. Size insulation large enough to enclose pipe and heat tracer. Cover with stainless steel jacket with seams located at 3 or 9 o'clock position on side of horizontal piping with overlap facing down to shed water.

I. Prepare pipe insulation for finish painting. Refer to Section 09 91 00.

3.3 INSTALLATION - EQUIPMENT

A. Factory Insulated Equipment: Do not insulate.

B. Exposed Equipment: Locate insulation and cover seams in least visible locations.

C. Fill joints, cracks, seams, and depressions with bedding compound to form smooth surface. On cold equipment, use vapor retarder cement.

D. Equipment Containing Fluids Below Ambient Temperature:
1. Insulate entire equipment surfaces.
2. Apply insulation close to equipment by grooving, scoring, and beveling insulation. Fasten insulation to equipment with studs, pins, clips, adhesive, wires, or bands.
3. Furnish factory-applied or field-applied vapor retarder jackets. Secure factory-applied jackets with pressure sensitive adhesive self-sealing longitudinal laps and butt strips. Secure field-applied jackets with outward clinch expanding staples and seal staple penetrations with vapor retarder mastic.
4. Finish insulation at supports, protrusions, and interruptions.

E. Equipment Containing Fluids 140 degrees F Or Less:
1. Do not insulate flanges and unions, but bevel and seal ends of insulation.
2. Install insulation with factory-applied or field applied jackets, with or without vapor barrier. Finish with glass cloth and adhesive.
3. Finish insulation at supports, protrusions, and interruptions.

F. Equipment Containing Fluids Over 140 degrees F
1. Insulate flanges and unions with removable sections and jackets.
2. Install insulation with factory-applied or field applied jackets, with or without vapor barrier. Finish with glass cloth and adhesive.
3. Finish insulation at supports, protrusions, and interruptions.

G. Equipment in Mechanical Equipment Rooms or Finished Spaces: Finish with canvas jacket sized for finish painting, PVC jacket and fitting covers, aluminum jacket, stainless steel jacket.

3.4 SCHEDULES

A. Water Supply Services Piping Insulation Schedule:

PIPING SYSTEM	INSULATION TYPE	PIPE SIZE	INSULATION THICKNESS inches
Domestic Hot Water Supply and Recirculation	P-1	1-1/4 inches and smaller	1.0

Domestic Hot Water Supply and Recirculation systems with domestic water temperature maintenance cable	P-1	1 inch and smaller	1.0 1.5 2.0
Domestic Cold Water	P-1	1-1/4 inches and smaller 1-1/2 inches and larger	0.5 1.0

B. Drainage Services Piping Insulation Schedule:

PIPING SYSTEM	INSULATION TYPE	PIPE SIZE	INSULATION THICKNESS inches
Sanitary Sewer Piping (horizontal and vertical above ground within building when PVC piping is used)	P-1	All sizes	0.5 1.0

END OF SECTION

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SECTION 220800 - COMMISSIONING OF PLUMBING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 22, and other Division 01 Specification Sections, apply to this section.

B. The OPR and BOD documentation are included for reference information only.

C. Division 01 section 'LEED Requirements' for additional LEED requirements.

1.2 SUMMARY

A. This section includes commissioning process requirements for Plumbing systems, assemblies, and equipment.

B. Related Sections:

1. Division 01 Section "General Commissioning Requirements" for general commissioning process requirements.

1.3 DESCRIPTION

A. Commissioning: Commissioning is a systematic process of ensuring that all building systems, including the mechanical and electrical systems, have been installed in the prescribed manner, are functionally checked and capable of being operated and maintained to perform with the design intent and have documentation to support proper installation and operation. The Commissioning Agent (CxA) shall provide the City with an unbiased, objective view of the system's installation, operation and performance. This process does not eliminate or reduce the responsibility of each system designer to provide a complete design or installing subcontractors to provide a finished product. Commissioning is intended to enhance the quality of each system installation, startup and transfer to beneficial use by the City.

B. Commissioning during the construction phase is intended to achieve the following specific objectives, according to the Contract Documents:

1. Verify that applicable equipment and systems are installed according to the manufacturer's recommendations and to industry accepted minimum standards and that they receive adequate operational checkout by installing contractors.
2. Verify and document proper performance of equipment and systems.
3. Verify that Operation & Maintenance documentation is complete and transferred to City.
4. Verify that the City's operating personnel are adequately trained.
5. Verify a contract is in place for a post occupancy review with O&M staff within 10 months after Substantial Completion.

C. The Commissioning process shall be a team effort and encompass, as well as coordinate, the traditionally separate functions of system documentation, system installation, equipment startup, control system calibration, testing, balancing and verification and performance checkouts.

D. The CxA will work closely with the construction team, cooperating on and coordinating all Cx activities with the CM, Commissioner's representative, Trade Contractors, subcontractors, manufacturers and equipment suppliers.

E. The Cx process shall not reduce the responsibility of the CM to comply with the Contract Documents.

1.4 DEFINITIONS

A. Refer to Division 01 Section "General Commissioning Requirements" for definitions.

1.5 SUBMITTALS

A. Refer to Division 01 Section "General Commissioning Requirements" for CxA's role.

B. Refer to DDC General Conditions for specific requirements. In addition, provide the following:

1. Certificates of readiness

2. Certificates of completion of installation, prestart, and startup activities.

3. O&M manuals

4. Test reports

1.6 QUALITY ASSURANCE

A. Test Equipment Calibration Requirements: Contractors will comply with test manufacturer's calibration procedures and intervals. Recalibrate test instruments immediately after instruments have been repaired resulting from being dropped or damaged. Affix calibration tags to test instruments. Furnish calibration records to CxA upon request.

1.7 COORDINATION

A. Refer to Division 01 Section "General Commissioning Requirements" for requirements pertaining to coordination during the commissioning process.

PART 2 - PRODUCTS

2.1 TEST EQUIPMENT

A. All standard testing equipment required to perform startup, initial checkout and functional performance testing shall be provided by the contractor for the equipment being tested. For example, the plumbing contractor of Division 22 shall ultimately be responsible for all standard testing equipment for the plumbing system in Division 22, except for equipment

specific to and used by TAB in their commissioning responsibilities. A sufficient quantity of two-way radios shall be provided by each subcontractor.

B. Special equipment, tools and instruments (specific to a piece of equipment and only available from vendor) required for testing shall be left on site, except for stand-alone data logging equipment that may be used by the CxA.

C. Proprietary test equipment and software required by any equipment manufacturer for programming and/or start-up, whether specified or not, shall be provided by the manufacturer of the equipment. Manufacturer shall provide the test equipment, demonstrate its use, and assist in the commissioning process as needed. Proprietary test equipment (and software) shall become the property of the City upon completion of the commissioning process.

D. Data logging equipment and software required to test equipment, if provided by the CxA, shall not become the property of the City.

E. All testing equipment shall be of sufficient quality and accuracy to test and/or measure system performance with the tolerances specified in the Specifications. If not otherwise noted, the following minimum requirements apply: Temperature sensors and digital thermometers shall have a certified calibration within the past year to an accuracy of 0.5°F and a resolution of + or - 0.1°F. Pressure sensors shall have an accuracy of + or - 2.0% of the value range being measured (not full range of meter) and have been calibrated within the last year.

PART 3 - EXECUTION

3.1 GENERAL DOCUMENTATION REQUIREMENTS

A. With assistance from the installing contractors, the CxA will prepare Pre-Functional Checklists for commissioned components, equipment, and systems

B. Red-lined Drawings:
1. The contractor will verify all equipment, systems, instrumentation, wiring and components are shown correctly on red-lined drawings.
2. Preliminary red-lined drawings must be made available to the Commissioning Team for use prior to the start of Functional Performance Testing.
3. Changes, as a result of Functional Testing, must be incorporated into the final as-built drawings, which will be created from the red-lined drawings.
4. The contracted party, as defined in the Contract Documents will create the as-built drawings.

C. Operation and Maintenance Data:
1. Contractor will provide a copy of O&M literature within 45 days of each submittal acceptance for use during the commissioning process for all commissioned equipment and systems.
2. The CxA will review the O&M literature once for conformance to project requirements.

3. The CxA will receive a copy of the final approved O&M literature once corrections have been mad by the contractor.

D. Demonstration and Training:
1. Contractor will provide demonstration and training as required by the specifications.
2. A complete training plan and schedule must be submitted by the contractor to the CxA four weeks (4) prior to any training.
3. A training agenda for each training session must be submitted to the CxA one (1) week prior the training session.
4. The CxA shall be notified at least 72 hours in advance of scheduled tests so that testing may be observed by the CxA and Commissioner's representative. A copy of the test record shall be provided to the CxA, Commissioner.
5. Engage a Factory-authorized service representative to train City's maintenance personnel to adjust, operate, and maintain specific equipment.
6. Train City's maintenance personnel on procedures and schedules for starting and stopping, trouble shooting, servicing, and maintaining equipment.
7. Review data in O&M Manuals.

3.2 CONTRACTOR'S RESPONSIBILITIES

A. Perform commissioning tests at the direction of the CxA.

B. Attend construction phase controls coordination meetings.

C. Attend domestic water balancing review and coordination meetings.

D. Participate in Plumbing systems, assemblies, equipment, and component maintenance orientation and inspection as directed by the CxA.

E. Provide information requested by the CxA for final commissioning documentation.

F. Include requirements for submittal data, operation and maintenance data, and training in each purchase order or sub-contract written.

G. Prepare preliminary schedule for Plumbing system orientations and inspections, operation and maintenance manual submissions, training sessions, pipe and duct system testing, flushing and cleaning, equipment start-up, testing and balancing and task completion for City. Distribute preliminary schedule to commissioning team members.

H. Update schedule as required throughout the construction period.

I. During the startup and initial checkout process, execute the related portions of the prefunctional checklists for all commissioned equipment.

J. Assist the CxA in all verification and functional performance tests.

K. Provide measuring instruments and logging devices to record test data, and provide data acquisition equipment to record data for the complete range of testing for the required test period.

L. Gather operation and maintenance literature on all equipment, and assemble in binders as required by the specifications. Submit to CxA (45) days after submittal acceptance.

M. Coordinate with the CxA to provide (48) hour advance notice so that the witnessing of equipment and system start-up and testing can begin.

N. Notify the CxA a minimum of (2) weeks in advance of the time for start of the balancing work. Attend the initial balancing meeting for review of the balancing procedures.

O. Participate in, and schedule vendors and contractors to participate in the training sessions.

P. Provide written notification to the CM/GCC and CxA that the following work has been completed in accordance with the contract documents, and that the equipment, systems, and sub-system are operating as required.
1. Plumbing equipment including backflow preventers, domestic water heaters, pumps, plumbing fixtures, and all other equipment furnished under Division 22 and contract document.
2. Gas piping, sanitary waste and vent piping, storm drainage piping, sump pumps and , sewage ejectors.

Q. The equipment supplier shall document the performance of his equipment.

R. Provide a complete set of red-lined drawings to the CxA prior to the start of Functional Performance Testing.

S. Balance Contractor

1. Attend initial commissioning coordination meeting scheduled by the CxA.
2. Submit the site specific balancing plan to the CxA and Commissioner for review and acceptance.
3. Attend the balancing review meeting scheduled by the CxA. Be prepared to discuss the procedures that shall be followed in balancing the Plumbing system.
4. At the completion of the balancing work, and the submittal of the final balancing report, notify the Plumbing contractor and the CM/GC.
5. At the completion of balancing work, and the submittal of the final balancing report, notify the Plumbing Contractor and the CM/GC.
6. Participate in verification of the balancing report, which will consist of repeating measurements contained in the balancing reports. Assist in diagnostic purposes when directed.

T. Provide training of the City's operating staff using expert qualified personnel, as specified.

U. Equipment Suppliers

1. Provide all requested submittal data, including detailed start-up procedures and specific responsibilities of the City, to keep warranties in force.
2. Assist in equipment testing per agreements with contractors.
3. Provide information requested by CxA regarding equipment sequence of operation and testing procedures.

V. Refer to Division 01 Section "General Commissioning Requirements" for additional contractor responsibilities.

3.3 CITY'S RESPONSIBILITIES

A. Refer to Division 01 Section "General Commissioning Requirements" for City's Responsibilities.

3.4 DESIGN PROFESSIONAL'S RESPONSIBILITIES

A. Refer to Division 01 Section "General Commissioning Requirements" for Design Professional's Responsibilities.

3.5 CxA'S RESPONSIBILITIES

A. Refer to Division 01 Section "General Commissioning Requirements" for CxA's Responsibilities.

3.6 TESTING PREPARATION

A. Certify in writing to the CxA that Plumbing systems, subsystems, and equipment have been installed, calibrated, and started and are operating according to the Contract Documents.

B. Certify in writing to the CxA that Plumbing instrumentation and control systems have been completed and calibrated, that they are operating according to the Contract Documents, and that pretest set points have been recorded.

C. Certify in writing that balancing procedures have been completed and that testing, adjusting, and balancing reports have been submitted, discrepancies corrected, and corrective work approved.

D. Set systems, subsystems, and equipment into operating mode to be tested (e.g., normal shutdown, normal auto position, normal manual position, unoccupied cycle, emergency power, and alarm conditions).

E. Inspect and verify the position of each device and interlock identified on checklists.

F. Check safety cutouts, alarms, and interlocks with smoke control and life-safety systems during each mode of operation.

G. Testing Instrumentation: Install measuring instruments and logging devices to record test data as directed by the CxA.

3.7 DOMESTIC WATER BALANCING VERIFICATION

A. Prior to performance of Domestic Water Balancing work, provide copies of reports, sample forms, checklists, and certificates to the CxA.

B. Notify the CxA at least ten (10) days in advance of testing and balancing Work, and provide access for the CxA to witness balancing Work.

C. Provide technicians, instrumentation, and tools to verify testing and balancing of Plumbing systems at the direction of the CxA.

1. The CxA will notify testing and balancing subcontractor ten (10) days in advance of the date of field verification. Notice will not include data points to be verified.
2. The balancing subcontractor shall use the same instruments (by model and serial number) that were used when original data were collected.
3. Failure of an item includes a deviation of more than 10 percent. Failure of more than 10 percent of selected items shall result in rejection of final balancing report.
4. Remedy the deficiency and notify the CxA so verification of failed portions can be performed.

3.8 GENERAL TESTING REQUIREMENTS

A. Provide technicians, instrumentation, and tools to perform commissioning test at the direction of the CxA.

B. Scope of Plumbing testing shall include entire Plumbing installation. Testing shall include measuring capacities and effectiveness of operational and control functions.

C. Test all operating modes, interlocks, control responses, and responses to abnormal or emergency conditions, and verify proper response of building automation system controllers and sensors.

D. The CxA along with the Plumbing contractor, balancing subcontractor shall prepare detailed testing plans, procedures, and checklists for Plumbing systems, subsystems, and equipment.

E. Tests will be performed using design conditions whenever possible.

F. Simulated conditions may need to be imposed using an artificial load when it is not practical to test under design conditions. Before simulating conditions, calibrate testing instruments. Provide equipment to simulate loads. Set simulated conditions as directed by the CxA and document simulated conditions and methods of simulation. After tests, return settings to normal operating conditions.

G. The CxA may direct that set points be altered when simulating conditions is not practical.

H. The CxA may direct that sensor values be altered with a signal generator when design or simulating conditions and altering set points are not practical.

I. If tests cannot be completed because of a deficiency outside the scope of the Plumbing system, document the deficiency and report it to the City. After deficiencies are resolved, reschedule tests.

J. If the testing plan indicates specific seasonal testing, complete appropriate initial performance tests and documentation and schedule seasonal tests.

3.9 PLUMBING SYSTEMS, SUBSYSTEMS, AND EQUIPMENT TESTING PROCEDURES

A. Equipment Testing and Acceptance Procedures: Testing requirements are specified in individual Division 22 sections. Provide submittals, test data, inspector record, and certifications to the CxA.

B. Plumbing Instrumentation and Control System Testing: Field testing plans and testing requirements are specified in Division 22. Assist the CxA with preparation of testing plans.

C. Pipe system cleaning, flushing, hydrostatic tests, and chemical treatment: Test requirements are specified in Division 22 piping Sections. Plumbing Contractor shall prepare a pipe system cleaning, flushing, and hydrostatic testing plan. Provide cleaning, flushing, testing, and treating plan and final reports to the CxA.

D. Plumbing Distribution System Testing: Provide technicians, instrumentation, tools, and equipment to test performance of air, fuel gas, sanitary waste and vent piping, storm drainage piping, sprinkler and domestic water distribution systems.

E. Vibration and Sound Tests: Provide technicians, instrumentation, tools, and equipment to test performance of vibration isolation and seismic controls.

F. The work included in the commissioning process involves a complete and thorough evaluation of the operation and performance of all components, systems and sub-systems. The systems shall be evaluated shall include, but not limited to:

1. Domestic Hot Water System
2. Fuel Gas System for Boilers and DHWH
3. Hot Water Circulating Pump

3.10 DEFICIENCIES/NON-CONFORMANCE, COST OF RETESTING, FAILURE DUE TO MANUFACTURER DEFECT

A. Refer to Division 01 Section "General Commissioning Requirements" for requirements pertaining to deficiencies/non-conformance, cost of retesting, or failure due to manufacturer defect.

3.11 APPROVAL

A. Refer to Division 01 Section "General Commissioning Requirements" for approval procedures.

3.12 DEFERRED TESTING

A. Refer to Division 01 Section "General Commissioning Requirements" for requirements pertaining to deferred testing.

3.13 OPERATION AND MAINTENANCE MANUALS

A. The Operation and Maintenance Manuals shall conform to Contract Documents requirements as stated in Division 01.

B. Refer to Division 01 Section "General Commissioning Requirements" for the AE and CxA roles in the Operation and Maintenance Manual contribution, review and approval process.

3.14 TRAINING OF CITY PERSONNEL

A. Refer to Division 01 Section "General Commissioning Requirements" for requirements pertaining to training.

B. Plumbing Contractor. The mechanical contractor shall have the following training responsibilities:

1. Provide the CxA with a training plan two weeks before the planned training.

2. Provide designated City personnel with comprehensive orientation and training in the understanding of the systems and the operation and maintenance of each piece of Plumbing equipment.
3. During any demonstration, should the system fail to perform in accordance with the requirements of the O&M manual or sequence of operations, the system will be repaired or adjusted as necessary and the demonstration repeated.
4. The appropriate trade or manufacturer's representative shall provide the instructions on each major piece of equipment. This person may be the start-up technician for the piece of equipment, the installing contractor or manufacturer's representative. Practical building operating expertise as well as in-depth knowledge of all modes of operation of the specific piece of equipment is required. More than one party may be required to execute the training.
5. The training sessions shall follow the outline in the Table of Contents of the operation and maintenance manual and illustrate whenever possible the use of the O&M manuals for reference.
6. Hands-on training shall include start-up, operation in all modes possible, including manual, shut-down and any emergency procedures and preventative maintenance for all pieces of equipment.
7. The plumbing contractor shall fully explain and demonstrate the operation, function and overrides of any local packaged controls.
8. Training shall occur after functional testing is complete, unless approved otherwise by the City.

END OF SECTION 220800

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SECTION 22 11 00

FACILITY WATER DISTRIBUTION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Domestic water piping, above grade.
2. Unions and flanges.
3. Valves.
4. Pipe hangers and supports.
5. Pressure gages.
6. Pressure gage taps.
7. Thermometers.
8. Flow control valves.
9. Hose bibs.
10. Water hammer arrestors.
11. Trap primers

B. Related Sections:
1. Section 03 30 00 - Cast-In-Place Concrete: Execution requirements for placement of concrete house keeping pads specified by this section.
2. Section 07 84 13 - Firestopping: Product requirements for firestopping for placement by this section.
3. Section 08 31 13 - Access Doors and Frames: Product requirements for access doors for placement by this section.
4. Section 09 91 00 - Painting and Coating: Product and execution requirements for painting specified by this section.
5. Section 22 05 03 - Pipes and Tubes for Plumbing Piping and Equipment: Product and installation requirements for piping materials applying to various system types.
6. Section 22 05 23 - General-Duty Valves for Plumbing Piping: Product requirements for valves for placement by this section.
7. Section 22 05 29 - Hangers and Supports for Plumbing Piping and Equipment: Product requirements for pipe hangers and supports [and firestopping] for placement by this section.
8. Section 22 07 00 - Plumbing Insulation: Product and execution requirements for pipe insulation.
9. Section 26 05 03 - Equipment Wiring Connections: Execution requirements for electric connections to equipment specified by this section.

1.2 REFERENCES

A. American National Standards Institute:
1. ANSI Z21.22 - Relief Valves for Hot Water Supply Systems.

B. American Society of Mechanical Engineers:
1. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings.
2. ASME B16.22 - Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.
3. ASME B16.26 - Cast Copper Alloy Fittings for Flared Copper Tubes.
4. ASME B31.9 - Building Services Piping.
5. ASME B40.1 - Gauges - Pressure Indicating Dial Type - Elastic Element.
6. ASME Section VIII - Boiler and Pressure Vessel Code - Pressure Vessels.

7. ASME Section IX - Boiler and Pressure Vessel Code - Welding and Brazing Qualifications.

C. American Society of Sanitary Engineering:
1. ASSE 1010 - Performance Requirements for Water Hammer Arresters.
2. ASSE 1011 - Performance Requirements for Hose Connection Vacuum Breakers.
3. ASSE 1012 - Performance Requirements for Backflow Preventer with Intermediate Atmospheric Vent.
4. ASSE 1013 - Performance Requirements for Reduced Pressure Principle Backflow Preventers and Reduced Pressure Fire Protection Principle Backflow Preventers.
5. ASSE 1019 - Performance Requirements for Vacuum Breaker Wall Hydrants, Freeze Resistant, Automatic Draining Type.
6. ASSE 5013 - Performance Requirements for Reduced Pressure Principle Backflow Preventers (RP) and Reduced Pressure Fire Protection Principle Backflow Preventers (RFP).
7. ASSE 5015 - Performance Requirements for Testing Double Check Backflow Prevention Assemblies (DC) and Double Check Fire Protection Backflow Prevention Assemblies (RPDF).

D. ASTM International:
1. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
2. ASTM A234/A234M - Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service.
3. ASTM A395/A395M - Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures.
4. ASTM A536 - Standard Specification for Ductile Iron Castings.
5. ASTM B32 - Standard Specification for Solder Metal.
6. ASTM B42 - Standard Specification for Seamless Copper Pipe, Standard Sizes.
7. ASTM B88 - Standard Specification for Seamless Copper Water Tube.
8. ASTM B584 - Standard Specification for Copper Alloy Sand Castings for General Applications.
9. ASTM E1 - Standard Specification for ASTM Thermometers.
10. ASTM E77 - Standard Test Method for Inspection and Verification of Thermometers.
11. ASTM F708 - Standard Practice for Design and Installation of Rigid Pipe Hangers.

E. American Welding Society:
1. AWS A5.8 - Specification for Filler Metals for Brazing and Braze Welding.

F. American Water Works Association:
1. AWWA C104 - American National Standard for Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.
2. AWWA C105 - American National Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems.
3. AWWA C110 - American National Standard for Ductile-Iron and Grey-Iron Fittings, 3 in. through 48 in. (75 mm through 1200 mm), for Water and Other Liquids.
4. AWWA C111 - American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
5. AWWA C151 - American National Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water.
6. AWWA C651 - Disinfecting Water Mains.
7. AWWA C700 - Cold-Water Meters - Displacement Type, Bronze Main Case.
8. AWWA C701 - Cold-Water Meters - Turbine Type, for Customer Service.
9. AWWA C702 - Cold-Water Meters - Compound Type.

10. AWWA C706 - Direct-Reading, Remote-Registration Systems for Cold-Water Meters.
11. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe, 4 in. through 12 in., for Water Distribution.
12. AWWA C901 - Polyethylene (PE) Pressure Pipe and Tubing, 1/2 in. through 3 in., for Water Service.
13. AWWA C950 - Fiberglass Pressure Pipe.
14. AWWA M6 - Water Meters - Selection, Installation, Testing, and Maintenance.

G. Manufacturers Standardization Society of the Valve and Fittings Industry:
1. MSS SP 58 - Pipe Hangers and Supports - Materials, Design and Manufacturer.
2. MSS SP 67 - Butterfly Valves.
3. MSS SP 69 - Pipe Hangers and Supports - Selection and Application.
4. MSS SP 70 - Cast Iron Gate Valves, Flanged and Threaded Ends.
5. MSS SP 71 - Cast Iron Swing Check Valves, Flanged and Threaded Ends.
6. MSS SP 78 - Cast Iron Plug Valves, Flanged and Threaded Ends.
7. MSS SP 80 - Bronze Gate, Globe, Angle and Check Valves.
8. MSS SP 85 - Cast Iron Globe & Angle Valves, Flanged and Threaded.
9. MSS SP 89 - Pipe Hangers and Supports - Fabrication and Installation Practices.
10. MSS SP 110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.

H. National Electrical Manufacturers Association:
1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

I. Plumbing and Drainage Institute:
1. PDI WH201 - Water Hammer Arrester Standard.

J. Underwriters Laboratories Inc.:
1. UL 393 - Indicating Pressure Gauges for Fire-Protection Service.
2. UL 404 - Gauges, Indicating Pressure, for Compressed Gas Service.

1.3 SUBMITTALS

A. See DDC General Conditions.

B. Product Data:
1. Piping: Submit data on pipe materials, fittings, and accessories. Submit manufacturer's catalog information.
2. Valves: Submit manufacturers catalog information with valve data and ratings for each service.
3. Hangers and Supports: Submit manufacturers catalog information including load capacity.
4. Domestic Water Specialties: Submit manufacturers catalog information, component sizes, rough-in requirements, service sizes, and finishes.
5. Pumps: Submit pump type, capacity, certified pump curves showing pump performance characteristics with pump and system operating point plotted. Include NPSH curve when applicable. Include electrical characteristics and connection requirements.

C. Manufacturer's Installation Instructions: Submit installation instructions for pumps, valves and accessories.

D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.4 CLOSEOUT SUBMITTALS

A. See DDC General Conditions.

B. Project Record Documents: Record actual locations of valves and equipment.

C. Operation and Maintenance Data: Submit spare parts list, exploded assembly views and recommended maintenance intervals.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with State of New York Plumbing Codes and standards.

1.6 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions.

B. Accept valves and equipment on site in shipping containers with labeling in place. Inspect for damage.

C. Provide temporary protective coating on cast iron and steel valves.

D. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.

E. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the Work, and isolating parts of completed system.

1.7 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.8 WARRANTY

A. See DDC General Conditions.

B. Furnish five year manufacturer warranty for domestic water piping.

1.9 EXTRA MATERIALS

A. See DDC General Conditions

B. Furnish two packing kits for each size valve, two loose keys for outside hose bibs and two pump seals for each pump model.

PART 2 PRODUCTS

2.1 DOMESTIC WATER PIPING, ABOVE GRADE

A. Copper Tubing: ASTM B88, Type L hard drawn.
1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper and bronze.

2. Joints: Solder, lead free, ASTM B32, 95-5 tin-antimony, or tin and silver, with melting range 430 to 535 degrees F.

2.2 UNIONS AND FLANGES

A. Unions for Pipe 2 inches and Smaller:
1. Ferrous Piping: Class 150, malleable iron, threaded.
2. Copper Piping: Class 150, bronze unions with soldered or brazed joints.
3. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.
4. PVC Piping: PVC.
5. CPVC Piping: CPVC.

B. Flanges for Pipe 2-1/2 inches and Larger:
1. Ferrous Piping: Class 150, forged steel, slip-on flanges.
2. Copper Piping: Class 150, slip-on bronze flanges.
3. PVC Piping: PVC flanges.
4. CPVC Piping: CPVC flanges.
5. Gaskets: 1/16 inch thick preformed neoprene gaskets.

2.3 GATE VALVES

A. 2 inches and Smaller: MSS SP 80, Class 150, bronze body, bronze trim, union bonnet, rising stem, hand-wheel, inside screw with back-seating stem, solid wedge disc, alloy seat rings, solderends.

2.4 GLOBE VALVES

A. 2 inches and Smaller: MSS SP 80, Class 150, bronze body, bronze trim, union bonnet, hand wheel, Buna-N composition disc, solder ends.

2.5 BALL VALVES

A. 2 inches and Smaller: MSS SP 110, 600 psi WOG, two piece bronze body, chrome plated brass ball, full port, teflon seats, blow-out proof stem, solder ends with union, lever handle.

2.6 PLUG VALVES

A. 2 inches and Smaller: MSS SP 78, Class 300, steel construction, round port, full pipe area , pressure lubricated, teflon packing, threaded ends. Furnish one plug valve wrench for every ten plug-valves with minimum of one wrench.

2.7 CHECK VALVES

A. Horizontal Swing Check Valves:

1. 2 inches and Smaller: MSS SP 80, Class 150, bronze body and cap, bronze seat, Buna-N disc, solder ends.
2. 2-1/2 inches and Larger: MSS SP 71, Class 125, cast iron body, bolted cap, bronze or cast iron disc, renewable disc seal and seat, flanged ends.

B. Spring Loaded Check Valves:

1. 2 inches and Smaller: MSS SP 80, Class 250, bronze body, in-line spring lift check, silent closing, Buna-N disc, integral seat, solder ends.
2. 2-1/2 inches and Larger: MSS SP 71, Class 125, globe style, cast iron body, bronze seat, and center guided bronze disc, stainless steel spring and screws, flanged ends.

2.8 PIPE HANGERS AND SUPPORTS

A. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron, adjustable swivel, split ring.

B. Hangers for Cold Pipe Sizes 2 inches and Larger: Carbon steel, adjustable, clevis.

C. Hangers for Hot Pipe, Sizes 2 to 4 inches: Carbon steel, adjustable, clevis.

D. Multiple or Trapeze Hangers: Steel channels with welded supports or spacers and hanger rods.

E. Wall Support for Pipe Sizes 3 inches and Smaller: Cast iron hooks.

F. Wall Support for Pipe Sizes 4 inches and Larger: Welded steel bracket and wrought steel clamps.

G. Vertical Support: Steel riser clamp.

H. Floor Support for Cold Pipe: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.

I. Floor Support for Hot Pipe Sizes 4 inches and Smaller: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.

J. Floor Support for Hot Pipe Sizes 6 inches and Larger: Adjustable cast iron pipe roll and stand, steel screws, and concrete pier or steel support.

K. Copper Pipe Support: Carbon steel ring, adjustable, copper plate.

2.9 PRESSURE GAGES

A. Gage: ASME B40.1, UL 393 with bourdon tube, rotary brass movement, brass socket, front calibration adjustment, black scale on white background.
1. Case: Steel.
2. Bourdon Tube: Brass.
3. Dial Size: 4-1/2 inch diameter.
4. Mid-Scale Accuracy: One percent.
5. Scale: Psi.

2.10 PRESSURE GAGE TAPS

A. Needle Valve: Stainless Steel, 1/4 inch NPT for minimum 300 psi.

B. Ball Valve: Brass, 1/8 inch NPT for 250 psi.

C. Pulsation Damper: Pressure snubber, brass with 1/4 inch NPT connections.

2.11 STEM TYPE THERMOMETERS

A. Thermometer: ASTM E1, red appearing mercury, lens front tube, cast aluminum case with enamel finish.
1. Size: 7-inch scale.
2. Window: Clear Lexan.
3. Stem: Brass, 3/4 inch NPT, 3-1/2 inch long.
4. Accuracy: 2 percent.
5. Calibration: Degrees F.

2.12 HOSE BIBS

A. Interior: Bronze or brass with integral mounting flange, replaceable hexagonal disc, hose thread spout, chrome plated where exposed with lock shield and removable key, integral vacuum breaker in conformance with ASSE 1011.

B. Interior Mixing: Bronze or brass, wall mounted, double service faucet with hose thread spout, integral stops, chrome plated where exposed with hand wheels, and vacuum breaker in conformance with ASSE 1011.

2.13 WATER HAMMER ARRESTORS

A. ASSE 1010; stainless steel construction, bellows type sized in accordance with PDI WH-201.

B. Pre-charged suitable for operation in temperature range 34 to 250 degrees F and maximum 250 psi working pressure.

2.14 TRAP PRIMER

A. Automatic ½" trap primer systems for all interior floor drains.
B. Acceptable Manufacturers
a. J. R. smith Series 2699
b. Josam #88250
c. Zurn #Z-1022
d. PP1
C. Trap primers connected to sink or lavatory wastes not permitted.

PART 2 EXECUTION

3.1 EXAMINATION

A. See DDC General Conditions.

B. Verify excavations are to required grade, dry, and not over-excavated.

3.2 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.

B. Remove scale and dirt, on inside and outside, before assembly.

3.3 INSTALLATION - THERMOMETERS AND GAGES

A. Install one pressure gage for each pump, locate taps before strainers and on suction and discharge of pump; pipe to gage.

B. Install gage taps in piping.

C. Install pressure gages with pulsation dampers. Provide needle valve or ball valve to isolate each gage.

D. Install thermometers in piping systems in sockets in short couplings. Enlarge pipes smaller than 2-1/2 inches for installation of thermometer sockets. Allow clearance from insulation.

E. Provide instruments with scale ranges selected according to service with largest appropriate scale.

F. Install gages and thermometers in locations where they are easily read from normal operating level. Install vertical to 45 degrees off vertical.

G. Adjust gages and thermometers to final angle, clean windows and lenses, and calibrate to zero.

3.4 INSTALLATION - HANGERS AND SUPPORTS

A. Inserts:
1. Provide inserts for placement in concrete forms.
2. Provide inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.
3. Provide hooked rod to concrete reinforcement section for inserts carrying pipe 4 inches and larger.
4. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.

B. Pipe Hangers and Supports:
1. Install in accordance with ASME B31.9.
2. Support horizontal piping as schedule.
3. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
4. Place hangers within 12 inches of each horizontal elbow.
5. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
6. Support vertical piping at every floor. Support riser piping independently of connected horizontal piping.
7. Where piping is installed in parallel and at same elevation, provide multiple pipe or trapeze hangers.
8. Provide copper plated hangers and supports for copper piping.

C. Install hangers and supports in accordance with Section 22 05 29.

3.5 INSTALLATION - BURIED PIPING SYSTEMS

A. Verify connection to existing piping system size, location, and invert are as indicated on Drawings.

B. Establish elevations of buried piping with not less than 3 ft of cover.

C. Remove scale and dirt on inside of piping before assembly.

D. Place bedding material at trench bottom to provide uniform bedding for piping, level bedding materials in one continuous layer not exceeding 4 inches compacted depth; compact to 95 percent maximum density.

E. Install pipe on prepared bedding.

F. Route pipe in straight line.

G. Install pipe to allow for expansion and contraction without stressing pipe or joints.

3.6 INSTALLATION - ABOVE GROUND PIPING

A. Install non-conducting dielectric connections wherever jointing dissimilar metals.

B. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.

C. Install piping to maintain headroom without interfering with use of space or taking more space than necessary.

D. Group piping whenever practical at common elevations.

E. Slope piping and arrange systems to drain at low points.

F. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.

G. Provide access where valves and fittings are not accessible.

H. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.

I. Provide support for utility meters in accordance with requirements of utility companies.

J. Prepare exposed, unfinished pipe, fittings, supports, and accessories ready for finish painting. Refer to Section 09 91 00.

K. Install domestic water piping in accordance with ASME B31.9.

L. Sleeve pipes passing through partitions, walls and floors.

M. Install firestopping at fire rated construction perimeters and openings containing penetrating sleeves and piping..

N. Install unions downstream of valves and at equipment or apparatus connections.

O. Install valves with stems upright or horizontal, not inverted.

P. Install brass male adapters each side of valves in copper piped system. Solder adapters to pipe.

Q. Install gate or ball valves for shut-off and to isolate equipment, part of systems, or vertical risers.

R. Install globe valves for throttling, bypass, or manual flow control services.

S. Provide spring loaded check valves on discharge of water pumps.

T. Install water hammer arrestors complete with accessible isolation valve on hot and cold water supply piping to lavatories, sinks and washing machine outlets.

U. Install air chambers on hot and cold water supply piping to each fixture or group of fixtures (each washroom). Fabricate same size as supply pipe or 3/4 inch minimum, and minimum 18 inches long.

3.7 FIELD QUALITY CONTROL

A. Test domestic water piping system in accordance with applicable codes and authority having jurisdiction

3.8 CLEANING

A. Prior to starting work, verify system is complete, flushed and clean.

B. Verify pH of water to be treated is between 7.4 and 7.6 by adding alkali (caustic soda or soda ash) or acid (hydrochloric).

C. Inject disinfectant, free chlorine in liquid, powder and tablet or gas form, throughout system to obtain residual from 50 to 80 mg/L.

D. Bleed water from outlets to obtain distribution and test for disinfectant residual at minimum 15 percent of outlets.

E. Maintain disinfectant in system for 24 hours.

F. When final disinfectant residual tests less than 25 mg/L, repeat treatment.

G. Flush disinfectant from system until residual concentration is equal to incoming water or 1.0 mg/L.

H. Take samples no sooner than 24 hours after flushing, from 10 percent of outlets and from water entry, and analyze in accordance with AWWA C651.

I. Pipe Hanger Spacing:

PIPE MATERIAL	MAXIMUM HANGER SPACING Feet	HANGER ROD DIAMETER Inches
Copper Tube, 1-1/4 inches and smaller	6	1/2
Copper Tube, 1-1/2 inches and larger	10	1/2
Steel, 3 inches and smaller	12	1/2
Steel, 4 inches and larger	12	5/8

END OF SECTION 22 11 00

SECTION 22 34 00

FUEL-FIRED DOMESTIC WATER HEATERS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Commercial gas-fired water heaters.
   2. Domestic hot water storage tanks.

B. Related Sections:
   1. Section 03 30 00 - Cast-In-Place Concrete: Execution requirements for concrete housekeeping pads specified by this section.
   2. Section 22 07 00 - Plumbing Insulation: Field applied insulation for domestic water heaters.
   3. Section: 22 11 00 - Facility Water Distribution: Supply connections to domestic water heaters.
   4. Section 23 51 00 - Breechings, Chimneys, and Stacks: Execution requirements for breeching, chimney, and stack connections to water heaters specified in this section.
   5. Section 26 05 03 - Equipment Wiring Connections: Execution requirements for electric connections specified by this section.

1.02 REFERENCES

A. American National Standards Institute:
   1. ANSI Z21.10.1 - Gas Water Heaters Vol. I Storage Water Heaters with Input Ratings of 75,000 Btu per Hour or Less.
   2. ANSI Z21.10.3 - Gas Water Heaters - Vol. III Storage, with Input Ratings Above 75,000 Btu per Hour, Circulating and Instantaneous Water Heaters.

B. American Society of Heating, Refrigerating and Air-Conditioning Engineers:
   1. ASHRAE 90.1 - Energy Standard for Buildings Except Low-Rise Residential Buildings.

C. American Society of Mechanical Engineers:
   1. ASME PTC 25 - Pressure Relief Devices.
   2. ASME Section VIII - Boiler and Pressure Vessel Code - Pressure Vessels.

D. National Fire Protection Association:
   1. NFPA 31 - Standard for the Installation of Oil-Burning Equipment.
   2. NFPA 54 - National Fuel Gas Code.
   3. NFPA 58 - Liquefied Petroleum Gas Code.

E. United States Department of Energy:
   1. DOE 10 CFR - Uniform Test Method for Measuring the Energy Consumption of Furnaces.

1.03 SUBMITTALS

A. See DDC General Conditions

B. Shop Drawings: Indicate heat exchanger dimensions, size of taps, and performance data. Indicate dimensions of tanks, tank lining methods, anchors, attachments, lifting points, taps, and drains.

C. Product Data:
   1. Water Heaters: Submit dimensioned drawings of water heaters indicating components and connections to other equipment and piping. Indicate pump type, capacity and power requirements. Submit electrical characteristics and connection locations.
   2. Pumps: Submit certified pump curves showing pump performance characteristics with pump and system operating point plotted. Include NPSH curve when applicable.

D. Manufacturer's Installation Instructions: Submit mounting and support requirements.

E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.04 CLOSEOUT SUBMITTALS

A. See DDC General Conditions

B. Operation and Maintenance Data: Submit replacement part numbers and availability.

1.05 QUALITY ASSURANCE

A. Conform to ASME Section VIII for construction of water heaters. Provide boilers registered with National Board of Boiler and Pressure Vessel Inspectors.

B. Water Heater Performance Requirements: Equipment efficiency not less than prescribed by ASHRAE 90.1 when tested in accordance with ANSI Z21.10.3.

C. Perform Work in accordance with City of New York standards.

D. Maintain one copy of each document on site.

1.06 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years experience.

B. Installer: Company specializing in performing Work of this section with minimum three years experience.

1.07 PRE-INSTALLATION MEETINGS

A. See DDC General Conditions.

B. Convene minimum one week prior to commencing work of this section.

1.08 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions.

B. Accept water heaters on site in original labeled cartons. Inspect for damage.

C. Protect tanks with temporary inlet and outlet caps. Maintain caps in place until installation.

1.09 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.10 WARRANTY

A. See DDC General Conditions

B. Furnish five year manufacturer warranty for domestic water heaters packaged water heating systems.

1.11 EXTRA MATERIALS

A. See DDC General Conditions.

B. Furnish two pump seals.

PART 2 PRODUCTS

2.01 COMMERCIAL GAS FIRED WATER HEATERS

A. Manufactures
   1. A.O. Smith
   2. Laars
   3. Rheem
   4. Approved Equal

B. Furnish materials in accordance with City of New York standards.

C. Type: Automatic, natural gas-fired, vertical storage.

D. Tank: Glass lined welded steel; multiple flue passages, 4 inch diameter inspection port, thermally insulated with minimum 2 inches glass fiber, encased in corrosion-resistant steel jacket; baked-on enamel finish; floor shield and legs.

E. Accessories: Brass water connections and dip tube drain valve, magnesium anode, and ASME rated temperature and pressure relief valve.

F. Approval: By ETL as automatic storage water heater and automatic circulating tank water heater.

G. Controls: Automatic water thermostat with adjustable temperature range from 120 to 180 degrees F Automatic reset high temperature limiting thermostat factory set at 195 degrees F, gas pressure regulator, multi-ribbon or tubular burner, 100 percent safety shut-off pilot and thermocouple, flue baffle and draft hood.

2.02 DOMESTIC HOT WATER STORAGE TANKS

A. Manufactures
   1. A.O. Smith
   2. Laars
   3. Rheem
   4. Approved Equal

B. Furnish materials in accordance with City of New York standards.

C. Tank: Welded steel, ASME labeled for working pressure of 125 psig , steel support saddles, taps for accessories, threaded connections of stainless steel, access manhole.

D. Lining:

1. Corrosion-resistant concrete approximately 3/4 inch thick.

E. Openings: Up to 3 inches, copper-silicone threaded; over 4 inches, flanged.

F. Accessories: Tank drain, water inlet and outlet, thermometer range of 40 to 200 degrees F, ASME pressure relief valve suitable for maximum working pressure.

G. Vertical storage tank:
   1. Overall Length: inches.
   2. Diameter: inches diameter.
   3. Nominal capacity: gal.
   4. Support: Two welded tank saddles not less than 4 inches wide by 1/4 inch thick, mounted on 2 inch pipe stand with minimum four cross braced legs; sheet teflon isolation strip between tank and saddle; dielectric unions between tank and piping system.

H. Insulation: Factory furnished 3 inch glass fiber insulation with steel jacket.

I. Insulation: Refer to Section 22 07 00.

PART 3 EXECUTION

3.01 INSTALLATION

A. Maintain manufacturer's recommended clearances around and over water heaters.

B. Install water heater on concrete housekeeping pad, minimum 3-1/2 inches high and 6 inches larger than water heater base on each side. Refer to Section 03 30 00.

C. Connect natural gas piping in accordance with NFPA 54.

D. Install the following piping accessories. Refer to Section 22 11 00.
   1. On supply:
      a. Thermometer well and thermometer.
      b. Strainer.
      c. Pressure gage.
      d. Shutoff valve.
   2. On return:
      a. Thermometer well and thermometer.
      b. Pressure gage.
      c. Shutoff valve.

E. Install the following piping accessories on natural gas piping connections.
   1. Strainer.
   2. Pressure gage.
   3. Shutoff valve.
   4. Pressure reducing valve.

F. Install discharge piping from relief valves and drain valves to nearest floor drain.

G. Install circulator and diaphragm expansion tank on water heater.

H. Install water heater trim and accessories furnished loose for field mounting.

I. Install electrical devices furnished loose for field mounting.

J. Install control wiring between water heater control panel and field mounted control devices.

K. Connect flue to water heater outlet, full size of outlet. Refer to Section 23 51 00.

L. Domestic Hot Water Storage Tanks:
   1. Provide steel pipe support, independent of building structural framing members.
   2. Clean and flush after installation. Seal until pipe connections are made.

M. Install Work in accordance with City of New York standards.

3.02 SCHEDULES

A. Water Heaters:

Drawing Code:	WH-1
[Manufacturer]	A.O.SMITH
[Model]	GDV-50
Input	42,000 btu/hr
Heating Element Size	
Number of Heating Elements	
Recovery	45 gal/hr
Recovery Temperature Rise	100
Storage Capacity	50
Volt/phase	

B. Tanks:

Drawing Code:	T-1
Location	CELLAR
Service	
Capacity	50
Diameter	25-1/4
Length	63

END OF SECTION

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SECTION 22 40 00

PLUMBING FIXTURES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Water closets.
2. Lavatories.
3. Sinks.
4. Drinking fountains.

B. Related Sections:
1. Section 07 92 00 - Joint Sealant: Product requirements for calking between fixtures and building components for placement by this section.
2. Section 22 11 00 - Facility Water Distribution: Supply connections to plumbing fixtures.
3. Section 26 05 03 - Equipment Wiring Connections: Execution requirements for electric connections to sensor valves and faucets specified by this section.

1.2 REFERENCES

A. American National Standards Institute:
1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
2. ANSI Z124.1 - Plastic Bathtub Units.
3. ANSI Z124.2 - Plastic Shower Units.
4. ANSI Z358.1 - Emergency Eyewash and Shower Equipment.

B. Air-Conditioning and Refrigeration Institute:
1. ARI 1010 - Self-Contained, Mechanically Refrigerated Drinking-Water Coolers.

C. American Society of Mechanical Engineers:
1. ASME A112.6.1 - Floor-Affixed Supports for Off-the-Floor Plumbing Fixtures for Public Use.
2. ASME A112.18.1 - Plumbing Fixture Fittings.
3. ASME A112.19.1M - Enameled Cast Iron Plumbing Fixtures.
4. ASME A112.19.2M - Vitreous China Plumbing Fixtures.
5. ASME A112.19.3 - Stainless Steel Plumbing Fixtures (Designed for Residential Use).
6. ASME A112.19.4 - Porcelain Enameled Formed Steel Plumbing Fixtures.
7. ASME A112.19.5 - Trim for Water-Closet Bowls, Tanks and Urinals.

1.3 SUBMITTALS

A. See DDC General Conditions

B. Product Data: Submit catalog illustrations of fixtures, sizes, utility sizes, trim, and finishes.

C. Samples: Submit 1 lavatory supply fittings.

D. Manufacturer's Installation Instructions: Submit installation methods and procedures.

E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.4 CLOSEOUT SUBMITTALS

A. See DDC General Conditions

B. Operation and Maintenance Data: Submit fixture, trim, exploded view and replacement parts lists.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with NY and NYC standard.

B. Provide products requiring electrical connections listed and classified by Underwriters Laboratories Inc., testing firm acceptable to authority having jurisdiction as suitable for purpose specified and indicated.

C. Maintain one copy of each document on site.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years experience.

B. Installer: Company specializing in performing Work of this section with minimum three years experience.

1.7 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions

B. Accept fixtures on site in factory packaging. Inspect for damage.

C. Protect installed fixtures from damage by securing areas and by leaving factory packaging in place to protect fixtures and prevent use.

1.8 WARRANTY

A. See DDC General Conditions

B. Furnish 5 year manufacturer warranty for plumbing fixtures.

1.9 EXTRA MATERIALS

A. See DDC General Conditions

B. Furnish two sets of faucet washers lavatory supply fittings toilet seats.

PART 2 PRODUCTS

2.1 TANK TYPE WATER CLOSETS

A. Manufacturers:
1. GEBERIT.
2. TOTO Corp.
3. Kohler
4. Approved Equal

B. Furnish materials in accordance with NYC standards.

C. Bowl: ASME A112.19.2M; wall hung, vitreous china, reverse trap, whirlpool action close-coupled closet combination with regular rim.

D. Seat: Solid white plastic, open front, extended back, self-sustaining hinge, brass bolts, with cover.

E. Wall Mounted Carrier: ASME A112.6.1; adjustable cast iron frame, integral drain hub and vent, adjustable spud, lugs for floor and wall attachment, threaded fixture studs with nuts and washers. Basis of Design GeBerit – 111.335.00.5. DUOFIX carrier with UP320 concealed. Dual flush tank.

2.2 LAVATORIES

A. Manufacturers:

1. Villeroy and Boch.
2. TOTO Corp.
3. Kohler
4. American Standard

B. Furnish materials in accordance with NY and NYC standards.

C. Vitreous China Wall Hung Basin: ASME A112.19.2M; vitreous china countertop lavatory 19 5/8 X 16 ½ Basis of Design: Villeroy & Boch Model Memento, single central hole, front overflow or approved equal.

D. Supply Fitting: ASME A112.18.1; chrome plated supply fitting with pop- up waste, water economy aerator with maximum 2.0 gpm flow, single lever handle.

E. Faucet: ASME A112.18.1; chrome plated mixing faucet with cover plate, open grid strainer. American standard – 2506.155. Moments Selectronic or approved equal

F. Accessories:
1. Chrome plated 17 gage brass P-trap and arm with escutcheon.
2. Offset waste with perforated open strainer.
3. Wheel handle stops.
4. Rigid supplies.
5. Trap and waste insulated and offset to meet ADA compliance.

2.3 SINKS – ELKAY STAIN LESS STEEL COVERS TOP.

A. Manufacturers:
1. American Standard Plumbing
2. Chicago Faucet Co.
3. Kohler Co.
4. Bradley Corp.

2.4 DRINKING FOUNTAINS

A. Manufacturers:
1. American Standard Plumbing.
2. Bradley Corp plumbing.
3. Briggs Industries, Inc.
4. Chicago Faucet Co.
5. Delta Faucet Co., Commercial Div.
6. Eljer Plumbingware.
7. Kohler Co.
8. Haws
9. Approved Equal

B. Furnish materials in accordance with NYS & NYC standards.

2.5 LAVATORY INSULATION KIT

A. Furnish materials in accordance with NYS & NYC standards.

B. Product Description: Where Lavatories are noted to be insulated for ADA compliance, furnish the following: Safety Covers conforming to ANSI A177.1 and consisting of insulation kit of molded closed cell vinyl construction, 3/16 inch (5 mm) thick, white color, for insulating tailpiece, P-trap, valves, and supply piping. Furnish with weep hole and angle valve access covers.

PART 3 EXECUTION

3.1 EXAMINATION

A. See DDC General Conditions

B. Verify walls and floor finishes are prepared and ready for installation of fixtures.

C. Verify electric power is available and of correct characteristics.

D. Confirm millwork is constructed with adequate provision for installation of counter top lavatories and sinks.

3.2 PREPARATION

A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.

3.3 INSTALLATION

A. Install Work in accordance with NYS & NYC standards.

B. Install each fixture with trap, easily removable for servicing and cleaning.

C. Provide chrome plated rigid or flexible supplies to fixtures with loose key stops, reducers, and escutcheons.

D. Install components level and plumb.

E. Install and secure fixtures in place with wall supports, or wall carriers and bolts.

F. Seal fixtures to wall and floor surfaces with sealant as specified in Section 07 92 00, Joint sealant color to match fixture.

G. Solidly attach water closets to floor with lag screws. Lead flashing is not intended hold fixture in place.

H. For ADA accessible water closets, install flush valve with handle to wide side of stall.

3.4 INTERFACE WITH OTHER PRODUCTS

A. Review millwork shop-drawings. Confirm location and size of fixtures and openings before rough in and installation.

3.5 ADJUSTING

A. See DDC General Conditions

B. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.

3.6 CLEANING

A. See DDC General Conditions

B. Clean plumbing fixtures and equipment.

3.7 PROTECTION OF INSTALLED CONSTRUCTION

A. See DDC General Conditions

B. Do not permit use of fixtures before final acceptance.

END OF SECTION

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CONTRACT # 3

HVAC and FIRE PROTECTION WORK

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SECTION 21 05 00

COMMON WORK RESULTS FOR FIRE SUPPRESSION

PART 1 GENERAL

1.1 SUMMARY

A. Section includes pipe, fittings, valves, and connections for sprinkler, standpipe and fire hose, combination sprinkler and standpipe systems.

B. Related Sections:
1. Section 09 91 00 - Painting: Execution requirements for piping painting specified by this section.

1.2 REFERENCES

A. American Society of Mechanical Engineers:
1. ASME B16.1 - Cast Iron Pipe Flanges and Flanged Fittings.
2. ASME B16.11 - Forged Steel Fittings - Socket-Welding and Threaded.
3. ASME B16.22 - Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.
4. ASME B16.3 - Malleable Iron Threaded Fittings.
5. ASME B16.5 - Pipe Flanges and Flanged Fittings.

B. ASTM International:
1. ASTM B88 - Standard Specification for Seamless Copper Water Tube.
2. ASTM B251 - Standard Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tube.

C. National Fire Protection Association:
1. NFPA 13 - Installation of Sprinkler Systems.

D. Underwriter Laboratories, Inc.:
1. UL 1887 - Fire Tests of Plastic Sprinkler Pipe for Visible Flame and Smoke Characteristics.

1.3 SUBMITTALS

A. See DDC General Conditions

B. Shop Drawings: Indicate pipe materials used, jointing methods, supports, floor and wall penetration seals. Indicate installation, layout, weights, mounting and support details, and piping connections.

C. Product Data: Submit manufacturers catalogue information. Indicate valve data and ratings.

D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.4 CLOSEOUT SUBMITTALS

A. See DDC General Conditions

B. Project Record Documents: Record actual locations of components and tag numbering.

C. Operation and Maintenance Data: Submit spare parts lists.

1.5 QUALITY ASSURANCE

A. Provide fire sprinkler piping located in plenums with peak optical density not greater than 0.5, average optical density not greater than 0.15, and flame spread not greater than 5 feet (1.5 m) when tested in accordance with UL 1887.

B. Perform Work in accordance with NFPA 13 NY NYC standard.

C. Maintain one copy of each document on site.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years' experience, and with service facilities.

B. Installer: Company specializing in performing Work of this section with minimum three year experience.

1.7 PRE-INSTALLATION MEETINGS

A. See DDC General Conditions

B. Convene minimum one per week prior to commencing work of this section.

1.8 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions

B. Deliver and store valves in shipping containers, with labeling in place.

C. Furnish cast iron and steel valves with temporary protective coating.

D. Furnish temporary end caps and closures on piping and fittings. Maintain in place until installation.

1.9 WARRANTY

A. See DDC General Conditions

B. Furnish five year manufacturer warranty for basic fire suppression materials and methods.

1.10 EXTRA MATERIALS

A. See DDC General Conditions

B. Furnish two sets of valve stem packing for each size and type of valve installed.

PART 2 PRODUCTS

2.1 VALVES

A. Manufacturers:
1. Victaulic Model 707 C.
2. Apollo.
3. Kennedy.
4. Approved Equal

B. Furnish materials in accordance with NY & NYC standards.

C. Gate Valves:
1. Up to and including 2 inches: Bronze body and trim, rising stem, hand wheel, solid wedge or disc, threaded ends.
2. Over 2 inches: Iron body, bronze trim, rising stem pre-grooved for mounting tamper switch, hand wheel, OS&Y, solid bronze or cast iron wedge, flanged, grooved ends.
3. Over 4 inches: Iron body, bronze trim, non-rising stem with bolted bonnet, solid bronze wedge, flanged ends, iron body indicator post assembly.

D. Globe or Angle Valves:

1. Up to and including 2 inches: Bronze body, bronze trim, rising stem and hand wheel, inside screw, renewable rubber disc, threaded ends, with back seating capacity packable under pressure.
2. Over 2 inches: Iron body, bronze trim, rising stem, hand wheel, OS&Y, plug-type disc, flanged ends, renewable seat and disc.

E. Ball Valves:
1. Up to and including 2 inches: Stainless steel two piece body, brass, chrome plated bronze, or stainless steel ball, teflon seats and stuffing box ring, lever handle and balancing stops, threaded ends
2. Over 2 inches: Manufacturers: Cast steel body, chrome plated steel ball, teflon seat and stuffing box seals, lever handle or gear drive hand wheel for sizes 10 inches and over, flanged.

F. Butterfly Valves:
1. Bronze Body: Stainless steel disc, resilient replaceable seat, threaded or grooved ends, extended neck, hand wheel and gear drive and integral indicating device,and built-in tamper proof switch rated 10 amp at 115 volt AC.
2. Cast or Ductile Iron Body: Cast or ductile iron, chrome or nickel plated ductile iron or aluminum bronze disc, resilient replaceable EPDM seat, wafer, lug, or grooved ends. With extended neck, hand wheel and gear drive and integral indicating device, and tamper switch rated 10 amp at 115 volt AC.

G. Check Valves:
1. Up to and including 2 inches: Bronze body and swing disc, rubber seat, threaded ends.
2. Over 2 inches: Iron body, bronze trim, swing check with rubber disc, renewable disc and seat, flanged ends with automatic ball check.

2.2 ABOVE GROUND PIPING

A. Steel Pipe: ASTM A53/A53M, Grade B; ASTM A135; ASTM A135 UL listed, or ASME B36.10; Schedule 40 black.
1. Cast Iron Fittings: ASME B16.1, flanges and flanged fittings; ASME B16.4, threaded fittings.
2. Malleable Iron Fittings: ASME B16.3, threaded fittings ASTM 47, ASTM 47M.
3. Mechanical Grooved Couplings: Malleable iron housing clamps to engage and lock, "C" shaped elastomeric sealing gasket, steel bolts, nuts, and washers; galvanized for galvanized pipe.

B. Copper Tubing: ASTM 75; Type L, hard drawn.
1. Fittings: ASME B16.22, wrought copper solder joint, pressure type.
2. Joints: BCuP-4 silver braze ASTM B32, solder.

C. Cast Iron Pipe: AWWA C151.
1. Fittings: AWWA C110, standard thickness.
2. Joints: AWWA C111, rubber gasket.

2.3 PIPE HANGERS AND SUPPORTS

A. Conform to NFPA 13 2002.

B. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron, adjustable swivel, split ring.

C. Hangers for Pipe Sizes 2 inch and Over: Carbon steel, adjustable, clevis.

D. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.

E. Wall Support for Pipe Sizes to 3 inches: Cast iron hook.

F. Wall Support for Pipe Sizes 4 inches and Over: Welded steel bracket and wrought steel clamp.

G. Vertical Support: Steel riser clamp.

H. Floor Support: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.

I. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

PART 3 EXECUTION

3.1 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.

B. Remove scale and foreign material, from inside and outside, before assembly.

C. Prepare piping connections to equipment with flanges or unions.

3.2 INSTALLATION

A. Install piping in accordance with NFPA 13 for sprinkler systems, NFPA 14 for standpipe and hose systems.

B. Install Work in accordance with NY & NYC standards.

C. Route piping in orderly manner plumb and parallel to building structure. Maintain gradient.

D. Install piping to conserve building space, to not interfere with use of space and other work.

E. Group piping whenever practical at common elevations.

F. Install pipe sleeve at piping penetrations through footings, partitions, walls, and floors. Seal pipe and sleeve penetrations to maintain fire resistance equivalent to fire separation.

G. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

H. Pipe Hangers and Supports:
1. Install in accordance with NFPA 13 and NFPA 14.
2. Install hangers to with minimum 1/2 inch space between finished covering and adjacent work.
3. Place hangers within 12 inches of each horizontal elbow.
4. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
5. Support vertical piping at every floor. Support riser piping independently of connected horizontal piping.
6. Where installing several pipes in parallel and at same elevation, provide multiple or trapeze hangers.
7. Install copper plated hangers and supports for copper piping.
8. Prime coat exposed steel hangers and supports.
Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

I. Slope piping and arrange systems to drain at low points. Install eccentric reducers to maintain top of pipe level.

J. Prepare pipe, fittings, supports, and accessories for finish painting. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding. Refer to Section 09 91 00.

K. Do not penetrate building structural members unless indicated.

L. Where more than one piping system material is specified, install compatible system components and joints. Install flanges, union, and couplings at locations requiring servicing.

M. Die cut threaded joints with full cut standard taper pipe threads with red lead and linseed oil or other non-toxic joint compound applied to male threads only.

N. Install valves with stems upright or horizontal, not inverted. Remove protective coatings prior to installation.

O. Install gate valves for shut-off or isolating service.

P. Install drain valves at main shut-off valves, low points of piping and apparatus.

Q. Where inserts are omitted, drill through concrete slab from below and install through-bolt with recessed square steel plate and nut above and grouted flush with slab.

3.3 INTERFACE WITH OTHER PRODUCTS

A. Inserts:

1. Install inserts for placement in concrete forms.
2. Install inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.
3. Install hooked rod to concrete reinforcement section for inserts carrying pipe over 4 inches.
4. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.

3.4 CLEANING

A. See DDC General Conditions

B. Clean entire system after other construction is complete.

END OF SECTION

SECTION 21 13 13

WET-PIPE SPRINKLER SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes wet-pipe sprinkler system, system design, installation, and certification.

B. Related Sections:
1. Section 26 05 03 - Equipment Wiring Connections: Execution requirements for electric connections to equipment specified by this section.

1.2 REFERENCES

A. National Fire Protection Association:
1. NFPA 13 - Installation of Sprinkler Systems.
2. NFPA 13R - Standard for Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height.

1.3 SYSTEM DESCRIPTION

A. System to provide coverage for building areas noted.

B. Provide hydraulically designed system to NFPA 13 light hazard ordinary hazard, Group 1 occupancy requirements.

C. Determine volume and pressure of incoming water supply from water flow test data. When not available, assume 500 gpm at 45 psig. Revise design when test data become available prior to submittals.

D. Interface system with building control system. Building fire and smoke alarm system.

1.4 SUBMITTALS

A. See DDC General Conditions:

B. Shop Drawings: Indicate layout of finished ceiling areas indicating sprinkler locations coordinated with ceiling installation. Indicate detailed pipe layout, hangers and supports, sprinklers, components and accessories. Indicate system controls.

C. Product Data: Submit data on sprinklers, valves, and specialties, including manufacturers catalog information. Submit performance ratings, rough-in details, weights, support requirements, and piping connections.

D. Samples: Submit two of each style of sprinkler specified.

E. Design Data: Submit design calculations signed and sealed by professional engineer

F. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.5 CLOSEOUT SUBMITTALS

A. See DDC General Conditions

B. Project Record Documents: Record actual locations of sprinklers and deviations of piping from drawings. Indicate drain and test locations.

C. Operation and Maintenance Data: Submit components of system, servicing requirements, record drawings, inspection data, replacement part numbers and availability, and location and numbers of service depot.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with NFPA 13 2002, NYC BC

B. Maintain one copy of each document on site.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years experience.

B. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

C. Design system under direct supervision of Professional Engineer experienced in design of this Work and licensed In the State of NY.

1.8 PRE-INSTALLATION MEETINGS

A. See DDC General Conditions

B. Convene minimum one per week prior to commencing work of this section.

1.9 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions

B. Store products in shipping containers until installation.

C. Furnish piping with temporary inlet and outlet caps until installation.

1.10 WARRANTY

A. See DDC General Conditions

B. Furnish five year manufacturer warranty

1.11 EXTRA MATERIALS

A. See DDC General Conditions

B. Furnish extra sprinklers under provisions of NFPA 13 2002

C. Furnish suitable wrenches for each sprinkler type.

D. Furnish metal storage cabinet in location designated.

PART 2 PRODUCTS

2.1 SPRINKLERS

A. Manufacturers
1. Reliable
2. Viking
3. Victaulic
4. Approved Equal

B. Furnish materials in accordance with NY and NYC standards.

C. Suspended Ceiling Type:
1. Type: Concealed pendant type with matching push on escutcheon plate.
2. Finish: Enamel, color white.
3. Fusible Link: Fusible solder link type temperature rated for specific area hazard.

D. Exposed Area Type:
1. Type: Standard upright type.
2. Finish: Brass.
3. Fusible Link: Fusible-solder link type temperature rated for specific area hazard.

E. Side wall Type:
1. Type: Standard horizontal side wall type with matching push on clamp on screw on escutcheon plate and guard.
2. Finish: Chrome plated.
3. Escutcheon Plate Finish: Chrome plated
4. Fusible Link: Fusible-solder link type temperature rated for specific area hazard.

F. Guards: Finish to match sprinkler finish.

2.2 PIPING SPECIALTIES

A. Water Flow Switch: Vane type switch for mounting horizontal or vertical, with two contacts; rated 10 amp at 125 volt AC.

2.3 ELECTRICAL CHARACTERISTICS AND COMPONENTS

A. Controls: Supervisory switches, Water Level Supervisory Switches, Tank Temperature Supervisory Switches, Room Temperature Supervisory Switches.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install in accordance with NFPA 13.

B. Center sprinklers in two directions in ceiling tile and install piping offsets. One direction only in ceiling tile with location in other direction variable, dependent upon spacing and coordination with ceiling elements.

C. Hydrostatically test entire system.

D. Require test be witnessed by Authority having jurisdiction.

3.2 INTERFACE WITH OTHER PRODUCTS

A. Verify signal devices are installed and connected to fire alarm system.

3.3 CLEANING

A. See DDC General Conditions

B. Flush entire piping system of foreign matter.

3.4 PROTECTION OF INSTALLED CONSTRUCTION

A. See DDC General Conditions

B. Apply masking tape or paper cover to protect concealed sprinklers, cover plates, and sprinkler escutcheons not receiving field paint finish. Remove after painting.

END OF SECTION

SECTION 230013 – HVAC CONTRACTOR WORK

ALLOWANCE FOR INCIDENTAL ASBESTOS ABATEMENT

1.01 SCOPE FOR ASBESTOS ABATEMENT WORK

A. The "General Conditions" apply to the work of this Section.

B. The Asbestos abatement contractor shall remove asbestos containing materials as needed to perform the other work of this Contract when discovered during the course of work. When required, the Asbestos abatement contractor shall replace the ACM with non-asbestos containing materials. An allowance of **$5,000.00** for the **HVAC Contractor** is herein established for this incidental work when so ordered and authorized by the Commissioner.

C. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE RULES AND REGULATIONS OF THE ASBESTOS CONTROL PROGRAM AS PROMULGATED BY TITLE 15 CHAPTER I OF RCNY AND NEW YORK STATE DEPARTMENT OF LABOR INDUSTRIAL CODE RULE 56 CITED AS 12 NYCRR, PART 56 WHICHEVER IS MORE STRINGENT AS PER LATEST AMENDMENTS TO THESE LAWS AND AS MODIFIED HEREIN BY THESE SPECIFICATIONS.

D. ALL DISPOSAL OF ASBESTOS CONTAMINATED MATERIAL SHALL BE PER LOCAL LAW 70/85.

E. THE ASBESTOS ABATEMENT CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT CERTAIN METHODS OF ASBESTOS ABATEMENT ARE PROTECTED BY PATENTS. TO DATE, PATENTS HAVE BEEN ISSUED WITH RESPECT TO "NEGATIVE PRESSURE ENCLOSURE" OR "NEGATIVE-AIR" OR "REDUCED PRESSURE" AND "GLOVE BAG".

F. THE ASBESTOS ABATEMENT CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR AND SHALL HOLD THE DEPARTMENT OF DESIGN AND CONSTRUCTION AND THE CITY HARMLESS FROM ANY AND ALL DAMAGES, LOSSES AND EXPENSES RESULTING FROM ANY INFRINGEMENT BY THE ASBESTOS ABATEMENT CONTRACTOR OF ANY PATENT, INCLUDING BUT NOT LIMITED TO THE PATENTS DESCRIBED ABOVE, USED BY THE ASBESTOS ABATEMENT CONTRACTOR DURING PERFORMANCE OF THIS AGREEMENT.

G. "Asbestos" shall mean any hydrated mineral silicate separable into commercially usable fibers, including but not limited to chrysotile (serpentine), amosite (cumingtonite-grunerite), crocidolite (riebeckite), tremolite, anthrophyllite and actinolite.

H. Prior to starting, the Asbestos abatement contractor must notify the Commissioner of the Department of Design and Construction if he/she anticipates any difficulty in performing the Work as required by these Specifications. The Asbestos abatement contractor is responsible to prepare and submit all filings, notifications, etc. required by all City, State and Federal regulatory agencies having jurisdiction.

The Asbestos abatement contractor is responsible for submitting the Asbestos Project Notification Form (ACP-7 Form) to the Department of Environmental Protection, Asbestos Control Program, as per Title 15, Chapter I of RCNY and to the NYSDOL as per Industrial Code Rule 56.

The Asbestos abatement contractor is responsible for preparing, and submitting Asbestos Variance Application (ACP-9). If a Variance is required, the Asbestos abatement contractor is responsible to retain a NYSDOL Asbestos Project Designer, as defined in Title 15, Chapter 1 of the RCNY to prepare and submit the required variance.

The Asbestos abatement contractor is responsible for preparing and submitting an Asbestos Abatement Permit and/or Work Place Safety Plans (WPSP) that may be required for the completion of the Contract or incidental work. If such plans are required, the Asbestos abatement contractor is responsible to retain a NYSDOL Licensed Design Professional as defined in Title 15, Chapter 1 of the RCNY to prepare and submit the required plans.

The Asbestos abatement contractor is responsible for the submission of all required documents to the NYCDEP to acquire the appropriate Asbestos Project Conditional Closeout (ACP-20) and/or Asbestos Project Completion Forms (ACP-21) on a timely basis for the completion of the incidental work encountered under this contract.

The Asbestos abatement contractor will be required to attend an on-site job meeting with the Construction Project Manager prior to the start of work to examine conditions and plan the sequence of operations, etc.

The Asbestos abatement contractor shall have a NYSDOL/NYCDEP Asbestos Supervisor onsite to oversee the work and conduct a final visual inspection as required by both Title 15, Chapter 1 of the RCNY and NYSDOL Industrial Code Rule 56.

I. All work shall be done during regular working hours unless the Asbestos abatement contractor requests authorization to work in other then regular working hours and such authorization is granted by the Commissioner. (Regular work hours are those hours during which any given facility, in which work is to be done, is customarily open and functioning, normally between the hours of 8:00 A.M. and 4:00 P.M. Monday - Friday.) If such work schedule is authorized by the Commissioner, the work shall be done at no additional cost to the City.

J. The Commissioner may order that work be done in other than regular working hours as herein by defined and this order may require the Asbestos abatement contractor to pay premium or overtime wages to complete the work. If the Commissioner orders work in other than regular working hours, the Asbestos abatement contractor shall multiply the unit price for that portion of the work requiring premium wages by 1.50 when computing payment in accordance with Paragraph 1.09. All requests for premium payment must be supported by certified payroll sheets and field sheets approved by the Construction Project Manager.

1.02 QUALIFICATIONS OF ASBESTOS ABATEMENT CONTRACTOR

A. Requirements: The asbestos abatement contractor must demonstrate compliance with the special experience requirements set forth in subparagraphs (1) through (5) below. The asbestos abatement contractor must, submit documentation demonstrating compliance with all listed requirements. Such documentation shall include without limitation, all required licenses, certificates, and documentation.

1. The asbestos abatement contractor must, whether an individual, corporation, partnership, joint venture or other legal entity, must demonstrate for the three year period prior to the work, that it has been licensed by the New York State Department of Labor, as an "Asbestos abatement contractor".

2. The asbestos abatement contractor must, for the three year period prior to the work, have been in the business of providing asbestos abatement services as a routine part of its daily operations.

3. The asbestos abatement contractor proposing to do asbestos abatement work must be thoroughly experienced in such work and must provide evidence of having successfully performed and completed in a timely fashion at least five (5) asbestos abatement projects of similar size and complexity. The aggregate cost of these projects must be at least $250,000.00 in each of the three years.

4. For each project submitted to meet the experience requirements set forth above, the asbestos abatement contractor must submit the following information for the project; name and location of the project; name title and telephone number of the owner or the owner's representative who is familiar with the asbestos abatement contractor's work, brief description of the work completed as a prime or sub-asbestos abatement contractor; amount of contract or subcontract and the date of completion.

5. The asbestos abatement contractor must demonstrate that it has the financial resources, supervisory personnel and equipment necessary to carry out the work and to comply with the required performance schedule, taking into consideration other business commitments. The asbestos

abatement contractor must submit such documentation as may be required by the Department of Design and Construction to demonstrate that it has the requisite capacity to perform the required services of this contract.

B. Insurance Requirements: The asbestos abatement contractor must provide asbestos liability insurance in the following amount: 1 million dollars per occurrence, 2 million dollars aggregate (combined single limit). The City of New York shall be named as an additional insured on such insurance policy.

C. Throughout the specifications, reference is made to codes and standards which establish qualities and types of workmanship and materials, and which establish methods for testing and reporting on the pertinent characteristics thereof.

1.03 ASBESTOS ABATEMENT CONTRACTOR RESPONSIBILITIES

The Asbestos abatement contractor will visit the subject location within one (1) working day of notification to ascertain actual work required. If the project is identified as being "urgent", then work shall commence no later than 48 hours from the time of notification. In this event, the asbestos abatement contractor shall immediately notify when applicable EPA NESHAPS Coordinator, NYSDOL Asbestos Control Bureau and NYCDEP Asbestos Control Program of start of the work and file the necessary Asbestos Notifications and any applicable Variance Applications with the regulatory agencies cited above..

In the event that the project is not classified as "urgent" the Asbestos abatement contractor shall notify the EPA NESHAPS Coordinator, NYSDOL and NYCDEP by submitting the requisite asbestos project notification forms, postmarked 10 days before activity begins if 260 linear feet or more and/or 160 square feet or more of asbestos containing material will be disturbed.

The following information must be included in the notification:

A. Name and address of building City or operator;

B. Project description:

1. Size - square feet, number of linear feet, etc;

2. Age - date of construction and renovations (if known);

3. Use - i.e., office, school, industrial, etc.

4. Scope - repair, demolition, cleaning, etc.

C. Amount of asbestos involved in work and an explanation of techniques used to determine the amount;

D. Building location/address, including Block and Lot numbers;

E. Work schedule including the starting and completion dates;

F. Abatement methods to be employed;

G. Procedures for removal of asbestos-containing material;

H. Name, title and authority of governmental representative sponsoring project.

1.04 WORK INCLUDED IN UNIT PRICE

The Asbestos abatement contractor will be paid a basic unit price of **$25.00** per square feet for the removal and disposal of asbestos containing material and replacement of the same with non-asbestos containing materials.

Unit price shall include all costs necessary to do the work of this Contract, including but not limited to: labor, materials, equipment, utilities, disposal, insurance, overhead and profit.

1.05 AIR MONITORING – ASBESTOS ABATEMENT CONTRACTOR

A. "Air Sampling" shall mean the process of measuring the fiber content of a known volume of air collected during a specific period of time. The procedure utilized for asbestos follows the N1OSH Standard Analytical Method 7400 or the provisional transmission electron microscopy methods developed by the USEPA and/or National Institute of Standard and Technology which are utilized for lower detectability and specific fiber identification.

B. Air monitoring of Asbestos abatement contractor's personnel will be performed in conformance with OSHA requirements, (All costs associated with this work are deemed included in the unit price.).

C. Qualifications of Testing Laboratory:

The industrial hygiene laboratory shall be a current proficient participant in the American Industrial Hygiene Association (AIHA) PAT Program. The laboratory identification number shall be submitted and approved by the City. The laboratory shall be accredited by the AIHA and New York State Department of Health Environmental Laboratory Approval Program (ELAP).

Note: Work area air testing and analysis before, during and upon completion of work (clearance testing) will be performed by a Third Party Air Monitor under separate Contract with the City.

1.06 THIRD PARTY MONITORING AND LABORATORY

A. The NYCDDC, at its own expense, will employ the services of an independent Third Party Air Monitoring Firm and Laboratory. The Third Party Air Monitor will perform air sampling activities and project monitoring at the Work Site.

B. The Laboratory will perform analysis of air samples utilizing Phase Contrast Microscopy (PCM) and/or Transmission Electron Microscopy (TEM).

C. The Third Party Air Monitoring Firm and the designated Project Monitor shall have access to all areas of the asbestos removal project at all times and shall continuously inspect and monitor the performance of the Asbestos abatement contractor to verify that said performance complies with this Specification. The Third-Party Air Monitor shall be on site throughout the entire abatement operation.

D. The NYCDDC will be responsible for costs incurred with the Third Party Air Monitoring Firm and laboratory work. Any subsequent additional testing required due to limits exceeded during initial testing shall be paid for by the Asbestos abatement contractor.

1.07 PAYMENT REQUEST DOCUMENTATION

B. The following information shall be included for each payment request:

1. Description of work performed.
2. Linear footage and pipe sizes involved.
3. Square footage for boiler & breaching insulation removed.
4. Square footage of non pipe and boiler areas removed, patched, enclosed, sealed, or painted.
5. Square footage of encapsulation, sealing, patching, and painting involved.
6. Total cost associated with compliance with the assigned task.
7. Architectural, Electrical, HVAC, Plumbing, etc. work incidental to the Asbestos Abatement Work.
8. A certified copy (in form 4312-39) to the Comptroller or Financial Officer of the New York City to the effect that the financial statement is true.
9. A signed copy (in form 6506q-6) of certificate of compliance with non-discriminatory provisions of the Contract.
10. Attach a copy of valid workmen compensation insurance.

11. Valid asbestos insurance per occurrence.

12. General liability insurance when required.

C. Each payment request shall include a grand total for all work completed that billing period, the landfill waste manifests and a copy of waste transporter permit. The Department of Design and Construction will inspect the work performed, review the cost and approve or disapprove requests for payment.

D. EXPOSURE LOG: With this final payment, the Asbestos abatement contractor shall submit a listing of the names and social security numbers of all employees actively engaged in the abatement work of this Contract. This list shall include a summary showing each part of the abatement work in which the employee was engaged and the dates thereof.

1.08 QUANTITY CALCULATIONS

In order to determine the square footage involved for the various pipe sizes of pipe insulation that might be encountered, the following table is to be used.

PIPE INSULATION SIZE O.D.	PIPE SIZE O.D.	SQUARE FOOTAGE PER LINEAR FOOT
2-1/2"	1/2"	0.65
2-3/4"	3/4"	0.72
3"	1"	0.79
3-1/4"	1-1/4"	0.85
3-1/2"	1-1/2"	0.92
4"	2"	1.05
4-1/2"	2-1/2"	1.18
5"	3"	1.31
6"	3-1/4"	1.57
7"	3-1/2"	1.83
8"	4"	2.09
9"	5"	2.36
10"	6"	2.62
12"	8"	3.14
14"	10"	3.67
16"	12"	4.19
18"	14"	4.71

1.09 METHOD OF PAYMENT

Payment shall be made in accordance with Items A through R below. Payment shall be calculated based on the actual quantity of the item performed by the asbestos abatement contractor, times the unit price specified below. Credits may apply to certain times, as specified below.

A. **REMOVAL, DISPOSAL AND REPLACEMENT OF ASBESTOS CONTAINING PIPE INSULATION:** Actual linear footage, multiplied by the square footage factor listed for the respective pipe size in Section 1.09, multiplied by the unit price in Section 1.05.

EXAMPLE: 100 lin.ft. of 1/2" pipe and 100 lin.ft. of 6" pipe, including elbows, tees. Flanges, etc.

100 X 0.65 = 65 sq.ft. 65 x unit price = Payment

100 X 2.62 = 262 sq.ft. 262 x unit price = Payment

B. **REMOVAL, DISPOSAL AND REPLACEMENT OF BOILER INSULATION:** (all types including Silicate Block and including the removal/replacement of metal jacketing) Payment shall be made at 1.5 times the unit price per square foot.

EXAMPLE: Item B. removal and replacement of 1000 S.F. of boiler insulation (incl. Silicate block)

1000 S.F. X (1.5) X the Unit Price = Payment

C. **REMOVAL, DISPOSAL AND REPLACEMENT OF TANK INSULATION:** (all types including removal/replacement of metal jacketing) Payment shall be made at 1.5 times the unit price per square foot.

D. **REMOVAL, DISPOSAL AND REPLACEMENT OF BOILER UPTAKE, & BREACHING INSULATION:** (all types including stiffening angles and wire lath) Payment shall be made at 2.0 times the unit price per square foot.

E. **REMOVAL, DISPOSAL AND REPLACEMENT OF DUCT INSULATION:** Payment shall be made at 1.0 times the unit price per square foot.

F. **REMOVAL, DISPOSAL AND REPLACEMENT OF SOFT ASBESTOS CONTAINING MATERIAL:** (Including sprayed-on fire proofing and sound proofing) Payment shall be made at 1.0 times the unit price per square foot of surface area. Area of irregular surfaces must be calculated and confirmed with DDC representative.

G. **ACOUSTIC PLASTER REPAIR AND/OR ENCAPSULATION:** Payment shall be made at 0.5 times the unit price per square foot.

H. **PATCHING OR REPAIR** of items listed in A through F will be paid at 0.33 times the unit price per square foot.

I. **REMOVAL, DISPOSAL AND REPLACEMENT OF WATERPROOFING ASBESTOS CONTAINING MATERIAL:** (including friable and non-friable waterproofing material from interior and exterior walls, floors, foundations, penetrations, louvers, vents and openings other than windows, doors and skylights) Payment shall be made at 0.5 times the unit price per square foot.

J. **REMOVAL, DISPOSAL AND REPLACEMENT OF ASBESTOS CONTAINING ELECTRICAL WIRING INSULATION:** (including friable and non-friable wiring insulation) Payment shall be made at 0.33 times the unit price per square foot.

K. **PAINTING:** Payment shall be made at 0.05 times the unit price per square foot.

L. **REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING PLASTER:** from ceilings and walls, including any wire lath and disposal as asbestos containing waste. Payment shall be made at 0.80 times the unit price per square foot.

M. **REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING FLOOR TILES, CEILING TILES, TRANSITE PANELS:** (including any adhesive, glue, mastic and/or underlayment) and disposal as asbestos containing waste. Payment shall be made at 0.40 times the unit price per square foot. If multiple layers are discovered, each additional layer shall be paid at 0.20 times the unit price per square foot.

N. **ADDITIONAL CLEAN UP/HOUSEKEEPING OF WORK AREA:** (excluding pre-cleaning of work area required by regulations) HEPA vacuuming and wet cleaning of asbestos contaminated surface. Payment shall be made at 0.20 times the unit price per square foot. When GLOVE BAG is employed to remove ACM, cost of HEPA vacuuming and wet cleaning of floor area up to 3 feet on each side of glove-bag shall be included in unit price and no extra payment will be made.

O. **REMOVAL, DISPOSAL OF ASBESTOS-CONTAINING ROOFING MATERIAL:** including mastic, flashing and sealant compound and provide temporary asbestos-free roof covering consisting of one layer of rolled roofing paper sealed with asphaltic roofing compound. Payment shall be made at 0.8 times the unit price per square foot. Credit at a rate of 0.33 times the unit price will be taken for each square foot of temporary roof covering which the Asbestos abatement contractor is directed not to install.

P. **PICK-UP AND DISPOSAL OF GROSS DEBRIS:** (excluding any waste generated from abatement under Item A-R) at a rate of $150 per cubic yard for asbestos contaminated waste and $75 per cubic yard for non-asbestos

contaminated waste. This cost includes all labor and material cost associated with work.

Q. **REMOVAL OF ASBESTOS-CONTAINING BRICK, BLOCK, MORTAR, CEMENT OR CONCRETE:** along with all surfacing materials including wire lath and/or other supporting structures and disposal as ACM waste. Payment shall be made at a rate of $25.00 per cubic foot of material removed.

R. **REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING WINDOW/DOOR CAULKING:** including friable and non-friable caulking, weather-stripping, glazing, sealants or other waterproofing materials applied to windows, doors, skylights, etc. Payment shall be made at the rate of $400.00 per opening regardless of size or configuration. This cost includes labor, consumable materials, set-up/breakdown, removal and disposal, as required.

Note 1: CREDIT: For items listed in A through F, a credit at a rate of 0.33 times the unit price, times the respective multiplier (for each item) will be taken for each square foot of insulation which the asbestos abatement contractor is not directed to reapply.

Note 2: MINIMUM PAYMENT: The minimum payment per call at any individual job sites or various job sites during the same day will be eight hundred dollars ($800.00).

Note 3: All payments shall be made as described in paragraph 1.09 herein.

Note 4: WORKING HIGHER THAN 12 FEET ABOVE FLOOR LEVEL OR WORK REQUIRING COMPLEX SCAFFOLDING OR CONSTRUCTION WORK PLATFORMS: Provisions are made in this Contract to compensate the Asbestos abatement contractor for work performed in locations that are difficult to access due to work at elevations that are significantly higher than the normal work level. The unit price for these items will be paid at 1.20 times the unit price described in Paragraphs 1.09, A through R for those portions of the work that are more than twelve (12) feet above the grade for that would be judged as the normal working level.

1.10 GUARANTEE

A. Work performed in compliance with each task shall be guaranteed for a period of one year from the date the completed work is accepted by the Department of Design and Construction.

B. The Commissioner of The Department of Design and Construction will notify the Asbestos abatement contractor in writing regarding defects in work under the guarantee.

1.11 OCCUPANCY OF SITE NOT EXCLUSIVE

Attention is specifically drawn to the fact that contractors, performing the work of other Contracts, may be brought upon any of the work sites of this Contract. Therefore, the

Asbestos abatement contractor shall not have exclusive rights to any site of his work and shall fully cooperate and coordinate his work with the work of other contractors who may be brought upon any site of the work of this Contract. This paragraph applies to those areas outside the regulated Work Area as defined by Title 15, Chapter I of RCNY.

1.12 SUBMITTALS

A. Pre-Construction Submittals:

1. Attend a pre-construction meeting scheduled by the City of New York Department of Design and Construction. This meeting shall also be attended by a designated representative of the City of New York third party air monitoring firm, facility manager and the Construction Project Manager. At this meeting, the Asbestos abatement contractor shall present three copies of the following items:
   a. Asbestos abatement contractor's scope of work, work plan and schedule.

   b. Asbestos project notifications, approved variances and plans to Government Agencies.

   c. Copies of Permits, clearance and licenses if required.

   d. Schedules: the Asbestos abatement contractor shall provide to the Construction Project Manager a copy of the following schedules for approval. Once approved, schedules shall be maintained and updated as received. Asbestos abatement contractor shall post a copy of all schedules at the site:

      (1) A construction schedule stating critical dates of the project including, but not limited to, mobilization, Work Area preparation, demolition, gross removal, fine cleaning, encapsulation, inspections, clearance monitoring, and phase of refinishing and final inspections. The schedule shall be updated biweekly, at a minimum.

      (2) A schedule of staffing stating number of workers per shift per activity, name and number of supervisor(s) per shift, shifts per day, and total days to be worked.

      (3) Submit all changes in schedule or staffing to the Construction Project Manager prior to implementation.

e. Written description of emergency procedures to be followed in case of injury or fire. This section must include evacuation procedures, source of medical assistance (name and telephone number to nearest hospital) and procedures to be used for access by medical personnel (examples: first aid squad and physician). NOTE: Necessary Emergency Procedures Shall Take Priority Over All Other Requirements of These Specifications.

f. Material Safety Data Sheets (MSDS) for encapsulants, sealants, firestopping foam, cleaners/disinfectants, spray adhesive and any and all potentially hazardous materials that may be employed on the project. No work involving the aforementioned will be allowed to proceed until MSDS are reviewed.

g. Worker Training and Medical Surveillance: The Asbestos abatement contractor shall submit a list of the persons who will be employed by him /her to perform the removal work. Present evidence that workers have received proper training required by the regulations and the medical examinations required by OSHA 29 CFR 1926.1101.

h. Logs: Specimen copies of daily progress log, visitor's log, and disposal log.

(1) The Asbestos abatement contractor shall provide a permanently bound log book of minimum 8-1/2" x 11" size at the entrance to the Worker and Waste Decontamination enclosure system as hereinafter specified. Log book shall contain on title page the project name, name, address and phone number of the Asbestos abatement contractor; name, address and phone number of Asbestos abatement contractor and City's third party air monitoring firm; emergency numbers including, but not limited to local Fire/Rescue Department. Log book shall contain a list of personnel approved for entry into the Work Area.

(2) All entries into the log shall be made in non-washable, permanent ink and such pen shall be strung to or otherwise attached to the log to prevent removal from the log-in area. Under no circumstances shall pencil entries be permitted. Any significant events occurring during the abatement project shall be entered into the log. Upon completion of the job, the Asbestos abatement contractor shall submit the logbook containing a day-to-day record of personnel log entries countersigned by the Construction Project Manager every day.

i. Worker's Acknowledgments: Submit statements signed by each employee that the employee has received training in the proper handling of ACM, understands the health implications and risks involved; and understands the use and limitations of the respiratory equipment to be used.

B. During Construction Submittals:

1. Security and safety logs showing names of person entering workspace, date and time of entry and exit, record of any accident, emergency evacuation, and any other safety and/or health incident.

2. Progress logs showing the number of workers, supervisors, hours of work and tasks completed shall be submitted daily to the Construction Project Manager.

3. Floor plans indicating Asbestos abatement contractor's current work progress shall be submitted for review by the Construction Project Manager.

4. All Asbestos abatement contractors' air monitoring and inspection results.

C. Project Closeout Submittals:

Upon completion of the project and as a condition of acceptance, the Asbestos abatement contractor shall present two copies of the following items, bound and indexed:

1. Lien Waivers from Asbestos abatement contractor, Sub-Asbestos abatement contractors and Suppliers,

2. Daily OSHA air monitoring results,

3. All Waste Manifests (Asbestos and Construction Debris), seals and disposal logs,

4. Field Sign-In/Sign-Out Logs for every shift,

5. Copies of all Building Department Forms and Permits,

6. A Letter of Compliance stating that all the work on this project was performed in accordance with the Specifications and all applicable Federal, State and Local regulations,

7. All Warranties as stated in the Specifications,

a. Fully executed disposal certificates and transportation manifest.

8. Project Record: The Asbestos abatement contractor shall maintain a project record for all small and large asbestos projects. During the project, the project record shall be kept on site at all times. Upon completion of the project, the project record shall be maintained by the City of New York. The project record shall be submitted to DDC as part of the close out documents. The project record shall consist of:

   a. Copies of licenses of all asbestos abatement contractors involved in the project;

   b. Copies of NYCDEP and NYSDOL supervisor and handler certificates for all workers engaged in the project;

   c. Copies of all project notifications and reports filed with NYCDEP, NYSDOL and USEPA for the project, with any amendments or variances;

   d. Copies of all asbestos abatement permits, including associated approved plans and work place safety plan;

   e. A copy of the air sampling log and all air sampling results;

   f. A copy of the abatement asbestos abatement contractor's daily log book;

   g. Copies of all asbestos waste manifests;

   h. A copy of all Project Monitor's Reports (ACP-15).

   i. A copy of each ATR-1 Form completed for the asbestos project (if required).

   j. A copy of each Asbestos Project Conditional Closeout Report (ACP-20) if required.

   k. A copy of the Asbestos Project Completion Form (ACP-21).

1.13 PROTECTION OF FURNITURE AND EQUIPMENT

Cover all furniture and equipment that cannot be removed from Work Areas. Movable furniture and equipment will be removed from Work Areas by the Asbestos abatement contractor prior to start of work. At the conclusion of the work (after final air testing), the Asbestos abatement contractor will remove all plastic covering on walls, floors, furniture, equipment and reinstall furniture and equipment. He shall remove and store all sheaths, curtains and drapes, and reinstall same following final clean up.

1.14 UTILITIES

A. General:

All temporary facilities shall be subject to the approval of the Commissioner. Prior to starting work at any site, locations and/or sketches (if required) of temporary facilities must be submitted to the Construction Project Manager for the required approval.

B. Water:

The Department of Design and Construction will furnish all water needed for construction, at no cost to the Asbestos abatement contractor in buildings under their jurisdiction. However, it is the responsibility of the Asbestos abatement contractor to ensure that hot water is provided for showering in the decontamination unit. The Asbestos abatement contractor shall furnish, install and maintain any needed equipment to meet these requirements at his own expense.

C. Electricity:

The Department of Design and Construction will furnish all electricity needed for construction, at no cost to the Asbestos abatement contractor in a building, under their jurisdiction. The Asbestos abatement contractor is responsible for routing the electric power to the abatement Work Area.

All temporary lighting and temporary electrical service for Work Area shall be in weatherproof enclosures and be ground fault protected.

D. In leased spaces, arrangements for water supplies and electricity must be made with the landlord. However, all such arrangements must be made through and are subject to approval of the Department of Design and Construction. Utilities will be provided at no cost to the Asbestos abatement contractor. However, it is the Asbestos abatement contractor's (or the HVAC contractor's) responsibility to furnish and install a suitable distribution system to the Work Area. This system will be provided at no cost to the City.

1.15 FEES

The Asbestos abatement contractor shall be responsible for any and all fees or charges imposed by Local, State or Federal Law, Rule and Regulation applicable to the work specified herein, including fees or charges which may be imposed subsequent to the date of the Bid opening.

END OF SECTION

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SECTION 23 05 03 - PIPES AND TUBES FOR HVAC PIPING AND EQUIPMENT

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Pipe and pipe fittings for the following systems:
   1. Refrigerant piping.
   2. Equipment drains and over flows.
   3. Low pressure steam piping.
   4. Low pressure steam condensate piping.
   5. Unions and flanges.

B. Related Sections:

   1. Section 07 84 13 – Penetration Firestopping Product requirements for firestopping for placement by this section.
   2. Section 08 31 13 - Access Doors and Frames: Product requirements for access doors for placement by this section.
   3. Section 09 91 00 - Painting Product and execution requirements for painting specified by this section.
   4. Section 23 05 16 - Expansion Fittings and Loops for HVAC Piping Piping Expansion Compensation: Product requirements for piping expansion compensation devices for placement by this section.
   5. Section 23 05 23 - General-Duty Valves for HVAC Piping: Product requirements for valves for placement by this section.
   6. Section 23 05 29 - Hangers and Supports for HVAC Piping and Equipment: Product requirements for pipe hangers and supports and firestopping for placement by this section.
   7. Section 23 05 48 - Vibration and Seismic Controls for HVAC Piping and Equipment: Product requirements for vibration isolation for placement by this section.
   8. Section 23 07 00 - HVAC Insulation: Product requirements for piping insulation for placement by this section.
   9. Section 23 22 16 - Steam and Condensate Piping Specialties: Product requirements for steam and condensate piping specialties for placement by this section.

1.2 REFERENCES

A. American Society of Mechanical Engineers:
   1. ASME B16.3 - Malleable Iron Threaded Fittings.
   2. ASME B16.4 - Gray Iron Threaded Fittings.
   3. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings.
   4. ASME B16.22 - Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.
   5. ASME B16.26 - Cast Copper Alloy Fittings for Flared Copper Tubes.
   6. ASME B31.1 - Power Piping.
   7. ASME B31.9 - Building Services Piping.
   8. ASME B36.10M - Welded and Seamless Wrought Steel Pipe.

B. ASTM International:

1. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
2. ASTM A234/A234M - Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service.
3. ASTM A395/A395M - Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures.
4. ASTM A536 - Standard Specification for Ductile Iron Castings.
5. ASTM A746 - Standard Specification for Ductile Iron Gravity Sewer Pipe.
6. ASTM B32 - Standard Specification for Solder Metal.
7. ASTM B68 - Standard Specification for Seamless Copper Tube, Bright Annealed.
8. ASTM B280 - Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service.
9. ASTM B584 - Standard Specification for Copper Alloy Sand Castings for General Applications.

C. American Welding Society:
1. AWS A5.8 - Specification for Filler Metals for Brazing and Braze Welding.
2. AWS D1.1 - Structural Welding Code - Steel.

D. American Water Works Association:
1. AWWA C105 - American National Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems.
2. AWWA C110 - American National Standard for Ductile-Iron and Grey-Iron Fittings, 3 in. through 48 in. (75 mm through 1200 mm), for Water and Other Liquids.
3. AWWA C111 - American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
4. AWWA C151 - American National Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water.

E. National Fire Protection Association:
1. NFPA 30 - Flammable and Combustible Liquids Code.
2. NFPA 31 - Standard for the Installation of Oil-Burning Equipment.
3. NFPA 54 - National Fuel Gas Code.
4. NFPA 58 - Liquefied Petroleum Gas Code.

1.3 SUBMITTALS

A. See DDC-General conditions-

B. Shop Drawings: Indicate layout of piping systems, including equipment, critical dimensions, and sizes.

C. Product Data: Submit data on pipe materials and fittings. Submit manufacturers catalog information.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with ASME B31.1, ASME B31.9 code for installation of piping systems and ASME Section IX for welding materials and procedures.

B. Maintain one copy each document on site.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing work of this section with minimum three years documented experience.

C. Design piping systems pipe hangers and supports under direct supervision of Professional Engineer experienced in design of this Work and licensed in New York City.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Requirements for transporting, handling, storing, and protecting products.

B. Furnish temporary end caps and closures on piping and fittings. Maintain in place until installation.

C. Protect piping from entry of foreign materials by temporary covers, completing sections of the Work, and isolating parts of completed system.

1.7 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

PART 2 PRODUCTS

2.1 PIPING

A. Steel Pipe: ASTM A53/A53M, Schedule 40, 0.375 inch wall for sizes 12 inch and larger, black, cut rolled grooved ends.
   1. Fittings: ASTM A395/A395M and ASTM A536 ductile iron, or ASTM A234/A234M carbon steel, grooved ends.
   2. Joints: Grooved mechanical couplings meeting ASTM F1476.
      a. Housing Clamps: ASTM A395/A395M and ASTM A536 ductile iron.
      b. Gasket: Elastomer composition for operating temperature range from 86 degrees F to 180 degrees F.
      c. Accessories: Stainless steel bolts, nuts, and washers.

B. Copper Tubing: ASTM B88 Type K, L, M, hard drawn.
   1. Fittings: ASME B16.18, cast brass, or ASME B16.22 solder wrought copper.
   2. Tee Connections: Mechanically extracted collars with notched and dimpled branch tube.
   3. Joints: Solder, lead free, ASTM B32, 95-5 tin-antimony, or tin and silver, with melting range 430 to 535 degrees F. Braze, AWS A5.8 BCUP silver/phosphorus/copper alloy with melting range 1190 to 1480 degrees

C. Copper Tubing: ASTM B88, Type M, L, K, hard drawn, rolled grooved ends.
   1. Fittings: ASME B16.18 cast copper alloy, or ASME B16.22 wrought copper and bronze, grooved ends.
   2. Joints: Grooved mechanical couplings meeting ASTM F1476.

a. Housing Clamps: ASTM A395/A395M and ASTM A536 ductile iron, enamel coated, compatible with copper tubing sizes, to engage and lock designed to permit some angular deflection, contraction, and expansion.
b. Gasket: Elastomer composition for operating temperature range from -30 degrees F to180 degrees F.
c. Accessories: Steel bolts, nuts, and washers.

2.2 EQUIPMENT DRAINS AND OVERFLOWS

A. Steel Pipe: ASTM A53/A53M Schedule 40, galvanized.
1. Fittings: ASME B16.3, malleable iron or ASME B16.4, cast iron.
2. Joints: Threaded for pipe 2 inch and smaller; flanged for pipe 2-1/2 inches and larger.

B. Steel Pipe: ASTM A53/A53M Schedule 40, galvanized, rolled grooved ends.
1. Fittings: ASTM A395/A395M and ASTM A536 ductile iron, grooved ends.
2. Joints: Grooved mechanical couplings meeting ASTM F1476.
a. Housing Clamps: ASTM A395/A395M and ASTM A536 ductile iron, hot dipped galvanized, compatible with steel piping sizes, rigid type.
b. Gasket: Elastomer composition for operating temperature range from 86 to 180 degrees F.
c. Accessories: Stainless steel bolts, nuts, and washers.

C. Copper Tubing: ASTM B88, Type L, hard drawn.
1. Fittings: ASME B16.18, cast brass, or ASME B16.22 solder wrought copper.
2. Joints: Solder, lead free, 95-5 tin-antimony, or tin and silver, with melting range 430 to 535 degrees F..

2.3 LOW PRESSURE STEAM PIPING, ABOVE GROUND (15 PSIG MAXIMUM)

A. Steel Pipe: ASTM A53/A53M, Schedule 40, black.
1. Fittings: ASME B16.3 malleable iron Class 125, or ASTM A234/A234M forged steel Class 125.
2. Joints: Threaded for pipe 2 inch and smaller; welded for pipe 2-1/2 inches and larger.

2.4 LOW PRESSURE STEAM CONDENSATE PIPING, ABOVE GROUND

A. Steel Pipe: ASTM A53/A53M, Schedule 80, 0.375 inch wall for sizes 12 inch and larger, black.
1. Fittings: ASME B16.3 malleable iron Class 125, or ASTM A234/A234M forged steel Class 125.
2. Joints: Threaded for pipe 2 inch (50 mm) and smaller; welded for pipe 2-1/2 inches and larger.

2.5 UNIONS AND FLANGES

A. Unions for Pipe 2 inches and Smaller:
1. Ferrous Piping: Class 150, malleable iron, threaded.
2. Copper Piping: Class 150, bronze unions with brazed joints.
3. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.
4. PVC Piping: PVC.

5. CPVC Piping: CPVC.

B. Flanges for Pipe 2-1/2 inches (65 mm) and Larger:
1. Ferrous Piping: Class 300, forged steel, slip-on flanges.
2. Copper Piping: Class 150, slip-on bronze flanges.
3. CPVC Piping: CPVC flanges.
4. Gaskets: 1/16 inch thick preformed neoprene gaskets.

C. PVC Pipe Materials: For connections to equipment and valves with threaded connections, furnish solvent-weld socket to screwed joint adapters and unions, or ASTM D2464, Schedule 80, threaded, PVC pipe.

PART 3 EXECUTION

3.1 EXAMINATION

A. See DDC General Conditions-

B. Verify excavations are to required grade, dry, and not over-excavated.

C. Verify trenches are ready to receive piping.

3.2 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.

B. Remove scale and dirt on inside and outside before assembly.

C. Prepare piping connections to equipment with flanges or unions.

D. Keep open ends of pipe free from scale and dirt. Protect open ends with temporary plugs or caps.

3.3 INSTALLATION - ABOVE GROUND PIPING

A. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.

B. Install piping to maintain headroom without interfering with use of space or taking more space than necessary.

C. Group piping whenever practical at common elevations.

D. Sleeve pipe passing through partitions, walls and floors. Refer to Section 23 05 29.

E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment. Refer to Section 23 05 16.

F. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings. Refer to Section 23 07 00.

G. Provide access where valves and fittings are not accessible. Coordinate size and location of access doors with Section 08 31 13.

H. Install non-conducting dielectric connections wherever jointing dissimilar metals.

I. Establish invert elevations, slopes for drainage to 1/8 inch per foot minimum. Maintain gradients.

J. Slope piping and arrange systems to drain at low points.

K. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the Work, and isolating parts of completed system.

L. Install valves in accordance with Section 23 05 23.

M. Install steam and condensate piping specialties in accordance with Section 23 22 16.

N. Insulate piping. Refer to Section 23 07 00.

O. Install pipe identification in accordance with Section 23 05 53.

3.4 INSTALLATION - HEATING AND COOLING PIPING SYSTEMS

A. Install steam supply and steam condensate return piping in accordance with ASME B31.1 ASME B31.9.

3.5 FIELD QUALITY CONTROL

A. See DDC General Conditions -

B. Test low pressure steam supply piping in accordance with ASME B31.9, ASME B31.1.

C. Test low pressure steam supply piping and condensate piping in accordance with ASME B31.9 ASME B31.1.

D. Pressure test natural gas piping in accordance with NFPA 54.

3.6 CLEANING

A. See DDC General Conditions-

B. After completion, clean, and treat low pressure steam supply piping flow pressure steam condensate piping.

END OF SECTION

SECTION 23 05 13 - COMMON MOTOR REQUIREMENTS FOR HVAC EQUIPMENT

PART 1 GENERAL

1.1 SUMMARY

A. Section includes single- and three-phase motors for application on equipment provided under other sections.

B. Related Sections:
1. *Section 26 05 26 - Grounding and Bonding for Electrical Systems.*
2. Section 26 05 53 - Identification for Electrical Systems.

1.2 REFERENCES

A. American Bearing Manufacturers Association:
1. ABMA 9 - Load Ratings and Fatigue Life for Ball Bearings.

B. National Electrical Manufacturers Association:
1. NEMA MG 1 - Motors and Generators.

C. International Electrical Testing Association:
1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

1.3 SUBMITTALS

A. See -DDC General Conditions

B. Product Data: Submit catalog data for each motor furnished loose. Indicate nameplate data, standard compliance, electrical ratings and characteristics, and physical dimensions, weights, mechanical performance data, and support points.

C. Test Reports: Indicate procedures and results for specified factory and field testing and inspection.

1.4 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

B. Testing Agency: Company member of International Electrical Testing Association and specializing in testing products specified in this section with minimum three years documented experience.

1.5 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions:

B. Lift only with lugs provided. Handle carefully to avoid damage to components, enclosure, and finish.

C. Protect products from weather and moisture by covering with plastic or canvas and by maintaining heating within enclosure.

D. For extended outdoor storage, remove motors from equipment and store separately.

PART 2 PRODUCTS

2.1 PRODUCT REQUIREMENTS FOR MOTORS FURNISHED WITH EQUIPMENT

A. Manufacturers:
1. Cooper Industries Inc.
2. Eaton Corp.
3. General Electric Co.

B. Motors 3/4 hp and Larger: Three-phase motor as specified below.

C. Motors Smaller Than 3/4 hp: Single-phase motor as specified below, except motors less than 250 watts or 1/4 hp may be equipment manufacturer's standard.

D. Three-Phase Motors: NEMA MG 1, Design B, energy-efficient squirrel-cage induction motor, with windings to accomplish starting methods and number of speeds as indicated on Drawings.
1. Voltage: As indicated on Drawings.
2. Service Factor: As indicated on Drawings.
3. Enclosure: Meet conditions of installation unless specific enclosure is indicated on Drawings.
4. Design for continuous operation in 40 degrees C environment, with temperature rise in accordance with NEMA MG 1 limits for insulation class, service factor, and motor enclosure type.
5. Insulation System: NEMA Class F.
6. Motor Frames: NEMA Standard T-Frames of steel, aluminum, or cast iron with end brackets of cast iron or aluminum with steel inserts.
7. Thermistor System (Motor Frame Sizes 254T and Larger): Three PTC thermistors embedded in motor windings and epoxy encapsulated solid state control relay with wiring to terminal box.
8. Bearings: Grease lubricated anti-friction ball bearings with housings equipped with plugged provision for relubrication, rated for minimum ABMA 9, L-10 life of 200,000 hours. Calculate bearing load with NEMA minimum V-belt pulley with belt center line at end of NEMA standard shaft extension. Stamp bearing sizes on nameplate.
9. Sound Power Levels: Conform to NEMA MG 1.

E. Single Phase Motors:
1. Permanent split-capacitor type where available, otherwise use split-phase start/capacitor run or capacitor start/capacitor run motor.
2. Voltage: 115/230 volts, single phase, 60 Hz.

F. Wiring Terminations: Furnish terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated.

2.2 THREE-PHASE MOTORS FURNISHED LOOSE

A. Product Description: NEMA MG 1, Design B, energy-efficient squirrel-cage induction motor, with windings to accomplish starting methods and number of speeds indicated.

B. Voltage: 208 volts, three phase, 60 Hz.

C. Service Factor: As indicated on Drawings.

D. Enclosure: Meet conditions of installation unless specific enclosure is specified or indicated.

E. Design for continuous operation in 40 degrees C environment, with temperature rise in accordance with NEMA MG 1 limits for insulation class, service factor, and motor enclosure type.

F. Insulation System: NEMA Class F.

G. Motor Frames: NEMA Standard T-Frames of steel, aluminum, or cast iron with end brackets of cast iron or aluminum with steel inserts.

H. Thermistor System (Motor Frame Sizes 254T and Larger): Three PTC thermistors embedded in motor windings and epoxy encapsulated solid state control relay with wiring to terminal box.

I. Bearings: Grease lubricated anti-friction ball bearings with housings equipped with plugged provision for relubrication, rated for minimum ABMA 9, L-10 life of 200,000 hours. Calculate bearing load with NEMA minimum V-belt pulley with belt center line at end of NEMA standard shaft extension. Stamp bearing sizes on nameplate.

J. Sound Power Levels: Conform to NEMA MG 1.

K. Wiring Terminations: Furnish terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated.

2.3 SOURCE QUALITY CONTROL

A. Test motors in accordance with NEMA MG 1, including winding resistance, no-load speed and current, locked rotor current, insulation high-potential test, and mechanical alignment tests.

PART 3 EXECUTION

3.1 EXISTING WORK

A. Disconnect and remove abandoned motors

B. Maintain access to existing motors and other installations remaining active and requiring access. Modify installation or provide access panel.

C. Clean and repair existing motors to remain or are to be reinstalled.

3.2 INSTALLATION

A. Install securely on firm foundation. Mount ball bearing motors with shaft in any position.

B. Install engraved plastic nameplates in accordance with Section 26 05 53.

C. Ground and bond motors in accordance with Section 26 05 26.

3.3 FIELD QUALITY CONTROL

A. See DDC General Conditions.

B. Inspect and test in accordance with NETA ATS, except Section 4.

C. Perform inspections and tests listed in NETA ATS, Section 7.15.

END OF SECTION

SECTION 23 05 16 - EXPANSION FITTINGS AND LOOPS FOR HVAC PIPING

PART 1 GENERAL

1.1 SUMMARY

A. Related Sections:
1. Section 23 05 29 - Hangers and Supports for HVAC Piping and Equipment: Product and installation requirements for piping hangers and supports.
2. Section 23 05 48 - Vibration and Seismic Controls for HVAC Piping and Equipment: Product and installation requirements for vibration isolators used in piping systems.
3. Section 23 22 13 - Steam and Condensate Heating Piping: Product and installation requirements for piping used in steam systems.
4. Section 23 23 00 - Refrigerant Piping: Product and installation requirements for piping used in refrigeration systems.

1.2 REFERENCES

A. American Society of Mechanical Engineers:
1. ASME B31.1 - Power Piping.
2. ASME B31.5 - Refrigeration Piping.
3. ASME B31.9 - Building Services Piping.
4. ASME Section IX - Boiler and Pressure Vessel Code - Welding and Brazing Qualifications.

B. American Welding Society:
1. AWS D1.1 - Structural Welding Code - Steel.

1.3 DESIGN REQUIREMENTS

A. Provide structural work and equipment required for expansion and contraction of piping. Verify anchors, guides, and expansion joints provide and adequately protect system.

B. Expansion Compensation Design Criteria:
1. Installation Temperature: 50 degrees F.
2. Steam Heating System Temperature: 250 degrees F.
3. Steam Heating System Operating Pressure: 15 psig.
4. Safety Factor: 30 percent.

1.4 SUBMITTALS

A. See DDC General Conditions.

B. Shop Drawings: Indicate layout of piping systems, including flexible connectors, expansion joints, expansion compensators, loops, offsets and swing joints. Include shop drawing information for piping expansion compensation in shop drawings for piping system.

C. Product Data:
1. Flexible Pipe Connectors: Indicate maximum temperature and pressure rating, face-to-face length, live length, hose wall thickness, hose convolutions per foot

and per assembly, fundamental frequency of assembly, braid structure, and total number of wires in braid.

2. Expansion Joints: Indicate maximum temperature and pressure rating, and maximum expansion compensation.

D. Design Data: Indicate criteria and show calculations. Submit sizing methods sealed by a registered professional engineer.

E. Manufacturer's Installation Instructions: Submit special procedures.

F. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

G. Welders' Certificate: Include welders' certification of compliance with ASME Section IX. AWS D1.

H. Manufacturer's Field Reports: Indicate results of inspection by manufacturer's representative.

1.5 CLOSEOUT SUBMITTALS

A. See DDC General Conditions.

B. Project Record Documents: Record actual locations of flexible pipe connectors, expansion joints, anchors, and guides.

C. Operation and Maintenance Data: Submit adjustment instructions.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with ASME B31.1 code for installation of piping systems and ASME Section IX for welding materials and procedures.

B. Maintain one copy of each document on site.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years experience.

B. Installer: Company specializing in performing Work of this section with minimum three years experience.

1.8 DELIVERY, STORAGE, AND HANDLING

A. See DDC General conditions

B. Accept expansion joints on site in factory packing with shipping bars and positioning devices intact. Inspect for damage.

C. Protect equipment from exposure by leaving factory coverings, pipe end protection, and packaging in place until installation.

1.9 WARRANTY

A. See DDC General Conditions.

B. Furnish five year manufacturer warranty for leak free performance of packed expansion joints.

1.10 EXTRA MATERIALS

A. See DDC General Conditions.

B. Supply two 12 ounce containers of packing lubricant and cartridge style grease gun.

PART 2 PRODUCTS

2.1 FLEXIBLE PIPE CONNECTORS

A. Steel Piping:
1. Inner Hose: Stainless Steel Bronze.
2. Exterior Sleeve: Double braided stainless steel.
3. Pressure Rating: 450 degrees F 200 psig and 250 degrees F
4. Joint: Flanged.
5. Size: Use pipe-sized units.
6. Maximum offset: 3/4 inch on each side of installed center line.

B. Copper Piping:
1. Inner Hose: Bronze.
2. Exterior Sleeve: Braided bronze.
3. Pressure Rating: 200 psig WOG and 250 degrees F.
4. Joint: As specified for pipe joints
5. Size: Use pipe sized units.
6. Maximum offset: 3/4 inch on each side of installed center line.

2.2 EXPANSION JOINTS

A. Stainless Steel Bellows Type:
1. Pressure Rating: 200 psig WOG and 250 degrees F.
2. Maximum Compression: 1-3/4 inch.
3. Maximum Extension: 1/4 inch.
4. Joint: As specified for pipe joints.
5. Size: Use pipe sized units.
6. Application: Steel piping 3 inch and smaller.

B. External Ring Controlled Stainless Steel Bellows Type:
1. Pressure Rating: 200 psig WOG and 250 degrees F
2. Maximum Compression: 15/16 inch.
3. Maximum Extension: 5/16 inch.
4. Maximum Offset: 1/8 inch.
5. Joint: Flanged.
6. Size: Use pipe sized units.
7. Accessories: Internal flow liner.
8. Application: Steel piping 3 inch and larger.

C. Two-ply Bronze Bellows Type:
   1. Construction: Bronze with anti-torque device, limit stops, internal guides.
   2. Pressure Rating: 200 psi WOG and 250 degrees F.
   3. Maximum Compression: 1-3/4 inch.
   4. Maximum Extension: 1/4 inch.
   5. Joint: As specified for pipe joints.
   6. Size: Use pipe sized units.
   7. Application: Copper piping.

D. Copper with Packed Sliding Sleeve:
   1. Maximum Temperature: 250 degrees F.
   2. Joint: As specified for pipe joints.
   3. Size: Use pipe sized units.
   4. Copper or steel piping 2 inches and larger.
   5. Application: Copper or steel piping 2 inch and larger.

2.3 ACCESSORIES

A. Pipe Alignment Guides: Two piece welded steel with enamel paint, bolted, with spider to fit standard pipe, frame with four mounting holes, clearance for minimum 1 inch thick insulation, minimum 3 inch travel.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install Work in accordance with ASME B31.1.

B. Install flexible connectors at right angles to displacement. Install one end immediately adjacent to isolated equipment and anchor other end. Install in horizontal plane unless indicated otherwise.

C. Rigidly anchor pipe to building structure. Provide pipe guides to direct movement only along axis of pipe. Erect piping so strain and weight is not on cast connections or apparatus.

D. Provide support and anchors for controlling expansion and contraction of piping. Provide loops, pipe offsets, and swing joints, or expansion joints where required. Refer to Section 22 05 29 for pipe hanger installation requirements.

E. Provide grooved piping systems with minimum one joint per inch pipe diameter instead of flexible connector supported by vibration isolation. Grooved piping systems need not be anchored.

3.2 MANUFACTURER'S FIELD SERVICES

A. See DDC General Conditions- Manufacturers' field services.

B. Furnish inspection services by flexible pipe manufacturer's representative for final installation and certify installation is in accordance with manufacturer's recommendations and connectors are performing satisfactorily.

END OF SECTION

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SECTION 23 05 23 - GENERAL-DUTY VALVES FOR HVAC PIPING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Gate valves.
2. Ball valves.
3. Plug valves.
4. Check valves.

B. Related Sections:
1. Section 23 05 03 - Pipes and Tubes for HVAC Piping and Equipment: Product and installation requirements for piping materials applying to various system types.
2. Section 23 05 29 - Hangers and Supports for HVAC Piping and Equipment: Product and installation requirements for pipe hangers and supports.
Section 23 07 00 - HVAC Insulation: Product and installation requirements for insulation for valves.
3. Section 23 22 13 - Steam and Condensate Heating Piping: Product and installation requirements for piping used in steam and steam condensate piping systems.
4. Section 23 22 16 - Steam and Condensate Piping Specialties: Product and installation requirements for piping specialties used in steam and steam condensate, piping systems.

1.2 REFERENCES

A. ASTM International:
1. ASTM A216/A216M - Standard Specification for Steel Castings, Carbon, Suitable for Fusion Welding, for High-Temperature Service.
2. ASTM D1784 - Standard Specification for Rigid Poly.
3. ASTM D4101 - Standard Specification for Propylene Injection and Extrusion Materials.

B. Manufacturers Standardization Society of the Valve and Fittings Industry:
1. MSS SP 67 - Butterfly Valves.
2. MSS SP 70 - Cast Iron Gate Valves, Flanged and Threaded Ends.
3. MSS SP 71 - Cast Iron Swing Check Valves, Flanged and Threaded Ends.
4. MSS SP 78 - Cast Iron Plug Valves, Flanged and Threaded Ends.
5. MSS SP 80 - Bronze Gate, Globe, Angle and Check Valves.
6. MSS SP 85 - Cast Iron Globe & Angle Valves, Flanged and Threaded.
7. MSS SP 110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.

C. Underwriters Laboratories Inc.:
1. UL 842 - Valves for Flammable Fluids.

1.3 SUBMITTALS

A. See DDC General Conditions.

1.3 SUBMITTALS

A. See DDC General Conditions.

B. Product Data: Submit manufacturers catalog information with valve data and ratings for each service.

C. Manufacturer's Installation Instructions: Submit hanging and support methods, joining procedures.

D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.4 CLOSEOUT SUBMITTALS

A. See DDC General Conditions.

B. Project Record Documents: Record actual locations of valves.

C. Operation and Maintenance Data: Submit installation instructions, spare parts lists, exploded assembly views.

1.5 QUALITY ASSURANCE

A. Maintain one copy of each document on site.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years experience.

B. Installer: Company specializing in performing work of this section with minimum three years experience.

1.7 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions.

B. Accept valves on site in shipping containers with labeling in place. Inspect for damage.

C. Provide temporary protective coating on cast iron and steel valves.

1.8 ENVIRONMENTAL REQUIREMENTS

A. See DDC General Conditions.

B. Do not install valves underground when bedding is wet or frozen.

1.9 WARRANTY

A. See DDC General Conditions.

B. Furnish five year manufacturer warranty for valves excluding packing.

1.10 EXTRA MATERIALS

A. See DDC General Conditions.

B. Furnish two packing kits for each size valve.

PART 2 PRODUCTS

2.1 GATE VALVES

A. Manufacturers:
1. Crane Valve, North America
2. Hammond Valve Model
3. Milwaukee Valve Company.
4. NIBCO, Inc. Model.
5. Stockham Valves & Fittings.

B. 2 inches and Smaller: MSS SP 80, Class 150, bronze body, bronze trim, threaded union bonnet, rising stem, inside screw.

C. 2-1/2 inches and Larger: MSS SP 70, Class 125, cast iron body, bronze trim, rising stem, hand-wheel, outside screw and yoke, solid wedge disc with bronze seat rings, flanged ends.

2.2 BALL VALVES

A. Manufacturers:
1. Crane Valve, North America
2. Hammond Valve Model
3. Milwaukee Valve Company.
4. NIBCO, Inc. Model.
5. Stockham Valves & Fittings.

B. 2 inches and Smaller: MSS SP 110, Class 150, bronze, three piece body, type 316 stainless steel ball, full port, teflon seats, blow-out proof stem, threaded ends, lever handle locking lever handle.

C. 1/4 inch to 1 inch: MSS SP 110, Class 125, two piece, threaded ends, bronze body, chrome plated bronze ball, reinforced teflon seats, blow-out proof stem, lever handle, UL 842 listed for flammable liquids and LPG, full port.

D. 1-1/4 inch to 3 inch: MSS SP 110, Class 125, two piece, threaded ends, bronze body, chrome plated bronze ball, reinforced teflon seats, blow-out proof stem, lever handle, UL 842 listed for flammable liquids and LPG, conventional port.

2.3 PLUG VALVE

A. Manufacturers:
1. Crane Valve, North America
2. Hammond Valve Model

3. Milwaukee Valve Company.
4. NIBCO, Inc. Model.
5. Stockham Valves & Fittings.

B. 2 inches and Smaller: MSS SP 78, Class 150, semi-steel construction, round port, full pipe area regular opening, and pressure lubricated, teflon packing, threaded ends. Furnish one plug valve wrench for every ten plug-valves with minimum of one wrench.

C. 2-1/2 inches and Larger: MSS SP 78, Class 150, semi-steel construction, round port, full pipe area regular opening, pressure lubricated, teflon packing, flanged ends.

2.4 CHECK VALVES

A. Manufacturers:
1. Crane Valve, North America
2. Hammond Valve Model
3. Milwaukee Valve Company.
4. NIBCO, Inc. Model.
5. Stockham Valves & Fittings.

B. 2 inches and Smaller: MSS SP 80, Class 200, bronze body and cap, Y-pattern, bronzeregrinding disc, threaded ends.

C. 2-1/2 inches and Larger: MSS SP 71, Class 250, cast iron body, bolted cap, bronze or cast iron disc, flanged ends.

2.5 SPRING LOADED CHECK VALVE

A. Manufacturers:
1. Crane Valve, North America
2. Hammond Valve Model
3. Milwaukee Valve Company.
4. NIBCO, Inc. Model.
5. Stockham Valves & Fittings.

B. 2 inches and Smaller: MSS SP 80, Class 250, bronze body, in-line spring lift check, silent closing, teflon disc, integral seat, threaded ends.

C. 2-1/2 inches and larger: MSS SP 71, Class 125, globe style, cast iron body, bronze seat, center guided bronze disc, stainless steel spring and screws, flanged ends.

PART 3 EXECUTION

3.1 EXAMINATION

A. See DDC General Conditions.

B. Verify piping system is ready for valve installation.

3.2 INSTALLATION

A. For installation of valves in steam and steam condensate piping systems refer to Section 23 22 13.

3.3 VALVE APPLICATIONS

A. Install shutoff and drain valves at locations indicated on Drawings in accordance with this Section.

B. Install ball valves for shut-off and to isolate equipment, part of systems, or vertical risers.

C. Install ball and gate valves in heating for shut-off service.

D. Install ball butterfly valves in heating systems for throttling service.

END OF SECTION

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SECTION 23 05 29- HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

PART 1 GENERAL

1.1 SUMMARY

A. Related Sections:
1. Section 07 84 13 – Penetration firestopping product requirements for firestopping for placement by this section.
2. Section 07 92 00 - Joint Sealants product requirements for sealant materials for placement by this section.
3. Section 09 91 00 – Painting- Product and execution requirements for painting specified by this section.
4. Section 23 05 03 - Pipes and Tubes for HVAC Piping and Equipment: Execution requirements for placement of hangers and supports specified by this section.
5. Section 23 05 48 - Vibration and Seismic Controls for HVAC Piping and Equipment: Product and execution requirements for vibration isolators.
6. Section 23 22 13 - Steam and Condensate Heating Piping: Execution requirements for placement of hangers and supports specified by this section.

1.2 REFERENCES

A. American Society of Mechanical Engineers:
1. ASME B31.1 - Power Piping.
2. ASME B31.5 - Refrigeration Piping.
3. ASME B31.9 - Building Services Piping.

B. ASTM International:
1. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
2. ASTM E119 - Method for Fire Tests of Building Construction and Materials.
3. ASTM E814 - Test Method of Fire Tests of Through Penetration Firestops.
4. ASTM F708 - Standard Practice for Design and Installation of Rigid Pipe Hangers.
5. ASTM E1966 - Standard Test Method for Fire-Resistive Joint Systems.

C. American Welding Society:
1. AWS D1.1 - Structural Welding Code - Steel.

D. FM Global:
1. FM - Approval Guide, A Guide to Equipment, Materials & Services Approved By Factory Mutual Research For Property Conservation.

E. Manufacturers Standardization Society of the Valve and Fittings Industry:
1. MSS SP 58 - Pipe Hangers and Supports - Materials, Design and Manufacturer.
2. MSS SP 69 - Pipe Hangers and Supports - Selection and Application.
3. MSS SP 89 - Pipe Hangers and Supports - Fabrication and Installation Practices.

F. Underwriters Laboratories Inc.:
1. UL 263 - Fire Tests of Building Construction and Materials.
2. UL 723 - Tests for Surface Burning Characteristics of Building Materials.

3. UL 1479 - Fire Tests of Through-Penetration Firestops.
4. UL 2079 - Tests for Fire Resistance of Building Joint Systems.
5. UL - Fire Resistance Directory.

G. Intertek Testing Services (Warnock Hersey Listed):
1. WH - Certification Listings.
2. UL – Underwirters Laboratory
3. CG – Certifi Group

1.3 DEFINITIONS

A. Firestopping (Through-Penetration Protection System): Sealing or stuffing material or assembly placed in spaces between and penetrations through building materials to arrest movement of fire, smoke, heat, and hot gases through fire rated construction.

1.4 SYSTEM DESCRIPTION

A. Firestopping Materials: ASTM and UL listed to achieve fire ratings of adjacent.

B. Surface Burning: ASTM E84 UL 723 with maximum flame spread / smoke developed rating of 25/450.

C. Firestop interruptions to fire rated assemblies, materials, and components.

1.5 PERFORMANCE REQUIREMENTS

A. Firestopping:

1. Conform to applicable code for fire resistance ratings and surface burning characteristics.

2. Firestopping: Provide certificate of compliance from authority having jurisdiction indicating approval of materials used.

1.6 SUBMITTALS

A. See DDC General Conditions -

B. Shop Drawings: Indicate system layout with location including critical dimensions, sizes, and pipe hanger and support locations and detail of trapeze hangers.

C. Product Data:
1. Hangers and Supports: Submit manufacturers catalog data including load capacity.
2. Firestopping: Submit data on product characteristics, performance and limitation criteria.

D. Firestopping Schedule: Submit schedule of opening locations and sizes, penetrating items, and required listed design numbers to seal openings to maintain fire resistance rating of adjacent assembly.

E. Design Data: Indicate load carrying capacity of trapeze, multiple pipe, and riser support hangers. Indicate calculations used to determine load carrying capacity of trapeze, multiple pipe, and riser support hangers. Submit sizing methods calculations sealed by a registered professional engineer.

F. Manufacturer's Installation Instructions:
1. Hangers and Supports: Submit special procedures and assembly of components.
2. Firestopping: Submit preparation and installation instructions.

G. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.7 QUALITY ASSURANCE

A. Through Penetration Firestopping of Fire Rated Assemblies: UL 1479 and ASTM E814 with 0.10 inch water gage minimum positive pressure differential to achieve fire F-Ratings and temperature T-Ratings as indicated on Drawings, but not less than 1-hour.
1. Wall Penetrations: Fire F-Ratings as indicated on Drawings, but not less than 1-hour.
2. Floor Penetrations: Fire F-Ratings and temperature T-Ratings as indicated on Drawings, but not less than 1-hour.
a. Floor Penetrations Within Wall Cavities: T-Rating is not required.

B. Through Penetration Firestopping of Non-Fire Rated Floor Assemblies: Materials to resist free passage of flame and products of combustion.
1. Noncombustible Penetrating Items: Noncombustible materials for penetrating items connecting maximum of three stories.
2. Penetrating Items: Materials approved by authorities having jurisdiction for penetrating items connecting maximum of two stories.

C. Fire Resistant Joints in Fire Rated Floor, Roof, and Wall Assemblies: ASTM E1966 or UL 2079 to achieve fire resistant rating as indicated on Drawings for assembly in which joint is installed.

D. Fire Resistant Joints Between Floor Slabs and Exterior Walls: ASTM E119 with 0.10 inch water gage minimum positive pressure differential to achieve fire resistant rating as indicated on Drawings for floor assembly.

E. Surface Burning Characteristics: 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

F. Perform Work in accordance with applicable authority for welding hanger and support attachments to building structure.

G. Maintain one copy of each document on site.

1.8 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

1.9 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions.

B. Accept materials on site in original factory packaging, labeled with manufacturer's identification.

C. Protect from weather and construction traffic, dirt, water, chemical, and damage, by storing in original packaging.

1.10 ENVIRONMENTAL REQUIREMENTS

A. See DDC General Conditions.

B. Do not apply firestopping materials when temperature of substrate material and ambient air is below 60 degrees F.

C. Maintain this minimum temperature before, during, and for minimum 3 days after installation of firestopping materials.

1.11 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.12 WARRANTY

A. See DDC General Conditions.

B. Furnish five year manufacturer warranty for pipe hangers and supports.

PART 2 PRODUCTS

2.1 PIPE HANGERS AND SUPPORTS

A. Manufacturers:
1. Carpenter & Paterson Inc.
2. Creative Systems Inc.
3. Flex-Weld, Inc.
4. Glope Pipe Hanger Products Inc.
5. Michigan Hanger Co.
6. Superior Valve Co.

B. Hydronic Piping:
1. Conform to ASME B31.9 ASTM F708.
2. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron, adjustable swivel, split ring.
3. Hangers for Cold Pipe Sizes 2 inches and Larger: Carbon steel, adjustable, clevis.
4. Hangers for Hot Pipe Sizes 2 to 4 inches: Carbon steel, adjustable, clevis.

5. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.
6. Wall Support for Pipe Sizes 3 inches and Smaller: Cast iron hooks.
7. Vertical Support: Steel riser clamp.
8. Floor Support for Cold Pipe: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
9. Floor Support for Hot Pipe Sizes 4 Inches and Smaller: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
10. Copper Pipe Support: Copper-plated, carbon steel ring.

C. Steam and Steam Condensate Piping:
1. Conform to ASME B31.1, ASME B31.9, ASTM F708.
2. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron, adjustable swivel, split ring.
3. Hangers for Pipe Sizes 2 to 4 inches: Carbon steel, adjustable, clevis.
4. Multiple or Trapeze Hangers for Pipe Sizes 4 inches and Smaller: Steel channels with welded spacers and hanger rods.
5. Wall Support for Pipe Sizes 3 inches and Smaller: Cast iron hooks.

2.2 ACCESSORIES

A. Hanger Rods: Mild steel threaded both ends, threaded on one end, or continuous threaded.

2.3 INSERTS

A. Inserts: Malleable iron case of steel shell and expander plug for threaded connection with lateral adjustment, top slot for reinforcing rods, lugs for attaching to forms; size inserts to suit threaded hanger rods.

2.4 FLASHING

A. Metal Flashing: 26 gage thick galvanized steel.

B. Metal Counter flashing: 22 gage thick galvanized steel.

C. Caps: Steel, 22 gage minimum; 16 gage at fire resistant elements.

2.5 SLEEVES

A. Sleeves for Pipes Through Non-fire Rated Floors: 18 gage thick galvanized steel.

B. Sleeves for Pipes Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Steel pipe or 18 gage thick galvanized steel.

C. Sleeves for Round Ductwork: Galvanized steel.

D. Sleeves for Rectangular Ductwork: Galvanized steel or wood.

E. Sealant: Acrylic; refer to Section 07 92 00.

2.6 MECHANICAL SLEEVE SEALS

A. Product Description: Modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill annular space between object and sleeve, connected with bolts and pressure plates causing rubber sealing elements to expand when tightened, providing watertight seal and electrical insulation.

2.7 FORMED STEEL CHANNEL

A. Product Description: Galvanized 12 gage thick steel. With holes 1-1/2 inches on center.

2.8 FIRESTOPPING

A. Product Description: Different types of products by multiple manufacturers are acceptable as required to meet specified system description and performance requirements; provide only one type for each similar application.

1. Silicone Firestopping Elastomeric Firestopping: Multiple component silicone elastomeric compound and compatible silicone sealant.
2. Foam Firestopping Compounds: Multiple component foam compound.
3. Formulated Firestopping Compound of Incombustible Fibers: Formulated compound mixed with incombustible non-asbestos fibers.
4. Fiber Stuffing and Sealant Firestopping: Composite of mineral fiber stuffing insulation with silicone elastomer for smoke stopping.
5. Mechanical Firestopping Device with Fillers: Mechanical device with incombustible fillers and silicone elastomer, covered with sheet stainless steel jacket, joined with collars, penetration sealed with flanged stops.
6. Intumescent Firestopping: Intumescent putty compound which expands on exposure to surface heat gain.
7. Firestop Pillows: Formed mineral fiber pillows.

B. Color: Dark gray As selected from manufacturer's full range of colors.

2.9 FIRESTOPPING ACCESSORIES

A. Primer: Type recommended by firestopping manufacturer for specific substrate surfaces and suitable for required fire ratings.

B. Installation Accessories: Provide clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.

C. Furnish UL listed products or products tested by independent testing laboratory. Select products with rating not less than rating of wall or floor being penetrated.

D. Non-Rated Surfaces:
1. Stamped steel, chrome plated, hinged, split ring escutcheons or floor plates or ceiling plates for covering openings in occupied areas where piping is exposed.
2. For exterior wall openings below grade, furnish mechanical sealing device to continuously fill annular space between piping and cored opening or water-stop type wall sleeve.

PART 3 EXECUTION

3.1 EXAMINATION

A. See DDC General Conditions-.

B. Verify openings are ready to receive sleeves.

C. Verify openings are ready to receive firestopping.

3.2 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter affecting bond of firestopping material.

B. Remove incompatible materials affecting bond.

C. Install damming materials to arrest liquid material leakage.

3.3 INSTALLATION - INSERTS

A. Install inserts for placement in concrete forms.

B. Install inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.

C. Provide hooked rod to concrete reinforcement section for inserts carrying pipe 4 inches and larger.

D. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.

E. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut flush with top of slab.

3.4 INSTALLATION - PIPE HANGERS AND SUPPORTS

A. Install in accordance with ASME B31.1.

B. Support horizontal piping as scheduled.

C. Install hangers with minimum 1/2 inch space between finished covering and adjacent work.

D. Place hangers within 12 inches of each horizontal elbow.

E. Use hangers with 1-1/2 inch minimum vertical adjustment.

F. Support vertical piping at every other floor.

G. Where piping is installed in parallel and at same elevation, provide multiple pipe or trapeze hangers.

H. Support riser piping independently of connected horizontal piping.

I. Provide copper plated hangers and supports for copper piping.

J. Design hangers for pipe movement without disengagement of supported pipe.

K. Prime coat exposed steel hangers and supports. Refer to Section 09 90 00. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

L. Provide clearance in hangers and from structure and other equipment for installation of insulation. Refer to Section 22 07 00.

3.5 INSTALLATION - FLASHING

A. Provide flexible flashing and metal Counterflashing where piping and ductwork penetrate weather or waterproofed walls, floors, and roofs.

B. Provide acoustical lead flashing around ducts and pipes penetrating equipment rooms for sound control.

C. Adjust storm collars tight to pipe with bolts; caulk around top edge. Use storm collars above roof jacks. Screw vertical flange section to face of curb.

3.6 INSTALLATION - SLEEVES

A. Exterior watertight entries: Seal with mechanical sleeve seals.

B. Set sleeves in position in forms. Provide reinforcing around sleeves.

C. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

D. Extend sleeves through floors 1inch above finished floor level. Caulk sleeves.

E. Where piping or ductwork penetrates floor, ceiling, or wall, close off space between pipe or duct and adjacent work with stuffing. Provide close fitting metal collar or escutcheon covers at both sides of penetration.

3.7 INSTALLATION - FIRESTOPPING

A. Install material at fire rated construction perimeters and openings containing penetrating sleeves, piping, ductwork, and other items, requiring firestopping.

B. Apply primer where recommended by manufacturer for type of firestopping material and substrate involved, and as required for compliance with required fire ratings.

C. Apply firestopping material in sufficient thickness to achieve required fire and smoke rating, to uniform density and texture.

D. Non-Rated Surfaces:
   1. Seal opening through non-fire rated wall and partition as follows:
      a. Install sleeve through opening and extending beyond minimum of 1 inch on both sides of building element.
      b. Size sleeve allowing minimum of 1 inch void between sleeve and building element.
   2. Install escutcheons floor plates or ceiling plates where conduit, penetrates non-fire rated surfaces in occupied spaces. Occupied spaces include rooms with finished ceilings and where penetration occurs below finished ceiling.
   3. Exterior wall openings below grade: Assemble rubber links of mechanical sealing device to size of piping and tighten in place, in accordance with manufacturer's instructions.
   4. Interior partitions: Seal pipe penetrations. Apply sealant to both sides of penetration to completely fill annular space between sleeve and conduit.

3.8 FIELD QUALITY CONTROL

A. See DDC General Conditions.

B. Inspect installed firestopping for compliance with specifications and submitted schedule.

3.9 CLEANING

A. See DDC General Conditions.

B. Clean adjacent surfaces of firestopping materials.

3.10 PROTECTION OF FINISHED WORK

A. See DDC General Conditions.

B. Protect adjacent surfaces from damage by material installation.

END OF SECTION

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SECTION 23 05 48 - VIBRATION AND SEISMIC CONTROLS FOR HVAC PIPING AND EQUIPMENT

PART 1 GENERAL

1.1 SUMMARY

A. Related Sections:
1. Section 07 92 00 – Joint Sealant Product requirements for joint sealers specified for placement by this section.
2. Section 08 90 00 - Louvers: Product requirements for acoustic wall louvers.
3. Section 23 05 16 - Expansion Fittings and Loops for HVAC Piping: Product requirements for anchors and piping expansion compensation.
4. Section 23 05 29 - Hangers and Supports for HVAC Piping and Equipment: Product requirements for pipe hangers and supports.
5. Section 23 05 93 - Testing, Adjusting, and Balancing for HVAC: Requirements for sound and vibration measurements performed independent of this section.
6. Section 23 33 00 - Air Duct Accessories: Product requirements for both solid and flexible duct connectors for duct silencers specified for placement by this section.

1.2 REFERENCES

A. Air Movement and Control Association International, Inc.:
1. AMCA 300 - Reverberant Room Method for Sound Testing of Fans.

B. American National Standards Institute:
1. ANSI S1.4 - Sound Level Meters.
2. ANSI S1.8 - Reference Quantities for Acoustical Levels.
3. ANSI S1.13 - Methods for the Measurement of Sound Pressure Levels in Air.
4. ANSI S12.36 - Survey Methods for the Determination of Sound Power Levels of Noise Sources.

C. Air-Conditioning and Refrigeration Institute:
1. ARI 575 - Method of Measuring Machinery Sound within Equipment Space.

D. American Society of Heating, Refrigerating and Air Conditioning:
1. ASHRAE 68 - Laboratory Method of Testing In-Duct Sound Power Measurement Procedure for Fans.
2. ASHRAE Handbook - HVAC Applications.

E. ASTM International:
1. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
2. ASTM E477 - Standard Test Method for Measuring Acoustical and Airflow Performance of Duct Liner Materials and Prefabricated Silencers.
3. ASTM E596 - Standard Test Method for Laboratory Measurement of the Noise Reduction of Sound-Isolating Enclosures.

F. Sheet Metal and Air Conditioning Contractors':
1. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.

1.3 PERFORMANCE REQUIREMENTS

A. Provide vibration isolation on motor driven equipment over 0.5 hp, plus connected piping and ductwork.

B. Provide minimum static deflection of isolators for equipment as follows:
   1. Basement, Under 20 hp.
      1. Under 400 rpm:
      2. 400 - 600 rpm: 1 inch
      3. 600 - 800 rpm: 0.5 inch
      4. 800 - 900 rpm: 0.2 inch
      5. 1100 - 1500 rpm: 0.14 inch
      6. Over 1500 rpm: 0.1 inch
   2. Upper Floors, Normal
      1. Under 400 rpm:
      2. 400 - 600 rpm: 3.5 inch
      3. 600 - 800 rpm: 2 inch
      4. 800 - 900 rpm: 1 inch
      5. 1100 - 1500 rpm: 0.5 inch
      6. Over 1500 rpm: 0.2 inch
   3. Upper Floors, Critical
      1. Under 400 rpm:
      2. 400 - 600 rpm:
      3. 600 - 800 rpm: 3.5 inch
      4. 800 - 900 rpm: 2 inch
      5. 1100 - 1500 rpm: 1 inch
      6. Over 1500 rpm: 0.5 inch

C. Consider upper floor locations critical unless otherwise indicated.

D. Maintain sound level of spaces at levels not to exceed those listed below by utilizing acoustical devices.

E. Maintain rooms at following maximum sound levels, in Noise Criteria (NC) as defined by ASHRAE Handbook, HVAC Applications.
   1. Offices
      1. Executive: 30
      2. Conference rooms: 30
      3. Private: 35
      4. Open-plan areas: 35
      5. Computer/business machine areas: 40
      6. Public circulation: 40
   2. Concert Halls and Legitimate Theaters
      1. Theater: 20
      2. Stage house: 20
      3. Trap room: 20
      4. Orchestra pit: 20
      5. Rehearsal rooms: 25
      6. Teaching studios: 30
      7. Practice rooms: 30
      8. Ensemble rooms: 30
      9. Shop: 40
   3. Recording Studios

1. Other Control rooms: 25

1.4 SUBMITTALS

A. See DDC General Conditions -

B. Shop Drawings: Indicate inertia bases and locate vibration isolators, with static and dynamic load on each. Indicate assembly, materials, thickness, dimensional data, pressure losses, acoustical performance, layout, and connection details for sound attenuation products fabricated for this project.

C. Product Data: Submit schedule of vibration isolator type with location and load on each. Submit catalog information indicating, materials, dimensional data, pressure losses, and acoustical performance for standard sound attenuation products.

D. Design Data: Submit calculations indicating maximum room sound levels are not exceeded.

E. Test Reports: Indicate acoustic housings meet or exceed specified sound transmission loss values.

F. Manufacturer's Installation Instructions: Submit special procedures and setting dimensions. Indicate installation requirements maintaining integrity of sound isolation.

G. Manufacturer's Certificate: Certify isolators meet or exceed specified requirements.

H. Manufacturer's Field Reports: Indicate sound isolation installation is complete and in accordance with instructions.

1.5 CLOSEOUT SUBMITTALS

A. See DDC General Conditions.

B. Record actual locations of hangers including attachment points.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with all standards and recommendations of ASHRAE 68.

B. Maintain one copy of each document on site.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

C. Design application of acoustic housings under direct supervision of Professional Engineer experienced in design of this Work and licensed in State of New York

1.8 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.9 WARRANTY

A. See DDC General Conditions.

B. Furnish five year manufacturer warranty for inertia bases.

PART 2 PRODUCTS

2.1 STRUCTURAL BASES:

A. Manufacturers:

1. Mason Industries Inc.
2. Vibration Eliminator Co., Inc.
3 Vibration Mountings and Controls/ Korfund.
4. Approved Equal

B. Design: Sufficiently rigid to prevent misalignment or undue stress on machine, and to transmit design loads to isolators and snubbers.

C. Construction: Welded structural steel with gusset brackets, supporting equipment and motor with motor slide rails.

2.2 VIBRATION ISOLATORS

A. Manufacturers:

1. Vibration Eliminator Co., Inc.
2. Vibration Mountings and Controls/ Korfund
3. Approved Equal

B. Open Spring Isolators:

1. For Exterior and Humid Areas: Furnish hot dipped galvanized housings and neoprene coated springs.
2. Code: Color code springs for load carrying capacity.
3. Springs: Minimum horizontal stiffness equal to 75 percent vertical stiffness, with working deflection between 0.3 and 0.6 of maximum deflection.
4. Spring Mounts: Furnish with leveling devices, minimum 0.25 inch thick neoprene sound pads, and zinc chromate plated hardware.
5. Sound Pads: Size for minimum deflection of 0.05 inch; meet requirements for neoprene pad isolators.

C. Spring Isolators:
   1. For Exterior and Humid Areas: Furnish hot dipped galvanized housings and neoprene coated springs.
   2. Code: Color code springs for load carrying capacity.
   3. Springs: Minimum horizontal stiffness equal to 75 percent vertical stiffness, with working deflection between 0.3 and 0.6 of maximum deflection.
   4. Spring Mounts: Furnish with leveling devices, minimum 0.25 inch (6 mm) thick neoprene sound pads, and zinc chromate plated hardware.
   5. Sound Pads: Size for minimum deflection of 0.05 inch (1.2 mm); meet requirements for neoprene pad isolators.

D. Restrained Spring Isolators:
   1. For Exterior and Humid Areas: Furnish hot dipped galvanized housings and neoprene coated springs.
   2. Code: Color code springs for load carrying capacity.
   3. Springs: Minimum horizontal stiffness equal to 75 percent vertical stiffness, with working deflection between 0.3 and 0.6 of maximum deflection.
   4. Spring Mounts: Furnish with leveling devices, minimum 0.25 inch (6 mm) thick neoprene sound pads, and zinc chromate plated hardware.
   5. Sound Pads: Size for minimum deflection of 0.05 inch (1.2 mm); meet requirements for neoprene pad isolators.
   6. Restraint: Furnish mounting frame and limit stops.

E. Closed Spring Isolators:
   1. Spring Isolators:
   2. For Exterior and Humid Areas: Furnish hot dipped galvanized housings and neoprene coated springs.
   3. Code: Color code springs for load carrying capacity.
   4. Type: Closed spring mount with top and bottom housing separated with neoprene rubber stabilizers.
   5. Springs: Minimum horizontal stiffness equal to 75 percent vertical stiffness, with working deflection between 0.3 and 0.6 of maximum deflection.
   6. Housings: Incorporate neoprene isolation pad meeting requirements for neoprene pad isolators, and neoprene side stabilizers with minimum 0.25 inch (7 mm) clearance.

F. Spring Hanger:
   1. Spring Isolators:
      1. For Exterior and Humid Areas: Furnish hot dipped galvanized housings and neoprene coated springs.
      2. Code: Color code springs for load carrying capacity.
      3. Springs: Minimum horizontal stiffness equal to 75 percent vertical stiffness, with working deflection between 0.3 and 0.6 of maximum deflection.

4. Housings: Incorporate neoprene isolation pad meeting requirements for neoprene pad isolators.
5. Misalignment: Capable of 20 degree hanger rod misalignment.

G. Neoprene Pad Isolators:
1. Rubber or neoprene-waffle pads.
2. 30 durometer.
3. Minimum 1/2 inch thick.
4. Maximum loading 40 psi.
5. Height of ribs: not to exceed 0.7 times width.
6. Configuration: Single layer. 1/2 inch thick waffle pads bonded each side of 1/4 inch thick steel plate.

H. Rubber Mount or Hanger: Molded rubber designed for 0.5 inches deflection with threaded insert.

I. Glass Fiber Pads: Neoprene jacketed pre-compressed molded glass fiber.

J. Seismic Snubbers:
1. Type: Non-directional and double acting unit consisting of interlocking steel members restrained by neoprene elements.
2. Neoprene Elements: Replaceable, minimum of 0.75 inch thick.
3. Capacity: 4 times load assigned to mount groupings at 0.4 inch deflection.
4. Attachment Points and Fasteners: Capable of withstanding 3 times rated load capacity of seismic snubber.

2.3 ACOUSTICAL LOUVERS

A. Manufacturers:

1. Greenheck Co., Inc.

2. Architectural Louvers.

3. Ruskin Louvers.

4. Approved Equal

B. Acoustic Louvers: Refer to Section 08 90 00.
1. Louvers: 12 gage extruded aluminum welded assembly, with factory baked enamel finish.
2. Inner Surface: Minimum 24 gage thick perforated galvanized steel.
3. Fill: Glass fiber or mineral wool of minimum 4 lb/cu ft density.
4. Fill Liner: Bonded glass fiber matting.
5. Bird screen: 1inch square wire mesh.
6. Mounting: Interior Exterior angle flange. Screw holes in jambs.

PART 3 EXECUTION

3.1 EXAMINATION

A. See DDC General Conditions.

B. Verify equipment, ductwork and piping is installed before work in this section is started.

3.2 EXISTING WORK

A. Provide access to existing piping and ductwork and other installations remaining active and requiring access.

B. Extend existing piping and ductwork installations using materials and methods.

3.3 INSTALLATION

A. Install cross-talk silencers in wall. Caulk wall penetrations; refer to Section 07 92 00.

B. Lag ductwork, where indicated by wrapping with insulation and covering. Apply covering to be airtight. Do not attach covering rigidly to ductwork.

C. Attach ductwork to acoustic louvers with flexible duct connections. Refer to Section 23 33 00.

D. Install isolation for motor driven equipment.

E. Bases:
   1. Set steel bases for 1 inch clearance between housekeeping pad and base.
   2. Set concrete inertia bases for 2 inch clearance between housekeeping pad and base.

F. Adjust equipment level.

G. Install spring hangers without binding.

H. On closed spring isolators, adjust so side stabilizers are clear under normal operating conditions.

I. Prior to making piping connections to equipment with operating weights substantially different from installed weights, block up equipment with temporary shims to final height. When full load is applied, adjust isolators to load to allow shim removal.

J. Provide pairs of horizontal limit springs on fans with more than 6.0 inch static pressure, and on hanger supported, horizontally mounted axial fans.

K. Provide resiliently mounted equipment, piping, and ductwork with seismic snubbers. Provide each inertia base with minimum of four seismic snubbers located close to isolators. Snub equipment designated for post disaster use to 0.05 inch maximum clearance. Provide other snubbers with clearance between 0.15 inch and 0.25 inch.

L. Support piping connections to isolated equipment resiliently for scheduled distance. to nearest flexible pipe connector.

1. Up to 4 inch Diameter: First three points of support.
2. 5 to 8 inch Diameter: First four points of support.
3. 10 inch Diameter and Over: First six points of support.
4. Select three hangers closest to vibration source for minimum 1.0 inch static deflection or static deflection of isolated equipment. Select remaining isolators for minimum 1.0 inch static deflection or 1/2 static deflection of isolated equipment.

3.4 FIELD QUALITY CONTROL

A. See DDC General Conditions- Field inspecting, testing, adjusting, and balancing.

B. Inspect isolated equipment after installation and submit report. Include static deflections.

C. Refer to Section 23 05 93 for sound measurements.

D. Furnish services of testing agency to take noise measurement. Use meters meeting requirements of ANSI S1.4.

END OF SECTION

SECTION 23 05 53- IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Nameplates.
2. Tags.
3. Stencils.
4. Pipe markers.
5. Ceiling tacks.
6. Labels.
7. Lockout devices.

B. Related Sections:
1. Section 09 91 00- Painting : Execution requirements for painting specified by this section.

1.2 REFERENCES

A. American Society of Mechanical Engineers:
1. ASME A13.1 - Scheme for the Identification of Piping Systems.

1.3 SUBMITTALS

A. See DDC General Conditions-

B. Product Data: Submit manufacturers catalog literature for each product required.

C. Shop Drawings: Submit list of wording, symbols, letter size, and color coding for mechanical identification and valve chart and schedule, including valve tag number, location, function, and valve manufacturer's name and model number.

D. Samples: Submit two tags, pipe markers, and 3", size used on project.

E. Manufacturer's Installation Instructions: Indicate installation instructions, special procedures, and installation.

F. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.4 CLOSEOUT SUBMITTALS

A. See DDC General Conditions.

B. Project Record Documents: Record actual locations of tagged valves; include valve tag numbers.

1.5 QUALITY ASSURANCE

A. Conform to ASME A13.1 for color scheme for identification of piping systems and accessories.

B. Maintain one copy of each document on site.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

1.7 PRE-INSTALLATION MEETINGS

A. See DDC General Conditions

B. Convene minimum one week prior to commencing work of this section.

1.8 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.9 EXTRA MATERIALS

A. See DDC General Conditions

B. Furnish two containers of spray-on adhesive.

PART 2 PRODUCTS

2.1 NAMEPLATES

A. Manufacturers:
1. Craftmark Identification Systems.
2. Safety Sign Co.
3. Seton Identification Products.
4. Approved Equal

2.2 TAGS

A. Laminated three-layer plastic with engraved black letters on light contrasting background color. Tag size minimum 1-1/2 inches diameter.

B. Metal Tags:
1. Aluminum with stamped letters; tag size minimum 1-1/2 inches diameter with finished edges.

C. Information Tags:

1. Manufacturers:
   1. Craftmark Identification Systems.
   2. Safety Sign Co.
   3. Seton Identification Products.
   4. Approved Equal

2. Clear plastic with printed "Danger," "Caution," or "Warning" and message; size 3-1/4 x 5-5/8 inches with grommet and self-locking nylon ties.

D. Tag Chart: Type written letter size list of applied tags and location in anodized aluminum frame.

2.3 STENCILS

A. Stencils
   1. Craftmark Identification Systems.
   2. Safety Sign Co.
   3. Seton Identification Products.
   4. Approved equal

B. Cut symbols and letters of following size:
   1. Up to 2 inches Outside Diameter of Insulation or Pipe: 1/2 inch high letters.
   2. 2-1/2 to 6 inches Outside Diameter of Insulation or Pipe: 1-inch high letters.
   3. Over 6 inches Outside Diameter of Insulation or Pipe: 1-3/4 inches high letters.
   4. Ductwork and Equipment: 1-3/4 inches high letters.

C. Stencil Paint: As specified in Section 09 90 00, semi-gloss enamel, colors and lettering size conform to ASME A13.1.

2.4 PIPE MARKERS

A. Pipe Markers:
   1. Manufacturers:
      a. Craftmark Identification Systems.
      b. Safety Sign Co.
      c. Seton Identification Products.
      d. Approved Equal

B. Color and Lettering: Conform to ASME A13.1.

C. Plastic Pipe Markers:
   1. Manufacturers:
      a. Craftmark Identification Systems.
      b. Safety Sign Co.
      c. Seton Identification Products.
      d. Approved equal
   2. Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering. Larger sizes may have maximum sheet size with spring fastener.

D. Plastic Tape Pipe Markers:
   1. Manufacturers:

a. Craftmark Identification Systems.
b. Safety Sign Co.
c. Seton Identification Products.
d. Approved Equal

2. Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

E. Plastic Underground Pipe Markers:
1. Manufacturers:
a. Craftmark Identification Systems.
b. Safety Sign Co.
c. Seton Identification Products.
d. Approved equal
2. Bright colored continuously printed plastic ribbon tape, minimum 6 inches wide by 4 mill. thick, manufactured for direct burial service.

2.5 CEILING TACKS

A. Description: Steel with 3/4 inch diameter color-coded head.

B. Color code as follows:
1. HVAC equipment: Yellow.
2. Fire dampers/smoke dampers: Red.
3. Plumbing valves: Green.
4. Heating/cooling valves: Blue.

2.6 LABELS

A. Description: Aluminum, size 1.9 x 0.75 inches, adhesive backed with printed identification.

2.7 LOCKOUT DEVICES

A. Anodized aluminum hasp with erasable label surface size minimum 7-1/4 x 3 inches.

B. Valve Lockout Devices:
1. Steel device preventing access to valve operator, accepting lock shackle.

PART 3 EXECUTION

3.1 PREPARATION

A. Degrease and clean surfaces to receive adhesive for identification materials.

B. Prepare surfaces in accordance with Section 09 91 00 for stencil painting.

3.2 INSTALLATION

A. Apply stencil painting in accordance with Section 09 91 00.

B. Install identifying devices after completion of coverings and painting.

C. Install plastic nameplates with corrosive-resistant mechanical fasteners, or adhesive.

D. Install labels with sufficient adhesive for permanent adhesion and seal with clear lacquer. For unfinished canvas covering, apply paint primer before applying labels.

E. Install tags using corrosion resistant chain. Number tags consecutively by location.

F. Install underground plastic pipe markers 6 to 8 inches below finished grade, directly above buried pipe.

G. Identify air handling units, pumps, heat transfer equipment, tanks, and water treatment devices with plastic nameplates. Identify in-line pumps and other small devices with tags.

H. Identify control panels and major control components outside panels with plastic nameplates.

I. Identify valves in main and branch piping with tags.

J. Identify air terminal units and radiator valves with numbered tags.

K. Tag automatic controls, instruments, and relays. Key to control schematic.

L. Identify piping, concealed or exposed, with stenciled painting. Identify service, flow direction, and pressure. Install in clear view and align with axis of piping. Locate identification not to exceed 20 feet on straight runs including risers and drops, adjacent to each valve and tee, at each side of penetration of structure or enclosure, and at each obstruction.

M. Identify ductwork with plastic nameplates. Identify with air handling unit identification number and area served. Locate identification at air handling unit, at each side of penetration of structure or enclosure, and at each obstruction.

N. Provide ceiling tacks to locate valves or dampers above T-bar type panel ceilings. Locate in corner of panel closest to equipment.

END OF SECTION

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SECTION 23 05 93

TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Testing, adjusting, and balancing of air systems.
2. Testing, adjusting, and balancing of and refrigerating systems.
3. Measurement of final operating condition of HVAC systems.
4. Sound measurement of equipment operating conditions.
5. Vibration measurement of equipment operating conditions.

B. Related Sections:
1. Section 23 09 93 - Sequence of Operations for HVAC Controls: Sequences of operation for HVAC equipment.

1.2 REFERENCES

A. Associated Air Balance Council:
1. AABC MN-1 - National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems.

B. American Society of Heating, Refrigerating and Air-Conditioning Engineers:
1. ASHRAE 111 - Practices for Measurement, Testing, Adjusting and Balancing of Building Heating, Ventilation, Air-Conditioning and Refrigeration Systems.

C. Natural Environmental Balancing Bureau:
1. NEBB - Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems.

1.3 SUBMITTALS

A. See DDC General Conditions-

B. Prior to commencing Work, submit proof of latest calibration date of each instrument.

C. Test Reports: Indicate data on AABC MN-1 National Standards for Total System Balance forms, forms prepared by the following: ASHRAE 111, NEBB Report forms containing information indicated in Schedules.

D. Field Reports: Indicate deficiencies preventing proper testing, adjusting, and balancing of systems and equipment to achieve specified performance.

E. Prior to commencing Work, submit report forms or outlines indicating adjusting, balancing, and equipment data required. Include detailed procedures, agenda, sample report forms and copy of AABC National Project Performance Guaranty and Copy of NEBB Certificate of Conformance Certification.

F. Submit draft copies of report for review prior to final acceptance of Project.

G. Furnish reports in soft cover, letter size, 3-ring binder manuals, complete with table of contents page and indexing tabs, with cover identification at front and side. Include set of reduced drawings with air outlets and equipment identified to correspond with data sheets, and indicating thermostat locations.

1.4 CLOSEOUT SUBMITTALS

A. See DDC General Conditions.

B. Project Record Documents: Record actual locations of flow measuring station balancing valves and rough setting.

C. Operation and Maintenance Data: Furnish final copy of testing, adjusting, and balancing report inclusion in operating and maintenance manuals.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with AABC MN-1 National Standards for Field Measurement and Instrumentation, Total System Balance ASHRAE 111 NEBB Procedural Standards for Testing, Balancing and Adjusting of Environmental Systems.

B. Maintain one copy of each document on site.

C. Prior to commencing Work, calibrate each instrument to be used. Upon completing Work, recalibrate each instrument to assure reliability.

1.6 QUALIFICATIONS

A. Perform Work under supervision of AABC and Certified Test and Balance Engineer NEBB Certified Testing, Balancing and Adjusting Supervisor registered professional engineer experienced in performance of this Work and licensed in State of New York.

1.7 PRE-INSTALLATION MEETINGS

A. See DDC General Conditions.

B. Convene minimum one week prior to commencing work of this section.

1.8 SEQUENCING

A. See DDC General Conditions.

B. Sequence balancing between completion of systems tested and Date of Substantial Completion.

1.9 SCHEDULING

A. See DDC General Conditions.

B. Schedule and provide assistance in final adjustment and test of life safety smoke evacuation system with Fire Authority.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 EXAMINATION

A. See DDC General Conditions.

B. Verify systems are complete and operable before commencing work. Verify the following:

1. Systems are started and operating in safe and normal condition.
2. Temperature control systems are installed complete and operable.
3. Proper thermal overload protection is in place for electrical equipment.
4. Final filters are clean and in place. If required, install temporary media in addition to final filters.
5. Duct systems are clean of debris.
6. Fans are rotating correctly.
7. Fire and volume dampers are in place and open.
8. Air coil fins are cleaned and combed.
9. Access doors are closed and duct end caps are in place.
10. Air outlets are installed and connected.
11. Duct system leakage is minimized.
12. Proper strainer baskets are clean and in place or in normal position.
13. Service and balancing valves are open.

3.2 PREPARATION

A. Furnish instruments required for testing, adjusting, and balancing operations.

B. Make instruments available to Commissioner to facilitate spot checks during testing.

3.3 INSTALLATION TOLERANCES

A. Air Handling Systems: Adjust to within plus or minus 10 percent of design.

B. Air Outlets and Inlets: Adjust total to within plus 10 percent and minus 5percent of design to space. Adjust outlets and inlets in space to within plus or minus 10percent of design.

C. Hydronic Systems: Adjust to within plus or minus 10 percent of design.

3.4 ADJUSTING

A. See DDC General Conditions

B. Verify recorded data represents actual measured or observed conditions.

C. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops.

D. After adjustment, take measurements to verify balance has not been disrupted. If disrupted, verify correcting adjustments have been made.

E. Report defects and deficiencies noted during performance of services, preventing system balance.

F. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.

G. At final inspection, recheck random selections of data recorded in report. Recheck points or areas as selected and witnessed by Commissioner.

H. Check and adjust systems approximately six months after final acceptance and submit report.

3.5 AIR SYSTEM PROCEDURE

A. Adjust air handling and distribution systems to obtain required or design supply, return, and exhaust air quantities.

B. Make air quantity measurements in main ducts by pitot tube traverse of entire cross sectional area of duct.

C. Measure air quantities at air inlets and outlets.

D. Adjust distribution system to obtain uniform space temperatures free from objectionable drafts.

E. Use volume control devices to regulate air quantities only to extent adjustments do not create objectionable air motion or sound levels. Effect volume control by using volume dampers located in ducts.

F. Vary total system air quantities by adjustment of fan speeds. Provide sheave drive changes to vary fan speed. Vary branch air quantities by damper regulation.

G. Provide system schematic with required and actual air quantities recorded at each outlet or inlet.

H. Measure static air pressure conditions on air supply units, including filter and coil pressure drops, and total pressure across fan. Make allowances for 50 percent loading of filters.

I. Adjust outside air automatic dampers, outside air, return air, and exhaust dampers for design conditions.

J. Measure temperature conditions across outside air, return air, and exhaust dampers to check leakage.

3.6 SCHEDULES

A. Equipment Requiring Testing, Adjusting, and Balancing:
1. Air Cooled Condensing units
2. Air Conditioners.
3. Air Coils.
4. Fan Coil Units.
5. Fans.
6. Air Filters.
7. Air Inlets and Outlets.

B. Report Forms
1. Title Page:
   a. Name of Testing, Adjusting, and Balancing Agency
   b. Address of Testing, Adjusting, and Balancing Agency
   c. Telephone and facsimile numbers of Testing, Adjusting, and Balancing Agency
   d. Project name
   e. Project location
   f. Project Architect
   g. Project Engineer
   h. Project Contractor
   i. Project altitude
   j. Report date
2. Summary Comments:
   a. Design versus final performance
   b. Notable characteristics of system
   c. Description of systems operation sequence
   d. Summary of outdoor and exhaust flows to indicate building pressurization
   e. Nomenclature used throughout report
   f. Test conditions

3. Instrument List:
   a. Instrument
   b. Manufacturer
   c. Model number
   d. Serial number
   e. Range
   f. Calibration date
4. Electric Motors:
   a. Manufacturer
   b. Model/Frame
   c. HP/BHP and kW
   d. Phase, voltage, amperage; nameplate, actual, no load
   e. RPM
   f. Service factor
   g. Starter size, rating, heater elements
   h. Sheave Make/Size/Bore
5. V-Belt Drive:
   a. Identification/location
   b. Required driven RPM
   c. Driven sheave, diameter and RPM
   d. Belt, size and quantity
   e. Motor sheave diameter and RPM
   f. Center to center distance, maximum, minimum, and actual

6. Air Cooled Condenser:
   a. Identification/number
   b. Location
   c. Manufacturer
   d. Model number
   e. Serial number
   f. Entering DB air temperature, design and actual
   g. Leaving DB air temperature, design and actual
   h. Number of compressors

7. Cooling Coil Data:
   a. Identification/number
   b. Location
   c. Service
   d. Manufacturer
   e. Air flow, design and actual
   f. Entering air DB temperature, design and actual
   g. Entering air WB temperature, design and actual
   h. Leaving air DB temperature, design and actual
   i. Leaving air WB temperature, design and actual
   j. Water flow, design and actual
   k. Entering air temperature, design and actual
   l. Leaving air temperature, design and actual
   m. Saturated suction temperature, design and actual

n. Air pressure drop, design and actual

8. Heating Coil Data:
   a. Identification/number
   b. Location
   c. Service
   d. Manufacturer
   e. Air flow, design and actual
   f. Entering air temperature, design and actual
   g. Leaving air temperature, design and actual
   h. Air pressure drop, design and actual

9. Air Moving Equipment:
   a. Location
   b. Manufacturer
   c. Model number
   d. Serial number
   e. Arrangement/Class/Discharge
   f. Air flow, specified and actual
   g. Return air flow, specified and actual
   h. Outside air flow, specified and actual
   i. Total static pressure (total external), specified and actual
   j. Inlet pressure
   k. Discharge pressure
   l. Sheave Make/Size/Bore
   m. Number of Belts/Make/Size
   n. Fan RPM

10. Return Air/Outside Air Data:
   a. Identification/location
   b. Design air flow
   c. Actual air flow
   d. Design return air flow
   e. Actual return air flow
   f. Design outside air flow
   g. Actual outside air flow
   h. Return air temperature
   i. Outside air temperature
   j. Required mixed air temperature
   k. Actual mixed air temperature
   l. Design outside/return air ratio
   m. Actual outside/return air ratio

11. Exhaust Fan Data:
   a. Location
   b. Manufacturer
   c. Model number
   d. Serial number
   e. Air flow, specified and actual
   f. Total static pressure (total external), specified and actual
   g. Inlet pressure
   h. Discharge pressure

i. Sheave Make/Size/Bore
j. Number of Belts/Make/Size
k. Fan RPM

12. Duct Traverse:
a. System zone/branch
b. Duct size
c. Area
d. Design velocity
e. Design air flow
f. Test velocity
g. Test air flow
h. Duct static pressure
i. Air temperature
j. Air correction factor

13. Duct Leak Test:
a. Description of ductwork under test
b. Duct design operating pressure
c. Duct design test static pressure
d. Duct capacity, air flow
e. Maximum allowable leakage duct capacity times leak factor
f. Test apparatus
    1) Blower
    2) Orifice, tube size
    3) Orifice size
    4) Calibrated
g. Test static pressure
h. Test orifice differential pressure
i. Leakage

14. Air Distribution Test Sheet:
a. Air terminal number
b. Room number/location
c. Terminal type
d. Terminal size
e. Area factor
f. Design velocity
g. Design air flow
h. Test (final) velocity
i. Test (final) air flow
j. Percent of design air flow

15. Sound Level Report:
a. Location
b. Octave bands - equipment off
c. Octave bands - equipment on
d. RC level - equipment on

16. Vibration Test:
a. Location of points:

1) Fan bearing, drive end
2) Fan bearing, opposite end
3) Motor bearing, center (when applicable)
4) Motor bearing, drive end
5) Motor bearing, opposite end
6) Casing (bottom or top)
7) Casing (side)
8) Duct after flexible connection (discharge)
9) Duct after flexible connection (suction)

b. Test readings:
1) Horizontal, velocity and displacement
2) Vertical, velocity and displacement
3) Axial, velocity and displacement

c. Normally acceptable readings, velocity and acceleration

d. Unusual conditions at time of test

e. Vibration source (when non-complying)

END OF SECTION

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SECTION 23 07 00 - HVAC INSULATION

PART 1 GENERAL

1.1 SUMMARY

A. Related Sections:
1. Section 07 84 13 –Penetration-Firestopping: Product requirements for firestopping for placement by this section.
2. Section 09 90 00 - Painting: Execution requirements for painting insulation jackets and covering specified by this section.

1.2 REFERENCES

A. ASTM International:
1. ASTM A167 - Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
2. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
3. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
4. ASTM C195 - Standard Specification for Mineral Fiber Thermal Insulating Cement.
5. ASTM C449/C449M - Standard Specification for Mineral Fiber Hydraulic-Setting Thermal Insulating and Finishing Cement.
6. ASTM C450 - Standard Practice for Prefabrication and Field Fabrication of Thermal Insulating Fitting Covers for NPS Piping, Vessel Lagging, and Dished Head Segments.
7. ASTM C533 - Standard Specification for Calcium Silicate Block and Pipe Thermal Insulation.
8. ASTM C534 - Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form.
9. ASTM C547 - Standard Specification for Mineral Fiber Pipe Insulation.
10. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications.
11. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
12. ASTM C585 - Standard Practice for Inner and Outer Diameters of Rigid Thermal Insulation for Nominal Sizes of Pipe and Tubing (NPS System).
13. ASTM C591 - Standard Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation.
14. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation.
15. ASTM C795 - Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel.
16. ASTM C921 - Standard Practice for Determining the Properties of Jacketing Materials for Thermal Insulation.
17. ASTM C1071 - Standard Specification for Thermal and Acoustical Insulation (Glass Fiber, Duct Lining Material).
18. ASTM C1136 - Standard Specification for Flexible, Low Permeance Vapor Retarders for Thermal Insulation.

19. ASTM C1290 - Standard Specification for Flexible Fibrous Glass Blanket Insulation Used to Externally Insulate HVAC Ducts.
20. ASTM D1784 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
21. ASTM D4637 - Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane.
22. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
23. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
24. ASTM E162 - Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source.

B. Sheet Metal and Air Conditioning Contractors':
1. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.

C. National Fire Protection Association:
1. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.

D. Underwriters Laboratories Inc.:
1. UL 723 - Tests for Surface Burning Characteristics of Building Materials.
2. UL 1978 - Standard for Safety for Grease Ducts.

1.3 SUBMITTALS

A. See DDC General Conditions-

B. Product Data: Submit product description, thermal characteristics and list of materials and thickness for each service, and location.

C. Samples: Submit two samples of representative size illustrating each insulation type.

D. Manufacturer's Installation Instructions: Submit manufacturers published literature indicating proper installation procedures.

E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.4 QUALITY ASSURANCE

A. Test pipe insulation for maximum flame spread index of 25 and maximum smoke developed index of not exceeding 50 in accordance with ASTM E84, UL 723, and NFPA 255.

B. Pipe insulation manufactured in accordance with ASTM C585 for inner and outer diameters.

C. Factory fabricated fitting covers manufactured in accordance with ASTM C450.

D. Maintain one copy of each document on site.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

B. Applicator: Company specializing in performing Work of this section with minimum three years documented experience.

1.6 PRE-INSTALLATION MEETINGS

A. See DDC General Conditions.

B. Convene minimum one week prior to commencing work of this section.

1.7 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions.

B. Accept materials on site in original factory packaging, labeled with manufacturer's identification, including product density and thickness.

C. Protect insulation from weather and construction traffic, dirt, water, chemical, and damage, by storing in original wrapping.

1.8 ENVIRONMENTAL REQUIREMENTS

A. See DDC General Conditions.

B. Install insulation only when ambient temperature and humidity conditions are within range recommended by manufacturer.

C. Maintain temperature before, during, and after installation for minimum period of 24 hours.

1.9 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.10 WARRANTY

A. See DDC General Conditions.

B. Furnish five year manufacturer warranty for man made fiber.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Manufacturers for Glass Fiber and Mineral Fiber Insulation Products:
1. CertainTeed.

2. Knauf.
3. Johns Manville.
4. Owens-Corning..
5. Approved Equal.

B. Manufacturers for Closed Cell Elastomeric Insulation Products:
1. Aeroflex. Aerocell.
2. Armacell, LLC. Armaflex.
3. Nomaco. K-flex.
4. Approved Equal.

C. Manufacturers for Polyisocyanurate Foam Insulation Products:
1. Dow Chemical Company.
2. Johns Manville.
3. Owens-Corning..
4. Approved Equal:

D. Manufacturers for Extruded Polystyrene Insulation Products:
1. Dow Chemical Company.
2. Johns Manville.
3. Owens-Corning..
4. Approved Equal.

2.2 PIPE INSULATION

A. TYPE P-1: ASTM C547, molded glass fiber pipe insulation. Conform to ASTM C795 for application on Austenitic stainless steel.
1. Thermal Conductivity: 0.23 at 75 degrees F.
2. Operating Temperature Range: 0 to 850 degrees F.
3. Vapor Barrier Jacket: ASTM C1136, Type I, factory applied reinforced foil kraft with self-sealing adhesive joints.
4. Jacket Temperature Limit: minus 20 to 150 degrees F.

B. TYPE P-2: ASTM C547, molded glass fiber pipe insulation. Conform to ASTM C795 for application on Austenitic stainless steel.
1. Thermal Conductivity: 0.23 at 75 degrees F.
2. Operating Temperature Range: 0 to 850 degrees F.

2.3 PIPE INSULATION JACKETS

A. Vapor Retarder Jacket:
1. ASTM C921, white Kraft paper with glass fiber yarn, bonded to aluminized film.
2. Moisture vapor transmission: ASTM E96; 0.02 perm-inches.

B. PVC Plastic Pipe Jacket:
1. Product Description: ASTM D1784, One piece molded type fitting covers and sheet material, off-white color.
2. Thickness: 30 mil.
3. Connections: Pressure sensitive color matching vinyl tape.

C. Field Applied Glass Fiber Fabric Jacket System:

c. Weave: 5 x 5.

3. Indoor Vapor Retarder Finish:
   a. Cloth: Untreated; 9 oz/sq yd weight.
   b. Vinyl emulsion type acrylic, compatible with insulation, white color.

2.4 PIPE INSULATION ACCESSORIES

A. Vapor Retarder Lap Adhesive: Compatible with insulation.

B. Covering Adhesive Mastic: Compatible with insulation.

C. Piping 1-1/2 inches diameter and smaller: Galvanized steel insulation protection shield. MSS SP-69, Type 40. Length: Based on pipe size and insulation thickness.

D. Piping 2 inches diameter and larger: Wood insulation saddle, hard maple. Inserts length: not less than 6 inches long, matching thickness and contour of adjoining insulation.

E. Closed Cell Elastomeric Insulation Pipe Hanger: Polyurethane insert with aluminum single piece construction with self-adhesive closure. Thickness to match pipe insulation.

F. Tie Wire: 0.048 inch stainless steel with twisted ends on maximum 12 inch centers.

G. Mineral Fiber Hydraulic-Setting Thermal Insulating and Finishing Cement: ASTM C449/C449M.

H. Insulating Cement: ASTM C195; hydraulic setting on mineral wool.

I. Adhesives: Compatible with insulation.

2.5 EQUIPMENT INSULATION

A. TYPE E-1: ASTM C553; glass fiber, flexible or semi-rigid, noncombustible.
   1. Thermal Conductivity: 0.24 at 75 degrees F.
   2. Operating Temperature Range: 0 to 450 degrees F.
   3. Density: 1.5 pound per cubic foot.

B. TYPE E-2: ASTM C612; glass fiber, rigid board, noncombustible with factory applied aluminum foil jacket.
   1. Thermal Conductivity: 0.24 at 75 degrees F.
   2. Operating Temperature Range: 0 to 450 degrees F.
   3. Density: 3.0 pound per cubic foot.
   4. Jacket Temperature Limit: minus 20 to 150 degrees F.

C. TYPE E-8: ASTM C534, Type II, flexible, closed cell elastomeric insulation, sheet.
   1. Thermal Conductivity: 0.27 at 75 degrees F.
   2. Operating Temperature Range: Range: Minus 70 to 220 degrees F.

2.6 EQUIPMENT INSULATION JACKETS

A. PVC Plastic Equipment Jacket:
   1. Product Description: ASTM D1784, sheet material, off-white color.
   2. Minimum Service Temperature: -40 degrees F.

3. Maximum Service Temperature: 150 degrees F.
4. Moisture Vapor Transmission: ASTM E96; 0.002 perm-inches.
5. Thickness: 10mil.
6. Connections: Pressure sensitive color matching vinyl tape.

B. Aluminum Equipment Jacket:
1. ASTM B209.
2. Thickness: 0.016, 0.020 inch thick sheet.
3. Finish: Smooth.
4. Joining: Longitudinal slip joints and 2 inch laps.
5. Fittings: 0.016 inch thick die shaped fitting covers with factory attached protective liner.

2.7 EQUIPMENT INSULATION ACCESSORIES

A. Vapor Retarder Lap Adhesive: Compatible with insulation.

B. Covering Adhesive Mastic: Compatible with insulation.

C. Tie Wire: 0.048 inch stainless steel with twisted ends on maximum 12 inch centers.

D. Mineral Fiber Hydraulic-Setting Thermal Insulating and Finishing Cement: ASTM C449/C449M.

E. Adhesives: Compatible with insulation.

2.8 DUCTWORK INSULATION

A. TYPE D-1: ASTM C1290, Type III, flexible glass fiber, commercial grade with factory applied reinforced aluminum foil jacket meeting ASTM C1136, Type II.
1. Thermal Conductivity: 0.25 at 75 degrees F.
2. Maximum Operating Temperature: 250 degrees F.
3. Density: 1.5 pound per cubic foot.

B. TYPE D-2: ASTM C612, Type IA or IB, rigid glass fiber, with factory applied all service facing reinforced aluminum foil facing metalized polypropylene scrim kraft facing meeting ASTM C1136, Type II.
1. Thermal Conductivity: 0.23 at 75 degrees F.
2. Density: 4.4 pound per cubic foot.

2.9 DUCTWORK INSULATION JACKETS

A. Aluminum Duct Jacket:
1. ASTM B209, ASTM B209M.
2. Thickness: 0.025 inch thick sheet.
3. Finish: Smooth.
4. Joining: Longitudinal slip joints and 2 inch laps.
5. Fittings: 0.016 inch thick die shaped fitting covers with factory attached protective liner.
6. Metal Jacket Bands: 3/8 inch wide; 0.015 inch thick aluminum. 0.010 inch thick stainless steel.

B. Vapor Retarder Jacket:

1. Kraft paper with glass fiber yarn and bonded to aluminized film.
2. Moisture vapor transmission: ASTM E96; 0.02, 1.3 perm.
3. Secure with pressure sensitive tape.

C. Canvas Duct Jacket: UL listed, 6 oz/sq yd, plain weave cotton fabric with fire retardant lagging adhesive compatible with insulation.

D. Outdoor Duct Jacket: Asphalt impregnated and coated sheet, 50 36 lb/square.

E. Membrane Duct Jacket: ASTM D4637; Type I, EPDM; non-reinforced, 0.045 inch thick, 48 inch wide roll; black color.

2.10 DUCTWORK INSULATION ACCESSORIES

A. Vapor Retarder Tape:
1. Kraft paper reinforced with glass fiber yarn and bonded to aluminized film, with pressure sensitive rubber based adhesive.

B. Vapor Retarder Lap Adhesive: Compatible with insulation.

C. Adhesive: Waterproof, ASTM E162 fire-retardant type.

D. Liner Fasteners: Galvanized steel, self-adhesive pad with press-on head.

E. Tie Wire: 0.048 inch stainless steel with twisted ends on maximum 12 inch centers.

F. Lagging Adhesive: Fire resistive to ASTM E84, NFPA 255, UL 723.

G. Impale Anchors: Galvanized steel, 12 gage self-adhesive pad.

H. Adhesives: Compatible with insulation.

I. Membrane Adhesives: As recommended by membrane manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

A. See DDC General Conditions.

B. Verify piping, equipment and ductwork has been tested before applying insulation materials.

C. Verify surfaces are clean and dry, with foreign material removed.

3.2 INSTALLATION - PIPING SYSTEMS

A. Piping Exposed to View in Finished Spaces: Locate insulation and cover seams in least visible locations.

B. Continue insulation through penetrations of building assemblies or portions of assemblies having fire resistance rating of one hour or less. Provide instrument firestopping when continuing insulation through assembly. Finish at supports, protrusions, and interruptions. Refer to Section 07 84 00 for penetrations of assemblies with fire resistance rating greater than one hour.

C. Piping Systems Conveying Fluids Below Ambient Temperature:
1. Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, pump bodies, and expansion joints.
2. Furnish factory-applied or field-applied vapor retarder jackets. Secure factory-applied jackets with pressure sensitive adhesive self-sealing longitudinal laps and butt strips. Secure field-applied jackets with outward clinch expanding staples and seal staple penetrations with vapor retarder mastic.
3. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe. Finish with glass cloth and vapor retarder adhesive or PVC fitting covers.

D. Glass Fiber Board Insulation:
1. Apply insulation close to equipment by grooving, scoring, and beveling insulation. Fasten insulation to equipment with studs, pins, clips, adhesive, wires, or bands.
2. Fill joints, cracks, seams, and depressions with bedding compound to form smooth surface. On cold equipment, use vapor retarder cement.
3. Cover wire mesh or bands with cement to a thickness to remove surface irregularities.

E. Hot Piping Systems greater than 140 degrees F:
1. Furnish factory-applied or field-applied standard jackets. Secure with outward clinch expanding staples or pressure sensitive adhesive system on standard factory-applied jacket and butt strips or both.
2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with glass cloth and adhesive or PVC fitting covers.
3. Insulate flanges and unions at equipment.

F. Inserts and Shields:
1. Piping 1-1/2 inches Diameter and Smaller: Install galvanized steel shield between pipe hanger and insulation.
2. Piping 2inches Diameter and Larger: Install insert between support shield and piping and under finish jacket.
   a. Insert Configuration: Minimum 6 inches long, of thickness and contour matching adjoining insulation; may be factory fabricated.
   b. Insert Material: Compression resistant insulating material suitable for planned temperature range and service.
3. Piping Supported by Roller Type Pipe Hangers: Install galvanized steel shield between roller and inserts.

G. Insulation Terminating Points:
1. Condensate Piping: Insulate entire piping system and components to prevent condensation.

H. Closed Cell Elastomeric Insulation:
1. Push insulation on to piping.
2. Miter joints at elbows.
3. Seal seams and butt joints with manufacturer's recommended adhesive.

4. When application requires multiple layers, apply with joints staggered.
5. Insulate fittings and valves with insulation of like material and thickness as adjacent pipe.

I. Pipe Exposed in Mechanical Equipment Rooms or Finished: Finish with canvas jacket sized for finish painting.

J. Piping Exterior to Building: Provide vapor retarder jacket. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe, and finish with glass mesh reinforced vapor retarder cement. Cover with aluminum jacket with seams located at 3 or 9 o'clock position on side of horizontal piping with overlap facing down to shed water or on bottom side of horizontal piping.

K. Buried Piping: Insulate only where insulation manufacturer recommends insulation product may be installed in trench, tunnel or direct buried. Install factory fabricated assembly with inner all-purpose service jacket with self-sealing lap, and asphalt impregnated open mesh glass fabric, with 1 mil thick aluminum foil sandwiched between three layers of bituminous compound; outer surface faced with polyester film.

L. Prepare pipe insulation for finish painting.

3.3 INSTALLATION - EQUIPMENT

A. Factory Insulated Equipment: Do not insulate.

B. Exposed Equipment: Locate insulation and cover seams in least visible locations.

C. Fill joints, cracks, seams, and depressions with bedding compound to form smooth surface. On cold equipment, use vapor retarder cement.

D. Equipment Containing Fluids Below Ambient Temperature:
1. Insulate entire equipment surfaces.
2. Apply insulation close to equipment by grooving, scoring, and beveling insulation. Fasten insulation to equipment with studs, pins, clips, adhesive, wires, or bands.
3. Furnish factory-applied or field-applied vapor retarder jackets. Secure factory-applied jackets with pressure sensitive adhesive self-sealing longitudinal laps and butt strips. Secure field-applied jackets with outward clinch expanding staples and seal staple penetrations with vapor retarder mastic.
4. Finish insulation at supports, protrusions, and interruptions.

E. Equipment Containing Fluids 140 degrees F Or Less:
1. Do not insulate flanges and unions, but bevel and seal ends of insulation.
2. Install insulation with factory-applied or field applied jackets, with or without vapor barrier. Finish with glass cloth and adhesive.
3. Finish insulation at supports, protrusions, and interruptions.

F. Equipment Containing Fluids Over 140 degrees F:
1. Insulate flanges and unions with removable sections and jackets.
2. Install insulation with factory-applied or field applied jackets, with or without vapor barrier. Finish with glass cloth and adhesive.
3. Finish insulation at supports, protrusions, and interruptions.

G. Equipment in Mechanical Equipment Rooms or Finished Spaces: Finish with canvas jacket sized for finish painting PVC jacket and fitting covers aluminum jacket.

H. Equipment Located Exterior to Building: Install vapor barrier jacket or finish with glass mesh reinforced vapor barrier cement. Cover with aluminum stainless steel jacket with seams located on bottom side of horizontal equipment.

I. Cover glass fiber cellular glass hydrous calcium silicate insulation with aluminum jacket stainless steel jacket.

J. Nameplates and ASME Stamps: Bevel and seal insulation around; do not cover with insulation.

K. Equipment Requiring Access for Maintenance, Repair, or Cleaning: Install insulation for easy removal and replacement without damage.

L. Prepare equipment insulation for finish painting. Refer to Section 09 91 00.

3.4 INSTALLATION - DUCTWORK SYSTEMS

A. Duct dimensions indicated on Drawings are finished inside dimensions.

B. Insulated ductwork conveying air below ambient temperature:
1. Provide insulation with vapor retarder jackets.
2. Finish with tape and vapor retarder jacket.
3. Continue insulation through walls, sleeves, hangers, and other duct penetrations.
4. Insulate entire system including fittings, joints, flanges, fire dampers, flexible connections, and expansion joints.

C. Insulated ductwork conveying air above ambient temperature:
1. Provide with or without standard vapor retarder jacket.
2. Insulate fittings and joints. Where service access is required, bevel and seal ends of insulation.

D. Ductwork Exposed in Mechanical Equipment Rooms or Finished Spaces (below 10 feet above finished floor): Finish with aluminum jacket.

E. External Glass Fiber Duct Insulation:
1. Secure insulation with vapor retarder with wires and seal jacket joints with vapor retarder adhesive or tape to match jacket.
2. Secure insulation without vapor retarder with staples, tape, or wires.
3. Install without sag on underside of ductwork. Use adhesive or mechanical fasteners where necessary to prevent sagging. Lift ductwork off trapeze hangers and insert spacers.
4. Seal vapor retarder penetrations by mechanical fasteners with vapor retarder adhesive.
5. Stop and point insulation around access doors and damper operators to allow operation without disturbing wrapping.

F. External Elastomeric Duct Insulation:
1. Adhere to clean oil-free surfaces with full coverage of adhesive.
2. Seal seams and butt joints with manufacturer's recommended adhesive.
3. When application requires multiple layers, apply with joints staggered.

4. Insulate standing metal duct seams with insulation of like material and thickness as adjacent duct surface. Apply adhesive at joints with flat duct surfaces.
5. Lift ductwork off trapeze hangers and insert spacers.

G. Duct and Plenum Liner:
1. Adhere insulation with adhesive for 100 percent coverage.
2. Secure insulation with mechanical liner fasteners. Comply with SMACNA Standards for spacing.
3. Seal and smooth joints. Seal and coat transverse joints.
4. Seal liner surface penetrations with adhesive.
5. Cut insulation for tight overlapped corner joints. Support top pieces of liner at edges with side pieces.

H. Prepare duct insulation for finish painting. Refer to Section 09 91 00.

END OF SECTION

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SECTION 23 08 00 - COMMISSIONING OF HVAC

PART 1 GENERAL

1.1 SUMMARY

A. Related Sections:
1. Section 23 05 93 - Testing, Adjusting, and Balancing for HVAC: For requirements and procedures concerning testing, adjusting, and balancing of mechanical systems.
2. Section 23 09 00 - Instrumentation and Control for HVAC: Submittal and training requirements.
3. Section 23 33 00 - Air Duct Accessories: Product requirements for ductwork test holes.
4. Section 26-08 00: Electrical systems commissioning requirements.
5. Section 22-08 00: Plumbing systems commissioning requirements.

1.2 REFERENCES

A. Associated Air Balance Council:
1. AABC - AABC Commissioning Guideline.

B. American Society of Heating, Refrigerating and Air-Conditioning Engineers:
1. ASHRAE Guideline 1 - The HVAC Commissioning Process.

C. National Environmental Balancing Bureau:
1. NEBB - Procedural Standards for Building Systems Commissioning.

1.3 COMMISSIONING DESCRIPTION

A. HVAC commissioning process includes the following tasks:
1. Testing and startup of HVAC equipment and systems.
2. Equipment and system verification checks.
3. Assistance in functional performance testing to verify testing and balancing, and equipment and system performance.
4. Provide qualified personnel to assist in commissioning tests, including seasonal testing.
5. Complete and endorse functional performance test checklists provided by Commissioning Authority to assure equipment and systems are fully operational and ready for functional performance testing.
6. Provide equipment, materials, and labor necessary to correct deficiencies found during commissioning process to fulfill contract and warranty requirements.
7. Provide operation and maintenance information and record drawings to Commissioning Authority for review verification and organization, prior to distribution.
8. Provide assistance to Commissioning Authority to develop, edit, and document system operation descriptions.

9. Provide training for systems specified in this Section with coordination by Commissioning Authority.

B. Equipment and Systems to Be Commissioned:

1. VRV condensing units.
2. Piping systems.
3. Ductwork.
4. Variable frequency drives.
5. Fan Coil Units.
6. Fans.
7. Fire dampers.
8. Smoke dampers.
9. Indoor air quality.
10. Equipment sound control.
11. Equipment vibration control.
12. Automatic temperature control system.
13. Testing, Adjusting and Balancing work.

1.4 COMMISSIONING SUBMITTALS

A. Section 01 91 00 - Commissioning: Requirements for commissioning submittals.

B. Draft Forms: Submit draft of system verification form and functional performance test checklist.

C. Test Reports: Indicate data on system verification form for each piece of equipment and system as specified. Use AABC forms as guidelines.

D. Field Reports: Indicate deficiencies preventing completion of equipment or system verification checks equipment or system to achieve specified performance.

1.5 CLOSEOUT SUBMITTALS

A. See DDC General Conditions.

B. Operation and Maintenance Data: Submit revisions to operation and maintenance manuals when necessary revisions are discovered during commissioning.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with AABC ASHRAE Guideline 1 NEBB.

B. Maintain one copy of each document on site.

1.7 COMMISSIONING RESPONSIBILITIES

A. Equipment or System Installer Commissioning Responsibilities:
1. Attend commissioning meetings.

2. Ensure temperature controls installer performs assigned commissioning responsibilities as specified below.
3. Ensure testing, adjusting, and balancing agency performs assigned commissioning responsibilities as specified.
4. Provide instructions and demonstrations for Commissioner.
5. Ensure subcontractors perform assigned commissioning responsibilities.
6. Ensure participation of equipment manufacturers in appropriate startup, testing, and training activities when required by individual equipment specifications.
7. Develop startup and initial checkout plan using manufacturer's startup procedures and functional performance checklists for equipment and systems to be commissioned.
8. During verification check and startup process, execute HVAC related portions of checklists for equipment and systems to be commissioned.
9. Perform and document completed startup and system operational checkout procedures, providing copy to Commissioning Authority.
10. Provide manufacturer's representatives to execute starting of equipment. Ensure representatives are available and present during agreed upon schedules and are in attendance for duration to complete tests, adjustments and problem-solving.
11. Coordinate with equipment manufacturers to determine specific requirements to maintain validity of warranties.
12. Provide personnel to assist Commissioning Authority during equipment or system verification checks and functional performance tests.
13. Prior to functional performance tests, review test procedures to ensure feasibility, safety and equipment protection and provide necessary written alarm limits to be used during tests.
14. Prior to startup, inspect, check, and verify correct and complete installation of equipment and system components for verification checks included in commissioning plan. When deficient or incomplete work is discovered, ensure corrective action is taken and re-check until equipment or system is ready for startup.
15. Provide factory supervised startup services for equipment and systems specified in Section 23.08.00. Coordinate work with manufacturer and Commissioning Authority.
16. Perform verification checks and startup on equipment and systems as specified.
17. Assist Commissioning Authority in performing functional performance tests on equipment and systems as specified.
18. Perform operation and maintenance training sessions scheduled by Commissioning Authority.
19. Conduct HVAC system orientation and inspection.

B. Temperature Controls Installer Commissioning Responsibilities:
   1. Attend commissioning meetings.
   2. Review design for ability of systems to be controlled including the following:
      a. Confirm proper hardware requirement exists to perform functional performance testing.
      b. Confirm proper safeties and interlocks are included in design.

c. Confirm proper sizing of system control valves and actuators and control valve operation will result capacity control identified in Contract Documents.
d. Confirm proper sizing of system control dampers and actuators and damper operation will result in proper damper positioning.
e. Confirm sensors selected are within device ranges.
f. Review sequences of operation and obtain clarification from Architect/Engineer.
g. Indicate delineation of control between packaged controls and building automation system, listing BAS monitor points and BAS adjustable control points.
h. Provide written sequences of operation for packaged controlled equipment. Equipment manufacturers' stock sequences may be included, when accompanied by additional narrative to reflect Project conditions.

3. Inspect, check, and confirm proper operation and performance of control hardware and software provided in other HVAC sections.
4. Submit proposed procedures for performing automatic temperature control system point-to-point checks to Commissioning Authority and Architect/Engineer.
5. Inspect check and confirm correct installation and operation of automatic temperature control system input and output device operation through point-to-point checks.
6. Demonstrate system performance and operation to Commissioning Authority during functional performance tests including each mode of operation.
7. Provide control system technician to assist during Commissioning Authority verification check and functional performance testing.
8. Provide control system technician to assist testing, adjusting, and balancing agency during performance of testing, adjusting, and balancing work.
9. Assist in performing operation and maintenance training sessions scheduled by Commissioning Authority.

C. Testing, Adjusting, and Balancing Agency Commissioning Responsibilities:
1. Attend commissioning meetings.
2. Participate in verification of testing, adjusting, and balancing report for verification or diagnostic purposes. Repeat sample of 10 to 20 percent of measurements contained in testing, adjusting, and balancing report as selected by Commissioning Authority.
3. Assist in performing operation and maintenance training sessions scheduled by Commissioning Authority.

1.8 COMMISSIONING MEETINGS

A. Section 01 91 00 - Commissioning: Requirements for commissioning meetings.

B. Attend initial commissioning meeting and progress commissioning meetings as required by Commissioning Authority.

1.9 SCHEDULING

A. Section 01 30 00 - Administrative Requirements: Requirements for scheduling.

B. Prepare schedule indicating anticipated start dates for the following:
1. Piping system pressure testing.
2. Piping system flushing and cleaning.
3. Ductwork cleaning.
4. Ductwork pressure testing.
5. Equipment and system startups.
6. Automatic temperature control system checkout.
7. Testing, adjusting, and balancing.
8. HVAC system orientation and inspections.
9. Operation and maintenance manual submittals.
10. Training sessions.

C. Schedule seasonal tests of equipment and systems during peak weather conditions to observe full-load performance.

D. Schedule occupancy sensitive tests of equipment and systems during conditions of both minimum and maximum occupancy use.

1.10 COORDINATION

A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.

B. Notify Commissioning Authority minimum of four weeks in advance of the following:
1. Scheduled equipment and system startups.
2. Scheduled automatic temperature control system checkout.
3. Scheduled start of testing, adjusting, and balancing work.

C. Coordinate programming of automatic temperature control system with construction and commissioning schedules.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install additional balancing dampers, balancing valves, access doors, test ports, and pressure and temperature taps required by Commissioning Authority.

B. Place HVAC systems and equipment into full operation and continue operation during each working day of commissioning.

C. Install replacement sheaves and belts to obtain system performance, as requested by Commissioning Authority.

D. Install test holes in ductwork and plenums as requested by Commissioning Authority for taking air measurements. Refer to Section 23 33 00.

E. Prior to start of functional performance test install replacement filters in equipment as specified in individual section.

3.2 COMMISSIONING

A. Seasonal Sensitive Functional Performance Tests:
1. Test heating equipment at winter design temperatures.
2. Test cooling equipment at summer design temperatures with fully occupied building.
3. Participate in testing delayed beyond Final Completion to test performance at peak seasonal conditions.

B. Be responsible to participate in initial and alternate peak season test of systems required to demonstrate performance.

C. Occupancy Sensitive Functional Performance Tests:
1. Test equipment and systems affected by occupancy variations at minimum and peak loads to observe system performance.
2. Participate in testing delayed beyond Final Completion to test performance with actual occupancy conditions.

END OF SECTION

SECTION 23 09 00 - INSTRUMENTATION AND CONTROL FOR HVAC

PART 1 GENERAL

1.1 SUMMARY

A. Related Sections:
1. Section 23 05 13 - Common Motor Requirements for HVAC Equipment: Product requirements for electric motors.
2. Section 23 09 93 - Sequence of Operations for HVAC Controls: Sequences of operation implemented using products specified in this section.
3. Section 23 33 00 - Air Duct Accessories: Product requirements for duct mounted thermometers. Installation requirements for dampers and other duct mounted products furnished in this section.
4. Section 26 05 03 - Equipment Wiring Connections: Execution requirements for electric connections specified by this section.

B. Air Movement and Control Association International, Inc.:
1. AMCA 500 - Test Methods for Louvers, Dampers, and Shutters.

C. American Society of Heating, Refrigerating and Air-Conditioning Engineers:
1. ASHRAE 62 - Ventilation for Acceptable Indoor Air Quality.

D. American Society of Mechanical Engineers:
1. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings.
2. ASME B16.22 - Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.

E. ASTM International:
1. ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
2. ASTM A536 - Standard Specification for Ductile Iron Castings.
3. ASTM B32 - Standard Specification for Solder Metal.
4. ASTM B88 - Standard Specification for Seamless Copper Water Tube.
5. ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric).
6. ASTM B280 - Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service.
7. ASTM D2737 - Standard Specification for Polyethylene (PE) Plastic Tubing.

F. American Welding Society:
1. AWS A5.8 - Specification for Filler Metals for Brazing and Braze Welding.

G. National Electrical Manufacturers Association:
1. NEMA DC 3 - Residential Controls - Electrical Wall Mounted Room Thermostats.
2. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

H. National Fire Protection Association:
1. NFPA 72 - National Fire Alarm Code.
2. NFPA 90A - Standard for the Installation of Air Conditioning and Ventilating Systems.

I. Underwriters Laboratories, Inc.:

1. UL 1820 - Fire Test of Pneumatic Tubing for Flame and Smoke Characteristics.

1.2 SUBMITTALS

A. See DDC General Conditions-

B. Shop Drawings: Indicate operating data, system drawings, wiring diagrams, and written detailed operational description of sequences. Coordinate submittals with information requested in Section 23 09 93.

C. Product Data: Submit description and engineering data for each control system component. Include sizing as required.

D. Manufacturer's Installation Instructions: Submit installation requirements for each control component.

E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.3 CLOSEOUT SUBMITTALS

A. See DDC General Conditions.

B. Project Record Documents: Record actual locations of control components, including panels, thermostats, and sensors.

C. Operation and Maintenance Data: Submit inspection period, cleaning methods, recommended cleaning materials, and calibration tolerances.

1.4 QUALITY ASSURANCE

A. Control Air Damper Performance: Test in accordance with AMCA 500.

B. Maintain one copy copies of each document on site.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience, and with service facilities.

B. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

1.6 PRE-INSTALLATION MEETINGS

A. See DDC General Conditions.

B. Convene minimum one week prior to commencing work of this section.

1.7 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions.

B. Accept controls on site in original factory packaging Inspect for damage.

1.8 COORDINATION

A. See DDC General conditions.

B. Coordinate installation of control components in duct systems with work of Section 23 33 00.

1.9 WARRANTY

A. See DDC General Conditions.

B. Furnish five year manufacturer warranty for each control system components, and HVAC instrumentation.

1.10 WARRANTY SERVICE

A. See DDC General Conditions.

B. Furnish service and maintenance of control system for one year from Date of Substantial Completion.

C. Furnish complete service of controls systems, including callbacks. Perform minimum of 3 complete normal inspections of approximately 10 hours duration in addition to normal service calls to inspect, calibrate, and adjust controls. Submit written report after each inspection.

D. Furnish two complete inspections per/year, to inspect, calibrate, and adjust controls. Submit written report after each inspection.

E. Examine unit components semi-monthly. Clean, adjust, and lubricate equipment.

F. Include systematic examination, adjustment, and lubrication of unit, and controls checkout and adjustments. Repair or replace parts in accordance with manufacturer's operating and maintenance data. Use parts produced by manufacturer of original equipment.

G. Perform work without removing units from service during building normal occupied hours.

H. Provide emergency call back service at all hours during working hours for this maintenance period.

I. Maintain an adequate stock of parts, locally, for replacement or emergency purposes. Ensure personnel availability to ensure fulfillment of this maintenance service without unreasonable loss of time.

J. Perform maintenance work using competent and qualified personnel under supervision and in direct employ of manufacturer or original installer.

K. Do not assign or transfer maintenance service to agent or subcontractor without prior written consent of City of New York.

1.11 EXTRA MATERIALS

A. See DDC General Conditions.

B. Furnish 1 of each type of thermostat exposed sensor.

PART 2 PRODUCTS

2.1 CONTROL COMPONENT MANUFACTURERS

A. Manufacturers:
1. Honeywell, Building Control Solutions.
2. Johnson Controls, Inc.
3. Siemens Building Technologies, Inc.

2.2 CONTROL PANEL ENCLOSURES

A. Furnish for each system under automatic control with relays and controls mounted in cabinet and temperature indicators, pressure gages, pilot lights, push buttons and switches flush on cabinet panel face.

B. Construction: NEMA 250, Type 1 3 steel fiberglass plastic enclosure.

C. Covers: Continuous hinge, held closed by flush latch operable by screwdriver key.

D. Enclosure Finish: Manufacturer's standard enamel.

E. THERMOSTATS Manufacturers:
1. Honeywell, Building Control Solutions.
2. Johnson Controls, Inc.
3. Siemens Building Technologies, Inc.

F. Line Voltage Thermostats:
1. Integral manual On/Off/Auto selector switch, single or two-pole.
2. Dead band: Maximum 2 degrees F.
3. Cover: Locking with set point adjustment.
4. Load capacity rating.

G. Room Thermostat Accessories:
1. Thermostat Covers: Brushed aluminum.
2. Insulating Bases: For thermostats located on exterior walls.
3. Thermostat Guards: Locking transparent plastic mounted on separate base.
4. Adjusting Key: Matching device.
5. Aspirating Boxes: As indicated on Drawings for thermostats requiring flush installation.

H. Outdoor Reset Thermostat:
1. Remote bulb or bimetal rod and tube type, proportioning action with adjustable throttling range, adjustable setpoint.
2. Scale range: -10 to 70 degrees F.

I. Air-stream Thermostats:
   1. Remote bulb or bimetallic rod and tube type, proportional action with adjustable setpoint in middle of range and adjustable throttling range.
   2. Averaging service remote bulb element: 7.5 feet .
   3. Furnish with flange and shield.

J. Electric Low Limit Duct Thermostat:
   1. Snap acting, single pole, single throw, automatic reset switch tripping when temperature sensed across any 12 inches of bulb length is equal to or below set point.
   2. Bulb length: Minimum 20 feet.
   3. Furnish one thermostat for every 20 sq. ft of coil surface.

K. Electric High Limit Duct Thermostat:
   1. Snap acting, single pole, single throw, automatic reset switch tripping when temperature sensed across any 12 inches of bulb length is equal to or above set point.
   2. Bulb length: Minimum 20 feet.
   3. Furnish one thermostat for every 20 sq. ft of coil surface.

L. Fire Thermostats:
   1. UL labeled, factory set in accordance with NFPA 90A.
   2. Normally closed contacts, manual reset.

M. Heating/Cooling Valve Top Thermostats: Proportional acting for proportional flow, molded rubber diaphragm, liquid filled element, direct and reverse acting at differential pressure to 25 psig, cast housing with position indicator and adjusting knob.

2.3 TIME CLOCKS

A. Seven-day programming switch timer with synchronous timing motor and seven-day dial. Continuously charged Ni-cad battery driven for power failure with 8 hour carry over and multiple switch trippers to control systems for minimum of two and maximum of eight signals each day with two normally open and two normally closed output switches.

B. Solid-state programmable time control with 2 separate programs, 24 hour battery carry over duty cycling individual on/off/auto switches for each program 7 day programming.

2.4 ALARM SYSTEM

A. Enclosure Construction: NEMA 250, Type 1 3.

B. Furnish alarm panel with individual indication, horn, silenced acknowledge switch, and test switch.

C. At alarm condition indication, light flashes and alarm sounds. Horn stops when acknowledge switch is pushed and system indicates alarm conditions by continuous light until trouble condition has cleared. Alarm sounds again when second alarm occurs before first one has cleared.

D. Furnish remote panels with duplicate functions of primary panel. Furnish alarm silence/acknowledge switch to acknowledge alarm from each panel.

E. Furnish dry contacts at main alarm panel for use with remote alarm monitoring system to indicate each alarm condition.

2.5 CONTROL AIR DAMPERS

A. Performance: Test in accordance with AMCA 500.

B. Frames: Extruded aluminum welded or riveted with corner reinforcement, minimum 12 gage.

C. Blades: Galvanized steel Extruded aluminum, maximum blade size 6 inches wide, 48 inches long, minimum 22 gage attached to minimum 1/2 inch shafts with set screws.

D. Blade Seals: Neoprene mechanically attached, field replaceable.

E. Jamb Seals: Stainless steel spring.

F. Shaft Bearings: Oil impregnated sintered bronze with thrust washers at bearings Lubricant free, stainless steel, single row, ground, flanged, radial, anti-friction type with extended inner race.

G. Linkage Bearings: Oil impregnated sintered bronze.

H. Outside Air Damper Leakage: Maximum leakage rate of 3.0 cfm per square foot at 1.0 inches wg. pressure differential.

I. Damper Leakage: Less than1/2 percent based on approach velocity of 2000 fpm and 4 inches wg .

J. Maximum Pressure Differential: 6 inches wg.

K. Temperature Limits: - 40 to 200 degrees F.

2.6 ELECTRIC DAMPER ACTUATORS

A. Operation: Two-position Reversing type proportional motor.

B. Enclosure Rating: NEMA 250 Type 1 3 .

C. Mounting: Direct mount.

D. Stroke: 90 seconds end to end full stroke, 15 seconds return to normal for spring return.

E. Protection: Electronic stall protection.

F. Control Input: 0-10 VDC or 0-20 mA DC.

G. Power: Nominal 24 120 volt AC.

H. Torque: Size for minimum 150 percent of required duty.

I. Duty cycle: rated for 65,000 cycles.

J. Accessories:
1. Cover mounted transformer.
2. Auxiliary potentiometer.
3. Damper linkage.
4. Direct drive feedback potentiometer.
5. Output position feedback.
6. Field selectable rotational, spring return direction, field adjustable zero and span.
7. End switch.

2.7 CONTROL VALVES

A. Globe Pattern:

1. 2 inches and Smaller: Bronze body, bronze trim, rising stem, renewable composition disc, screwed ends with back seating capacity packable under pressure.

2. 2-1/2 inches and Larger: Iron body, bronze trim, rising stem, plug-type disc, flanged ends, renewable seat and disc.

3. Steam Systems:
   a. Rate for service pressure of 125 psig at 250 degrees F.
   b. Replaceable plugs and seats of stainless steel.
   c. Sizing: Pressure drop across steam valve at maximum flow as indicated on Drawings.
   d. Sizing: 10 psig inlet pressure and 5 psig pressure drop.
   e. Sizing: Pressure drop across steam valve equal to maximum flow of 80 percent of inlet steam pressure for low-pressure systems and 42 percent for high-pressure systems.
   f. Furnish valves with modified linear characteristics.

4. Flow Characteristics: Furnish 2-way valves with equal percentage characteristics. Furnish 3-way valves with equal percentage characteristic through control port and linear characteristic through bypass port.

5. Size 2-way valve actuators to close valves against pump shut off head.

2.8 ELECTRIC VALVE ACTUATORS

A. Fully factory assembled. Size to operate with sufficient reserve power to provide smooth modulating action or two-position action under every condition.

B. Motor: Permanent split-capacitor or shaded-pole type. Gear trains completely oil immersed and sealed. Furnish spring-return motors with integral spiral-spring mechanism in housings designed for easy removal for service or adjustment of limit switches, auxiliary switches, or feedback potentiometer.

C. Actuator: Direct-coupled type non-hydraulic designed for minimum 100,000 full-stroke cycles at rated torque. Furnish actuator with rating of not less than twice thrust needed for actual operation of valve.
   1. Coupling: V-bolt and V-shaped, toothed cradle.
   2. Overload Protection: Electronic overload or digital rotation-sensing circuitry.
   3. Fail-Safe Operation: Mechanical, spring-return mechanism. Furnish external, manual gear release on non-spring-return actuators.
   4. Furnish spring-return actuators with manual override. Complete manual override to take no more than 10 turns.
   5. Power Requirements:
      a. Two-Position Spring Return: 24 volt AC or DC, maximum 10 vA.
      b. Modulating: 24 volt AC, maximum 15 vA.
   6. Proportional Signal: 2 to 10 volt dc or 4 to 20 mA, and 2 to 10 volt dc position feedback signal.
   7. Temperature Rating: minus 22 to 140 degrees F.
   8. Run Time: 200 seconds open, 40 seconds closed.

D. Size for torque required for valve close-off at maximum pump differential pressure, regardless of water loop system pressures.

2.9 OUTSIDE AIR MEASURING AND MODULATION DEVICE

A. Factory assembled damper, airflow monitor, actuator, and accessories.

B. Damper and airflow measurement assembly sized to accommodate minimum outside airflow as indicated on Drawings.

C. Construction:
   1. Frame: Extruded aluminum.
   2. Blades:
      a. Modulating Air Control:
         1) Style: Airfoil-shaped, single-piece.
         2) Action: Parallel.
         3) Orientation: Horizontal.
         4) Material: Heavy gage 6063-T5 extruded aluminum.
         5) Width: Maximum 5 inches.
      b. Stationary Sensing:
         1) Style: Airfoil-shaped, single-piece.
         2) Orientation: Horizontal.
         3) Material: Heavy gage 6063-T5 extruded aluminum.
         4) Width: Maximum 5-1/4 inches.
         5) Finish: Anodized.
   3. Bearings: Self-lubricating molded synthetic sleeve, turning in extruded hole in frame.
   4. Seals:
      a. Blade: Extruded rubber. Mechanically attached to blade edge.
      b. Jamb: Stainless steel, flexible metal compression type.
      c. Linkage: Concealed in frame.
      d. Axles: Minimum 1/2 inch diameter plated steel, hex-shaped, mechanically attached to blade.
      e. Mounting: Vertical.
      f. Electric Actuator: 24 V, 60 Hz, modulating, with position feedback.

5. Digital Controller: Application specific controller. Programming logic and calibration in nonvolatile EPROM. Controller uses generic 0 - 10 vdc inputs and outputs for interface to building automation system.
6. Air Straightener Section: 3 inches deep section contained in 5 inch sleeve attached to damper-airflow monitor frame.
7. Finish: Mill aluminum.

D. Performance Data:
1. Temperature Rating: Withstand -40 to 140 degrees F.
2. Accuracy: Plus or minus 5 percent.
3. Leakage: Maximum of 2.0 cfm per square foot at1.0 inches wg pressure differential.
4. Measures from 15 percent to 100 percent of unit nominal air flow.
5. Adjusts air flow for temperature variations.
6. Provides 2 to 10 volt DC signal corresponding to actual air flow.

E. Accessories:
1. Actuator Heater: Allow actuator operation in ambient temperatures to -40 degrees F.

2.10 DIRECT DIGITAL CONTROL SYSTEM COMPONENTS

A. Temperature Sensors:
1. Type: Resistance temperature detector (RTD) or thermistor.
2. Accuracy:
a. Plus or minus 1 degree F for standard applications. Where high accuracy is required, furnish accuracy of plus or minus 0.2 degrees F.
b. Sensing Accuracy: Plus or minus 0.5 degree F.
c. Display Accuracy and Resolution: Minimum of plus or minus 1 degree F.
3. Built-in communications port.
4. Space Sensors: Digital with LCD display, day-night override button, and set point slide adjustment override options. Set point slide adjustment capable of being software limited by automation system to limit amount of room adjustment.
5. Outside Air Sensors: Watertight inlet fitting, furnish with shield from direct sunlight.
6. Duct Temperature Sensors:
a. Rigid or averaging type as indicated in sequence of operations. Averaging sensor minimum length: 5 feet in length.
b. Duct Cross Sections Greater Than 10 square feet: Furnish serpentine averaging element to sense stratified air temperatures.
7. Piping Temperature Sensors: Furnish with separable brass well.

B. Humidity Sensors:
1. Type: Capacitance or bulk polymer resistance.
2. Drift: Not to exceed 3 percent of full scale per year.
3. Room Sensors:
a. Sensing Range: 0 to 100 percent.
b. Accuracy of plus or minus 5 percent relative humidity.
4. Duct Sensors:
a. Sensing Range: 0 to 100 percent.
b. Accuracy of plus or minus 5 percent relative humidity.
c. Furnish with sampling chamber.
d. Element guard.

e. Mounting plate.

5. Outdoor Air Humidity Sensors:
   a. Sensing Range: 20 to 95 percent relative humidity.
   b. Suitable for ambient conditions of minus 40 to 170 degrees F.
   c. Accuracy: Plus or minus 2 percent relative humidity at 77 degrees F.
   d. Element guard.
   e. Mounting plate.

C. Differential Pressure Switches:
   1. Furnish as specified in sequences of operation for status purposes in air and water applications.
   2. Fully adjustable differential pressure settings.
   3. UL Listed, SPDT snap-acting, pilot duty rated.
   4. NEMA 250 Type 1enclosure.
   5. Scale range and differential suitable for intended application.

D. Static Pressure Sensor:
   1. Non-directional sensor with suitable range for expected input, and temperature compensated.
   2. Accuracy: plus or minus 1 percent of full scale with repeatability of 0.5 percent.
   3. Output: 4 to 20 mA, 0-5 vDC, 0-10 vDC.
   4. Building Static Pressure Range: minus 0.1 to 0.1 inches water column, minus 0.25 to 0.25 inches water column, minus 0.5 to 0.5 inches water column, minus 1.0 to 1.0 inches water column, jumper selectable.
   5. Duct Static Pressure Range: 0 to 1 inches water column, 0 to 2.5 inches water column, 0 to 5 inches water column, 0 to 10 inches water column, jumper adjustable.

E. Carbon Dioxide Sensors:
   1. Sensors designed for indoor carbon dioxide levels in accordance with ASHRAE Standard 62.
   2. 4 to 20 ma. linear output over range of 0 to 2000 ppm of carbon dioxide for interface to DDC control system.
   3. For duct mounted sensors furnish airtight enclosure complete with sampling tube.

F. Air Flow Switches:
   1. Paddle or differential pressure type, as indicated in sequences of operation.
   2. UL Listed, SPDT snap-acting with pilot duty rating.
   3. Appropriate scale range and differential adjustment.
   4. Adjustable sensitivity.
   5. NEMA 250 Type 1 enclosure.

G. Water Flow Switches:
   1. Paddle type with stainless steel or bronze paddle.
   2. UL Listed, SPDT snap-acting with pilot duty rating.
   3. Appropriate scale range and differential adjustment.
   4. Adjustable sensitivity.
   5. NEMA 250 Type 1 enclosure.
   6. Furnish vapor proof type for chilled water applications.

H. Carbon Dioxide Sensor and Transmitter: Single detectors, using solid-state infrared sensors, suitable over a temperature range of 23 to 130 degrees F, calibrated for 0 to 2 percent, with continuous or averaged reading, 4 to 20 mA output, and wall mounted.

I. Refrigerant Detectors: Dual-level detectors, using solid-state sensors, with alarm preset for 300 ppm, alarm indicator light, alarm silence light and button, alarm test light and button, and trouble light. Provide auxiliary relay preset for 150 ppm.

J. Occupancy Sensor: Passive infrared, with time delay, daylight sensor lockout, sensitivity control, and 180 degree field of view with vertical sensing adjustment, for flush mounting.

2.11 DUCT-MOUNTED SMOKE DETECTOR

A. Product Description: NFPA 72, ionization type with the following features:
1. Auxiliary SPDT relay contact.
2. Key-operated normal-reset-test switch.
3. Duct sampling tubes extending width of duct.
4. Visual indication of detector actuation.
5. Duct-mounted housing.

B. Furnish two-wire detector with common power supply and signal circuits.

2.12 DIFFERENTIAL PRESSURE MONITOR

A. Through-the-wall measurement for differential pressure.

B. Digital Display:
1. Differential pressure in inches or Pascal.
2. State of pressure mode.
3. High pressure alarm.
4. Low pressure alarm.
5. General failure.
6. Status of door switch.
7. Anteroom status.

C. Keyed switch to change mode from positive to negative to neutral.

D. LED indicator for normal and alarm status.

E. Audible horn indicating alarm condition with silencing button.

F. Communications port.

G. One remote pressure transmitter.

H. Auxiliary alarm relay output.

I. Door switch contact.

J. Calibration tool.

2.13 ELECTRICAL CHARACTERISTICS AND COMPONENTS

A. Motors: In accordance with Section 23 05 13.

B. Disconnect Switch: Factory mount disconnect switch in control panel on equipment.

PART 3 EXECUTION

3.1 EXAMINATION

A. See DDC General Conditions.

B. Verify air handling units and ductwork installation is complete and air filters are in place before installing sensors in air streams.

C. Verify location of thermostats and other exposed control sensors with Drawings before installation.

D. Verify building systems to be controlled are ready to operate.

3.2 INSTALLATION

A. Install thermostats in aspirating boxes in public areas entrances as indicated on Drawings.

B. Install guards on thermostats in public areas as indicated on Drawings.

C. Install control panels adjacent to associated equipment on vibration free walls or freestanding supports. Install engraved plastic nameplates for instruments and controls inside cabinet and engraved plastic nameplates on cabinet face. Label with appropriate equipment or system designation.

D. Install "hand/off/auto" selector switches to override automatic interlock controls when switch is in "hand" position.

E. Install conduit and electrical wiring in accordance with Section 26 05 03.

F. Coordinate control wiring for HVAC that is provided by electrical contractor to termination.

3.3 FIELD QUALITY CONTROL

A. See DDC General Conditions.

B. After completion of installation, test and adjust control equipment. Submit data showing set points and final adjustments of controls.

C. Test pneumatic systems to system pressure maximum of 30 psig. Check calibration of instruments. Recalibrate instruments out of calibration. Replace defective instruments.

3.4 DEMONSTRATION AND TRAINING

A. See DDC General Conditions.

B. Demonstrate complete operation of systems, including sequence of operation prior to Date of Substantial Completion.

C. Demonstrate complete and operating system to City of New York.

END OF SECTION

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SECTION 23 09 93 - SEQUENCE OF OPERATIONS FOR HVAC CONTROLS

PART 1 GENERAL

1.1 SUMMARY

A. Related Sections:
1. Section 23 09 00 - Instrumentation and Control for HVAC: For equipment, devices, and system components to implement sequences of operation.

1.2 SUBMITTALS

A. DDC General Conditions.

B. Shop Drawings: Indicate mechanical system controlled and control system components.
1. Label with settings, adjustable range of control and limits. Submit written description of control sequence.
2. Submit flow diagrams for each control system, graphically depicting control logic.
3. Submit draft copies of graphic displays indicating mechanical system components, control system components, and controlled function status and value.

1.3 CLOSEOUT SUBMITTALS

A. See DDC General Conditions.

B. Project Record Documents: Record actual locations of components and set points of controls, including changes to sequences made after submission of shop drawings.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 EXHAUST FANS

A. Toilet exhaust fan to be energized by on/off switch.

B. Outside air fan to be interlocked with fan coil units. Fan coil unit on outside air fan starts. Fan coil units de-energizes, outside air fan stops.

3.2 FAN COIL UNITS

A. Single temperature unit-mounted thermostat set at 75 degrees F. Thermostat maintains constant space temperature during day and 15 degrees F cooler at night. Thermostat modulates control heating .

B. Single temperature unit-mounted thermostat set at 75 degrees F maintains constant space temperature during day and 15 degrees F cooler at night. Thermostat modulates opens and closes two-way control heating valve with spring range of 3 to 7 psig and two-way cooling control valve with spring range of 8 to 13 psig in sequence.

C. For heating and cooling fan coil units with fan speed control during heating cycle, increase fan speed as space temperature falls below thermostat setting. During cooling cycle, increase fan speed as space temperature rises above thermostat setting.

D. Mount thermostat with adjustable knob and speed switch on common plate engraved with "Heating Control and Fan Control" on top, with "Warmer and Cooler" and direction indicator around thermostat.

3.3 HEATING COILS

A. Single temperature room thermostat set at 70 degrees maintains constant space temperature by energizing staging modulating electric output through action at ac unit er controller, to electric heaters.

3.4 CARBON DIOXIDE DETECTORS

A. Carbon dioxide detectors to modulate outside air dampers to maintain min. 1400 parts per million in theater and 900 parts per million in occupied spaces.

END OF SECTION

SECTION 23 22 13 - STEAM AND CONDENSATE HEATING PIPING

PART 1 GENERAL

1.1 SUMMARY

A. Related Sections:

1. Section 07 84 13– Penetration Firestopping: Product requirements for firestopping for placement by this section.
2. Section 08 31 13 - Access Doors and Frames: Product requirements for access doors for placement by this section.
3. Section 09 91 00 - Painting: Product requirements Painting for placement by this section.
4. Section 23 05 03 - Pipes and Tubes for HVAC Piping and Equipment: Product and installation requirements for piping materials applying to various system types.
5. Section 23 05 16 - Expansion Fittings and Loops for HVAC Piping: Product and execution requirements for expansion compensation devices use in steam piping systems.
6. Section 23 05 23 - General-Duty Valves for HVAC Piping: Product requirements for valves for placement by this section.
7. Section 23 05 29 - Hangers and Supports for HVAC Piping and Equipment: Product requirements for pipe hangers and supports, sleeves, and firestopping for placement by this section.
8. Section 23 05 53 - Identification for HVAC Piping and Equipment: Product requirements for pipe identification for placement by this section.
9. Section 23 07 00 - HVAC Insulation: Product requirements for Piping Insulation for placement by this section.
10. Section 23 22 16 - Steam and Condensate Piping Specialties: Product and execution requirements for piping specialties used in steam piping systems.

1.2 REFERENCES

A. American Society of Mechanical Engineers:
1. ASME B16.3 - Malleable Iron Threaded Fittings.
2. ASME B16.4 - Gray Iron Threaded Fittings.
3. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings.
4. ASME B16.22 - Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.
5. ASME B31.1 - Power Piping.
6. ASME B31.9 - Building Services Piping.
7. ASME Section IX - Boiler and Pressure Vessel Code - Welding and Brazing Qualifications.

B. ASTM International:
1. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
2. A216/A216M - Standard Specification for Steel Castings, Carbon, Suitable for Fusion Welding, for High- Temperature Service.
3. ASTM A234/A234M - Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service.

4. ASTM B32 - Standard Specification for Solder Metal.
5. ASTM B88 - Standard Specification for Seamless Copper Water Tube.
6. ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric).
7. ASTM F708 - Standard Practice for Design and Installation of Rigid Pipe Hangers.

C. American Welding Society:
1. AWS A5.8 - Specification for Filler Metals for Brazing and Braze Welding.
2. AWS D1.1 - Structural Welding Code - Steel.

D. Manufacturers Standardization Society of the Valve and Fittings Industry:
1. MSS SP 58 - Pipe Hangers and Supports - Materials, Design and Manufacturer.
2. MSS SP 69 - Pipe Hangers and Supports - Selection and Application.
3. MSS SP 70 - Cast Iron Gate Valves, Flanged and Threaded Ends.
4. MSS SP 71 - Cast Iron Swing Check Valves, Flanged and Threaded Ends.
5. MSS SP 80 - Bronze Gate, Globe, Angle and Check Valves.
6. MSS SP 85 - Cast Iron Globe & Angle Valves, Flanged and Threaded.
7. MSS SP 89 - Pipe Hangers and Supports - Fabrication and Installation Practices.
8. MSS SP 110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.

1.3 SYSTEM DESCRIPTION

A. Where more than one piping system material is specified, provide compatible system components and joints. Use non-conducting dielectric connections whenever jointing dissimilar metals in open systems.

B. Provide flanges, union, and couplings at locations requiring servicing. Use unions, flanges, and couplings downstream of valves and at equipment or apparatus connections. Do not use direct welded or threaded connections to valves, equipment or other apparatus.

C. Provide pipe hangers and supports in accordance with ASME B31.1, ASME B31.9, ASTM F708, MSS SP 58, MSS SP 69, and MSS SP 89.

D. Use gate valves for shut-off and to isolate equipment, part of systems, or vertical risers. Use globe valves for throttling or services.

E. Use spring loaded check valves on discharge of condensate pumps.

F. Use horizontal swing check valves for vacuum breakers discharge of steam traps.

G. Use 3/4 inch gate valves with cap for blow downs at strainers.

H. Use 3/4 inch gate valves with cap for drains at main shut-off valves, low points of piping, bases of vertical risers, and at equipment.

I. Flexible Connectors: Use at or near pumps where piping configuration does not absorb vibration.

1.4 SUBMITTALS

A. See DDC General Conditions-

B. Shop Drawings: Indicate schematic layout of steam piping system, including equipment, critical dimensions, and sizes.

C. Product Data:
1. Piping: Submit data on pipe materials, fittings, and accessories. Submit manufacturers catalog information.
2. Valves: Submit manufacturers catalog information with valve data and ratings for each service.
3. Hangers and Supports: Submit manufacturers catalog information including load capacity.

D. Design Data: Indicate pipe size. Indicate load carrying capacity of trapeze, multiple pipe, and riser support hangers.

E. Test Reports: Indicate results of steam piping system pressure test.

F. Manufacturer's Installation Instructions: Submit hanging and support methods, joining procedures and isolation.

G. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

H. Welders' Certificate: Include welders' certification of compliance with ASME Section IX. AWS D1.1.

1.5 CLOSEOUT SUBMITTALS

A. See DDC General Conditions.

B. Project Record Documents: Record actual locations of valves, equipment and accessories.

C. Operation and Maintenance Data: Submit instructions for installation and changing components, spare parts lists, exploded assembly views.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with ASME B31.1 ASME B31.9 code for installation of piping systems and ASME Section IX for welding materials and procedures.

B. Perform Work in accordance with applicable authority AWS D1.1 for welding hanger and support attachments to building structure.

C. Maintain one copy of each document on site.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

B. Fabricator or Installer: Company specializing in performing Work of this section with minimum three years documented experience.

1.8 PRE-INSTALLATION MEETINGS

A. See DDC General Conditions.

B. Convene minimum one week prior to commencing work of this section.

1.9 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions.

B. Accept valves on site in shipping containers with labeling in place. Inspect for damage.

C. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.

D. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the Work, and isolating parts of completed system.

1.10 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.11 WARRANTY

A. See DDC General Conditions.

B. Furnish five year manufacturer warranty for valves excluding packing.

1.12 EXTRA MATERIALS

A. See DDC General Conditions.

B. Furnish two packing kits for each size and valve type.

PART 2 PRODUCTS

2.1 LOW PRESSURE STEAM PIPING, ABOVE GROUND (15 PSIG MAXIMUM)

A. Steel Pipe: ASTM A53/A53M, Schedule 40 wall for sizes 12 inch and larger.
1. Fittings: ASME B16.3 malleable iron Class 125, or ASTM A234/A234M forged steel Class 125.
2. Joints: Threaded for pipe 2 inch (50 mm) and smaller; welded for pipe 2-1/2 inches (65 mm) and larger.

2.2 LOW PRESSURE STEAM CONDENSATE PIPING, ABOVE GROUND

A. Steel Pipe: ASTM A53/A53M, Schedule 80, 0.375 inch wall for sizes 12 inch (300 mm) and larger, black.
1. Fittings: ASME B16.3 malleable iron Class 125, or ASTM A234/A234M forged steel Class 125.
2. Joints: Threaded for pipe 2 inch (50 mm) and smaller; welded for pipe 2-1/2 inches (65 mm) and larger.

B. Copper Tubing: ASTM B88 (ASTM B88M), Type L, hard drawn.
1. Fittings: ASME B16.18, cast brass, or ASME B16.22 wrought copper.
2. Joints: Solder, lead free, ASTM B32, 95-5 tin-antimony, or tin and silver, with melting range 430 - 535 degrees F (220 to 280 degrees C). Braze, AWS A5.8, BCuP silver/phosphorus/copper alloy with melting range 1190 to 1480 F (640-805 degrees C).

2.3 EQUIPMENT DRAINS AND OVERFLOWS

A. Steel Pipe: ASTM A53/A53M Schedule 40, galvanized.
1. Fittings: ASME B16.3, malleable iron or ASME B16.4, cast iron.
2. Joints: Threaded for pipe 2 inch (50 mm) and smaller; flanged for pipe 2-1/2 inches (65 mm) and larger.

2.4 UNIONS AND FLANGES

A. Unions for Pipe 2 inches and Smaller:
1. Ferrous Piping: Class 150, malleable iron.
2. Copper Piping: Class 150, bronze unions with brazed joints.
3. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

B. Flanges for Pipe 2-1/2 inches and Larger:
1. Ferrous Piping: Class 150, forged steel, slip-on flanges.
2. Copper Piping: Class 150, slip-on bronze flanges.
3. Gaskets: 1/16 inch thick preformed neoprene gaskets.

2.5 GATE VALVES

A. Manufacturers:
1. Crane Valve, North America
2. Hammond Valve
3. Milwaukee Valve Company Model
4. NIBCO, Inc.
5. Stockham Valves & Fittings
6. Approved Equal.

B. GA-1 2 inches and Smaller: MSS SP 80, Class 150, bronze body, threaded bonnet, rising stem, inside screw with back-seating stem, solid split wedge disc, alloy seat rings, threaded ends.

C. GA-2 2-1/2 inches and Larger: MSS SP 70, Class 125, bronze trim, rising stem, hand-wheel, outside screw and yoke, solid wedge disc with bronze seat rings, flanged ends.

2.6 GLOBE VALVES

A. Manufacturers:
1. Crane Valve, North America
2. Hammond Valve
3. Milwaukee Valve Company
4. Approved Equal

B. 2 inches and Smaller: MSS SP 80, Class 125, bronze body, bronze trim, threaded bonnet, hand wheel, Buna-N teflon composition disc ends.

C. 2-1/2 inches and Larger: MSS SP 85, Class 125, cast iron body, bronze trim, hand wheel, outside screw and yoke.

2.7 BALL VALVES

A. Manufacturers:
1. Crane Valve, North America
2. Hammond Valve
3. Milwaukee Valve Company
4. Approved Equal

B. 2 inches and Smaller: MSS SP 110, Class 150, bronze, three piece body, regular port, teflon seats, blow-out proof stem, solder ends, lever handle locking lever handle.

2.8 CHECK VALVES

A. Horizontal Swing Check Valves:

1. Manufacturers:
   a. Crane Valve, North America
   b. Hammond Valve
   c. Milwaukee Valve Company
   d. Approved Equal

2. 2 inches and Smaller: MSS SP 80, Class 200, bronze body and cap, Y-pattern, bronze regrinding disc, solder or threaded ends.
3. 2-1/2 inches and Larger: MSS SP 71, Class 250, cast iron body, bolted cap, bronze or cast iron disc, flanged ends.

2.9 PIPE HANGERS AND SUPPORTS

A. Manufacturers:
1. Carpenter & Paterson Inc.
2. Flex-Weld, Inc.
3. Globe Pipe Hanger Products Inc.
4. Approved Equal

B. Conform to ASME B31.1, ASME 31.9, ASTM F708, MSS SP 58, MSS SP 69, and MSS SP 89.

C. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron, adjustable swivel, split ring.

D. Hangers for Hot Pipe Sizes 2 to 4 inches: Carbon steel, adjustable, clevis.

E. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.

F. Multiple or Trapeze Hangers for Hot Pipe Sizes 6 inches and Larger: Steel channels with welded spacers and hanger rods, cast iron roll.

G. Vertical Support: Steel riser clamp.

H. Floor Support for Hot Pipe 4 inches and Smaller: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.

I. Floor Support for Hot Pipe Sizes 6 inches and Larger: Adjustable cast iron roll and stand, steel screws, and concrete pier or steel support.

J. Copper Pipe Support: Carbon steel rings, adjustable, copper plated.

K. Hanger Rods: Mild steel threaded both ends, threaded one end, or continuous threaded.

L. Inserts: Malleable iron case of galvanized steel shell and expander plug for threaded connection with lateral adjustment, top slot for reinforcing rods, lugs for attaching to forms; size inserts to suit threaded hanger rods.

PART 3 EXECUTION

3.1 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.

B. Remove scale and dirt on inside and outside before assembly.

C. Prepare piping connections to equipment with flanges or unions.

D. Keep open ends of pipe free from scale and dirt. Protect open ends with temporary plugs or caps.

3.2 INSTALLATION - INSERTS

A. Provide inserts for placement in concrete forms.

B. Provide inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.

C. Provide hooked rod to concrete reinforcement section for inserts carrying pipe 4 inches (100 mm) and larger.

D. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.

E. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut above flush with top of recessed into and grouted flush with slab.

3.3 INSTALLATION - PIPE HANGERS AND SUPPORTS

A. Install in accordance with ASME B31.9 ASTM F708 and MSS SP 89.

B. Support horizontal piping as scheduled.

C. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.

D. Place hangers within 12 inches of each horizontal elbow.

E. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.

F. Support vertical piping at every other floor. Support riser piping independently of connected horizontal piping.

G. Where installing several pipes in parallel and at same elevation, provide multiple pipe hangers or trapeze hangers.

H. Provide copper plated hangers and supports for copper piping.

I. Prime coat exposed steel hangers and supports. Refer to Section 09 91 00. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

J. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.

3.4 INSTALLATION - ABOVE GROUND PIPING SYSTEMS

A. Install steam supply and steam condensate return piping in accordance with ASME B31.1, ASME B31.9.

B. Route piping parallel to building structure and maintain gradient.

C. Install piping to conserve building space, and not interfere with use of space.

D. Group piping whenever practical at common elevations.

E. Sleeve pipe passing through partitions, walls and floors. Refer to Section 23 05 29.

F. Install firestopping at fire rated construction perimeters and openings containing penetrating sleeves and piping. Refer to Section 07 84 13, 23 05 29.

G. Install pipe identification in accordance with Section 23 05 53.

H. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment. Refer to Section 23 05 16.

I. Provide access where valves and fittings are not exposed. Coordinate size and location of access doors with Section 08 31 13.

J. Slope steam supply piping one inch in 40 feet (0.25 percent) in direction of flow. Use eccentric reducers to maintain bottom of pipe aligned.

K. Slope steam condensate piping one inch in 40 feet (0.25 percent). Use eccentric reducers to maintain bottom of pipe aligned.

L. Provide drip trap assembly at low points, risers, changes in elevation and before control valves.

M. Run condensate lines from trap to nearest condensate receiver. Provide loop vents over trapped sections.

N. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welds.

O. Prepare unfinished pipe, fittings, supports, and accessories, ready for finish painting. Refer to Section 09 91 00.

P. Install valves with stems upright or horizontal, not inverted. Insulate piping and equipment; refer to Section 23 07 00.

3.5 FIELD QUALITY CONTROL

A. See DDC General Conditions -Test low pressure steam supply piping low pressure steam condensate piping in accordance with ASME B31.9 ASME B31.1.

END OF SECTION

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SECTION 23 22 16 - STEAM AND CONDENSATE PIPING SPECIALTIES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Strainers.
2. Steam traps.
3. Steam air vents.

B. Related Sections:
1. Section 23 22 13 - Steam and Condensate Heating Piping: Execution requirements for piping connections to products specified by this section.

1.2 REFERENCES

A. American Society of Mechanical Engineers:
1. ASME B40.1 - Gauges - Pressure Indicating Dial Type - Elastic Element.
2. ASME Section VIII - Boiler and Pressure Vessel Code - Pressure Vessels.

B. ASTM International:
1. ASTM A105/A105M - Standard Specification for Carbon Steel Forgings for Piping Applications.
2. ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
3. ASTM A216/A216M - Standard Specification for Steel Castings, Carbon, Suitable for Fusion Welding, for High-Temperature Service.
4. ASTM A395/A395M - Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures.

C. Underwriters Laboratories Inc.:
1. UL 393 - Indicating Pressure Gauges for Fire-Protection Service.
2. UL 404 - Gauges, Indicating Pressure, for Compressed Gas Service.

1.3 PERFORMANCE REQUIREMENTS

A. Steam Traps:
1. Select to handle minimum of two times maximum condensate load of apparatus served.
2. Pressure Differentials:
   a. Low Pressure Systems (5 psi and less): 1/2 psi.
   b. Low Pressure Systems (15 psi maximum): 2 psi.

1.4 SUBMITTALS

A. See DDC General Conditions.

B. Product Data: Submit for manufactured products and assemblies used in this Project.

1. Manufacturer's data and list indicating use, operating range, total range, accuracy, and location for manufactured components.
2. Submit product description, model, dimensions, component sizes, rough-in requirements, service sizes, and finishes.
3. Submit schedule indicating manufacturer, model number, size, location, rated capacity, load served, and features for each piping specialty.
4. Submit electrical characteristics and connection requirements.

C. Samples: Submit two pressure gages thermometers.

D. Manufacturer's Installation Instructions: Submit hanging and support methods, joining procedures, application, selection, and hookup configuration. Include pipe and accessory elevations.

E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.5 CLOSEOUT SUBMITTALS

A. See DDC General Conditions.

B. Project Record Documents: Record actual locations of actual locations of components and instrumentation, flow controls flow meters.

C. Operation and Maintenance Data: Submit instructions for calibrating instruments, installation instructions, assembly views, servicing requirements, lubrication instruction, and replacement parts list.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience, and with service facilities.

B. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions.

B. Accept piping specialties on site in shipping containers with labeling in place. Inspect for damage.

C. Provide temporary protective coating on cast iron and steel valves.

D. Protect systems from entry of foreign materials by temporary covers, caps and closures, completing sections of the work, and isolating parts of completed system until installation.

1.8 ENVIRONMENTAL REQUIREMENTS

A. See DDC General Conditions.

B. Do not install instruments when areas are under construction, except rough in, taps, supports and test plugs.

1.9 FIELD MEASUREMENTS

A. Verify field measurements before fabrication.

1.10 WARRANTY

A. See DDC General Conditions.

B. Furnish five year manufacturer warranty for piping specialties.

1.11 MAINTENANCE MATERIALS

A. See DDC General Conditions.

B. Furnish two bottles of red gage oil for static pressure gages.

1.12 EXTRA MATERIALS

A. See DDC General Conditions.

B. Furnish two pressure gages with pulsation damper dial thermometers.

C. Furnish two service kits for each size and type of steam trap.

PART 2 PRODUCTS

2.1 FLOAT AND THERMOSTATIC TRAPS

A. Manufacturers:
1. ITT. Bell & Gossett.
2. MEP CO.
3. Spirax Sarco.
4. Approved Equal

B. Trap:
1. Construction: ASTM A126, cast iron or semi-steel body and bolted cover, stainless steel or bronze bellows type air vent, stainless steel or copper float, stainless steel lever and valve assembly
2. Rating: 15 psig 30 psig 75 psig 125 psig 150 psig 300 psig WSP.
3. Features: Access to internal parts without disturbing piping, bottom drain plug.
4. Accessories: Gage glass with shut-off cocks.

2.2 STEAM AIR VENTS

A. Manufacturers:
1. Armstrong.
2. Eaton Corporation.
3. Hoffman Specialties.

4. Approved equal

B. 125 psig WSP:
1. Balanced Pressure Type: Cast brass body and cover; access to internal parts without disturbing piping; stainless steel bellows, stainless steel valve and seat.

C. 225 psig WSP:
1. Balanced Pressure Type: ASTM A126 cast iron body and cover; access to internal parts without disturbing piping; phosphor bronze bellows, stainless steel valve and seat.

PART 3 EXECUTION

3.1 INSTALLATION - GAGES

A. Install pressure gages with pulsation dampers. Provide needle valve or ball valve to isolate each gage. Install siphon on gages in steam systems. Extend nipples and siphons to allow clearance from insulation.

B. Provide instruments with scale ranges selected according to service with largest appropriate scale.

C. Install gages in locations where they are easily read from normal operating level. Install vertical to 45 degrees off vertical.

D. Adjust gages to final angle, clean windows and lenses, and calibrate to zero.

3.2 INSTALLATION - STEAM SYSTEM SPECIALTIES

A. Steam Traps:
1. Provide minimum 3/4inch size on steam mains and branches.
2. Install with union or flanged connections at both ends.
3. Provide gate valve and strainer at inlet, and gate valve and check valve at discharge.
4. Provide minimum 10 inch long, line size dirt pocket between apparatus and trap.

B. Install thermostatic steam traps on the following pieces of equipment:
1. Steam radiation units.
2. Other similar terminal heating units.

3.3 PROTECTION OF INSTALLED CONSTRUCTION

A. See DDC General conditions.

B. Remove thermostatic elements from steam traps during temporary and trial usage, and until system has been operated and dirt pockets cleaned of sediment and scale.

C. Do not install steam pressure gauges until after systems are pressure tested.

END OF SECTION

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SECTION 23 23 00 - REFRIGERANT PIPING

1.1 SUMMARY

A. Section Includes:

1. Refrigerant piping.
2. Unions, flanges, and couplings.
3. Pipe hangers and supports.
4. Refrigerant moisture and liquid indicators.
5. Valves.
6. Refrigerant strainers.
7. Refrigerant pressure regulators.
8. Refrigerant pressure relief valves.
9. Refrigerant filter-driers.
10. Refrigerant solenoid valves.
11. Refrigerant expansion valves.
12. Electronic expansion valves.
13. Refrigerant receivers.
14. Underground pipe markers.
15. Bedding and cover materials.

B. Related Sections:

1. Section 05 12 00 - Structural Steel Framing: Product requirements for touch-up painting of structural steel.
2. Section 07 84 00 – Penetration Product requirements for firestopping for placement by this section.
3. Section 08 31 13 - Access Doors and Frames: Access doors for concealed valves and accessories.
4. Section 09 90 00 - Painting Product requirements for painting for placement by this section.
5. Section 23 05 03 - Pipes and Tubes for HVAC Piping and Equipment: Piping materials for refrigerant systems..
6. Section 23 05 29 - Hangers and Supports for HVAC Piping and Equipment: Product requirements for pipe hangers and supports, sleeves, firestopping for placement by this section.
7. Section 23 05 48 - Vibration and Seismic Controls for HVAC Piping and Equipment: Product requirements for Vibration Isolation for placement by this section.
8. Section 23 05 53 - Identification for HVAC Piping and Equipment: Product requirements for pipe identification for placement by this section.
9. Section 23 07 00 - HVAC Insulation: Product requirements for Piping Insulation for placement by this section.
10. Section 26 05 03 - Equipment Wiring Connections: Execution requirements for electric connections specified by this section.

1.2 REFERENCES

A. Air-Conditioning and Refrigeration Institute:
1. ARI 495 - Refrigerant Liquid Receivers.
2. ARI 710 - Liquid-Line Driers.
3. ARI 730 - Flow-Capacity Rating and Application of Suction-Line Filters and Filter Dryers.
4. ARI 750 - Thermostatic Refrigerant Expansion Valves.
5. ARI 760 - Solenoid Valves for Use with Volatile Refrigerants.

B. American Society of Heating, Refrigerating and Air-Conditioning Engineers:
1. ASHRAE 15 - Safety Code for Mechanical Refrigeration.

C. American Society of Mechanical Engineers:
1. ASME B16.22 - Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.
2. ASME B16.26 - Cast Copper Alloy Fittings for Flared Copper Tubes.
3. ASME B31.5 - Refrigeration Piping.
4. ASME Section VIII - Boiler and Pressure Vessel Code - Pressure Vessels.

D. ASTM International:
1. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
2. ASTM A234/A234M - Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service.
3. ASTM B88 - Standard Specification for Seamless Copper Water Tube.
4. ASTM B88M - Standard Specification for Seamless Copper Water Tube
5. ASTM B280 - Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service.
6. ASTM F708 - Standard Practice for Design and Installation of Rigid Pipe Hangers.
7. ASTM B749 - Standard Specification for Lead and Lead Alloy Strip, Sheet, and Plate Products.

E. American Welding Society:
1. AWS A5.8 - Specification for Filler Metals for Brazing and Braze Welding.
2. AWS D1.1 - Structural Welding Code - Steel.

F. Manufacturers Standardization Society of the Valve and Fittings Industry:
1. MSS SP 58 - Pipe Hangers and Supports - Materials, Design and Manufacturer.
2. MSS SP 69 - Pipe Hangers and Supports - Selection and Application.
3. MSS SP 89 - Pipe Hangers and Supports - Fabrication and Installation Practices.

G. Underwriters Laboratories Inc.:
1. UL 429 - Electrically Operated Valves.

1.3 SYSTEM DESCRIPTION

A. Where more than one piping system material is specified, provide compatible system components and joints. Use non-conducting dielectric connections when joining dissimilar metals in systems.

B. Provide flanges, unions, or couplings at locations requiring servicing. Use unions, flanges, or couplings downstream of valves and at equipment connections. Do not use direct welded or threaded connections to valves or equipment.

C. Provide pipe hangers and supports in accordance with ASME B31.5,ASTM F708

D. Flexible Connectors: Use at or near compressors where piping configuration does not absorb vibration.

1.4 SUBMITTALS

A. See DDC General Conditions .

B. Shop Drawings: Indicate layout of refrigeration piping system, including equipment, critical dimensions, and sizes.

C. Product Data:
1. Piping: Submit data on pipe materials, fittings, and accessories.
2. Valves: Submit manufacturers catalog information with valve data and ratings for each service.
3. Hangers and Supports: Submit manufacturers catalog information including load capacity.
4. Refrigerant Specialties: Submit manufacturers catalog information including capacity, component sizes, rough-in requirements, and service sizes for the following:
   a. Refrigerant moisture and liquid indicators.
   b. Refrigerant strainers.
   c. Refrigerant pressure regulators.
   d. Refrigerant pressure relief valves.
   e. Refrigerant filter-driers.
   f. Refrigerant solenoid valves.
   g. Refrigerant expansion valves.
   h. Electronic expansion valves.

D. Design Data: Indicate pipe size. Indicate load carrying capacity of trapeze, multiple pipe, and riser support hangers.

E. Test Reports: Indicate results of refrigerant leak test piping system pressure test.

F. Manufacturer's Installation Instructions: Submit hanging and support methods, joining procedures and isolation.

G. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

H. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within previous 12 months.

1.5 CLOSEOUT SUBMITTALS

A. See DDC General Conditions.

B. Project Record Documents: Record actual locations of valves, equipment and refrigerant accessories.

C. Operation and Maintenance Data: Submit instructions for installation and changing components, spare parts lists, exploded assembly views.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with ASME B31.5 code for installation of refrigerant piping systems.

B. Perform Work in accordance with applicable code AWS D1.1for welding hanger and support attachments to building structure.

C. Maintain one copy of each document on site.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three year experience.

B. Fabricator or Installer: Company specializing in performing Work of this section with minimum three year experience.

C. Design piping system hangers and supports under direct supervision of Professional Engineer experienced in design of this Work and licensed in State of New York .

1.8 PRE-INSTALLATION MEETINGS

A. See DDC General Conditions.

B. Convene minimum one week prior to commencing work of this section.

1.9 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions.

B. Dehydrate and charge refrigeration components including piping and receivers, seal prior to shipment. Maintain seal until connected into system.

C. Accept valves on site in shipping containers with labeling in place. Inspect for damage.

D. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.

E. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the Work, and isolating parts of completed system.

1.10 ENVIRONMENTAL REQUIREMENTS

A. See DDC General Conditions.

B. Do not install underground piping when bedding is wet or frozen.

1.11 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.12 COORDINATION

A. See DDC General Conditions.

B. Coordinate piping systems with requirements of Section 23 81 26

1.13 WARRANTY

A. See DDC General Requirements

B. Furnish Three year manufacturer warranty for valves excluding packing.

1.14 MAINTENANCE MATERIALS

A. See DDC General Requirements.

B. Furnish two refrigerant oil test kits each containing everything required for conducting one test.

1.15 EXTRA MATERIALS

A. See DDC General Requirements.

B. Furnish two packing kits for each size and valve type.

C. Furnish two refrigerant filter-dryer cartridges of each type.

PART 2 PRODUCTS

2.1 REFRIGERANT PIPING

A. Copper Tubing: ASTM B280, Type ACR hard drawn.
1. Fittings: ASME B16.22 wrought copper.

2. Joints: Braze, AWS A5.8 BCuP silver/phosphorus/copper alloy with melting range 1190 to 1480 degrees F

B. Copper Tubing to 7/8 inch OD: ASTM B88 , Type K, annealed.
1. Fittings: ASME B16.26 cast copper, compression type.
2. Joints: Flared.

2.2 UNIONS, FLANGES, AND COUPLINGS

A. 2 inches and Smaller:
1. Ferrous Piping: 150 psig malleable iron, threaded.
2. Copper Pipe: Bronze, soldered joints.

B. 2-1/2 inches and Larger:
1. Ferrous Piping: 150 psig forged steel, slip-on.
2. Copper Piping: Bronze.
3. Gaskets: 1/16 inch thick preformed neoprene.

C. Grooved and Shouldered Pipe End Couplings:
1. Housing Clamps: Malleable iron galvanized to engage and lock designed to permit some angular deflection, contraction, and expansion.
2. Sealing Gasket: C-shape elastomer composition for operating temperature range from -30 degrees F to 230 degrees F.
3. Accessories: Steel bolts, nuts, and washers.

D. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

2.3 PIPE HANGERS AND SUPPORTS

A. Manufacturers:
1. Carpenter & Paterson Inc.
2. Flex-Weld, Inc.
3. Glope Pipe Hanger Products Inc.
4. Michigan Hanger Co.
5. Approved Equal

B. Conform to ASME B31.5, ASTM F708,

C. Hangers for Pipe Sizes 1/2 to 1-1/2 inch Maleable iron, adjustable swivel, split ring.

D. Hangers for Cold Pipe Sizes 2 inches and Larger: Carbon steel, adjustable, clevis.

E. Hangers for Hot Pipe Sizes 2 to 4 inches Carbon steel, adjustable, clevis.

F. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.

G. Wall Support for Pipe Sizes 3 inches and Smaller: Cast iron hooks.

H. Wall Support for Pipe Sizes 4 inches and Larger: Welded steel bracket and wrought steel clamp.

I. Vertical Support: Steel riser clamp.

J. Floor Support for Cold Pipe: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.

K. Floor Support for Hot Pipe 4 inches and Smaller: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.

L. Copper Pipe Support: Carbon steel rings, adjustable, copper plated.

M. Hanger Rods: Mild steel threaded both ends, threaded one end, or continuous threaded.

N. Inserts: Malleable iron case of galvanized steel shell and expander plug for threaded connection with lateral adjustment, top slot for reinforcing rods, lugs for attaching to forms; size inserts to suit threaded hanger rods.

O. Sheet Lead: ASTM B749,2.5 lb/sq ft 0.039 inch thick.

2.4 REFRIGERANT MOISTURE AND LIQUID INDICATORS

A. Manufacturers:
1. Alco Controls Div, Emerson Electric Co.
2. Parker Hannifin Corp., Refrig. & Air Cond. Div.
3. Sporlan Valve Co.
4. Approved Equal

B. Indicators:
1. Port: Single, UL listed.
2. Body: Copper or brass, flared or solder ends.
3. Sight glass: Color-coded paper moisture indicator with removable element cartridge and plastic cap.
4. Maximum working pressure: 500 psig .
5. Maximum working temperature: 200 degrees F .

PART 3 EXECUTION

3.1 EXAMINATION

A. See DDC General Conditions.

B. Verify excavations are to required grade, dry, and not over-excavated.

3.2 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.

B. Remove scale and dirt on inside and outside before assembly.

C. Prepare piping connections to equipment with flanges or unions.

D. Keep open ends of pipe free from scale and dirt. Protect open ends with temporary plugs or caps.

3.3 INSTALLATION - INSERTS

A. Provide inserts for placement in concrete forms.

B. Provide inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.

C. Provide hooked rod to concrete reinforcement section for inserts carrying pipe 4 inches and larger.

D. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.

E. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut flush with top of slab.

3.4 INSTALLATION - PIPE HANGERS AND SUPPORTS

A. Install hangers and supports in accordance with ASME B31.5, ASTM F708, and MSS SP 89.

B. Support horizontal piping hangers as scheduled.

C. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.

D. Place hangers within 12 inches of each horizontal elbow.

E. Install hangers to allow 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.

F. Support vertical piping at every other floor. Support riser piping independently of connected horizontal piping.

G. Where installing several pipes in parallel and at same elevation, provide multiple pipe hangers or trapeze hangers.

H. Provide copper plated hangers and supports for copper piping sheet lead packing between hanger or support and piping.

I. Prime coat exposed steel hangers and supports in accordance with Section 09 90 00. Finish paint exposed steel hangers and supports in accordance with Section 09 90 00 Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

J. Install pipe hangers and supports in accordance with Section 23 05 29.

3.5 INSTALLATION - ABOVE GROUND PIPING SYSTEMS

A. Route piping parallel to building structure and maintain gradient.

B. Install piping to conserve building space, and not interfere with use of space.

C. Group piping whenever practical at common elevations.

D. Sleeve pipe passing through partitions, walls and floors. Refer to Section 23 05 29.

E. Install pipe identification in accordance with Section 23 05 53.

F. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

G. Provide access where valves and fittings are not exposed. Coordinate size and location of access doors with Section 08 31 13.

H. Arrange refrigerant piping to return oil to compressor. Provide traps and loops in piping, and provide double risers as required. Slope horizontal piping 0.40 percent in direction of flow.

I. Flood refrigerant piping system with nitrogen when brazing.

J. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welds. Refer to Section 05 12 00.

K. Prepare unfinished pipe, fittings, supports, and accessories, ready for finish painting. Refer to Section 09 90 00.

L. Install valves with stems upright or horizontal, not inverted.

M. Insulate piping and equipment; refer to Section 23 07 00.

N. Provide replaceable cartridge filter-dryers, with isolation valves and bypass with valve.

O. Locate expansion valve sensing bulb immediately downstream of evaporator on suction line.

P. Provide external equalizer piping on expansion valves with refrigerant distributor connected to evaporator.

Q. Install flexible connectors at right angles to axial movement of compressor, parallel to crankshaft.

R. Provide electrical connection to solenoid valves. Refer to Section 26 05 03.

S. Fully charge completed system with refrigerant after testing.

T. Follow ASHRAE 15 procedures for charging and purging of systems and for disposal of refrigerant.

U. Install refrigerant piping in accordance with ASME B31.5.

3.6 INSTALLATION - REFRIGERANT SPECIALTIES

A. Refrigerant Liquid Indicators:
1. Install line size liquid indicators in main liquid line downstream of condenser.
2. When receiver is provided, install line size liquid indicators in liquid line downstream of receiver.
3. Install line size liquid indicators downstream of liquid solenoid valves.

B. Refrigerant Valves:
1. Install service valves on compressor suction and discharge.
2. Install gage taps at compressor inlet and outlet.
3. Install gage taps at hot gas bypass regulators, inlet and outlet.
4. Install check valves on compressor discharge.
5. Install check valves on condenser liquid lines on multiple condenser systems.
6. Install refrigerant charging valve in liquid line between receiver shut-off valve and expansion valve.

C. Strainers:
1. Install line size strainer upstream of each automatic valve.
2. Where multiple expansion valves with integral strainers are used, install single main liquid-line strainer.
3. On steel piping systems, install strainer in suction line.
4. Install shut-off valves on each side of strainer.

D. Install pressure relief valves on ASME receivers. Install relief valve discharge piping to terminate outdoors.

E. Filter-Dryers:
1. Install permanent filter-dryers in low temperature systems.
2. Install permanent filter-dryer in systems containing hermetic compressors.
3. Install replaceable cartridge filter-dryer vertically in liquid line adjacent to receivers.
4. Install replaceable cartridge filter-dryer upstream of each solenoid valve.

F. Solenoid Valves:
1. Install in liquid line of systems operating with single pump-out or pump-down compressor control.

2. Install in liquid line of single or multiple evaporator systems.
3. Install in oil bleeder lines from flooded evaporators to stop flow of oil and refrigerant into suction line when system shuts down.

3.7 FIELD QUALITY CONTROL

A. See DDC General Conditions.

B. Prior to initial operation examine and inspect piping system for conformance to plans and specifications and ASME B31.5. Correct equipment, material, or work rejected because of defects or nonconformance with plans and specifications, and ANSI codes for pressure piping.

C After completion of piping installation and prior to initial operation, conduct test on piping system according to ASME B31.5. MC1108.1 and 1108.4. Furnish materials and equipment required for tests. Perform tests in the presence of Resident Engineer. If the test fails, correct defects and perform the test again until it is satisfactorily done and all joints are proved tight.

D. Every refrigerant-containing parts of the system that is erected on the premises, except compressors, condensers, evaporators, safety devices, pressure gages, control mechanisms and systems that are factory tested, shall be tested and proved tight after complete installation, and before operation.

E. The high and low side of each system shall be tested and proved tight at not less than the lower of the design pressure or the setting of the pressure-relief device protecting the high or low side of the system, respectively, except systems erected on the premises using non-toxic and non-flammable Group A1 refrigerants with copper tubing not exceeding DN 18 (NPS 5/8). This may be tested by means of the refrigerant charged into the system at the saturated vapor pressure of the refrigerant at 20 degrees C (68 degrees F) minimum.

F. Test Medium: A suitable dry gas such as nitrogen or shall be used for pressure testing. The means used to build up test pressure shall have either a pressure-limiting device or pressure-reducing device with a pressure-relief device and a gage on the outlet side. The pressure relief device shall be set above the test pressure but low enough to prevent permanent deformation of the system components.

3.8 System test and charging

A. System Test and Charging: As recommended by the equipment manufacturer or as follows:

B. Connect a drum of refrigerant to charging connection and introduce enough refrigerant into system to raise the pressure to 70 kPa (10 psi) gage. Close valves and disconnect

refrigerant drum. Test system for leaks with halide test torch or other approved method suitable for the test gas used. Repair all leaking joints and retest.

B. Connect a drum of dry nitrogen to charging valve and bring test pressure to design pressure for low side and for high side. Test entire system again for leaks.

D. Evacuate the entire refrigerant system by the triplicate evacuation method with a vacuum pump equipped with an electronic gage reading in mPa (microns). Pull the system down to 665 mPa (500 microns) 665 mPa (2245.6 inches of mercury at 60 degrees F) and hold for four hours then break the vacuum with dry nitrogen (or refrigerant). Repeat the evacuation two more times breaking the third vacuum with the refrigeration to be charged and charge with the proper volume of refrigerant.

3.09 SCHEDULES

A. Pipe Hanger Spacing:

PIPE SIZE Inches	COPPER TUBING MAXIMUM HANGER SPACING Feet	STEEL PIPE MAXIMUM HANGER SPACING Feet	MINIMUM HANGER ROD DIAMETER COPPER TUBING Inches	MINIMUM HANGER ROD DIAMETER STEEL PIPE Inches
1/2	5	7	3/8	3/8
3/4	5	7	3/8	3/8
1	6	7	3/8	3/8
1-1/4	7	7	3/8	3/8
1-1/2	8	9	3/8	3/8
2	8	10	3/8	3/8
2-1/2	9	11	1/2	1/2
3	10	12	1/2	1/2

END OF SECTION

SECTION 23 31 00 - HVAC DUCTS AND CASINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Duct Materials.
2. Flexible ducts.
3. Insulated flexible ducts.
4. Transverse duct connection system.
5. Casings.
6. Ductwork fabrication.
7. Duct cleaning.

B. Related Sections:
1. Section 09 91 00 – Painting Execution requirements for Weld priming, weather resistant, paint or coating specified by this section.
2. Section 23 05 29 - Hangers and Supports for HVAC Piping and Equipment: Product requirements for hangers, supports and sleeves for placement by this section.
3. Section 23 33 00 - Air Duct Accessories: Product requirements for duct accessories for placement by this section.

1.2 REFERENCES

A. ASTM International:
1. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.
2. ASTM A90/A90M - Standard Test Method for Weight Mass of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings.
3. ASTM A167 - Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
4. ASTM A568/A568M - Standard Specification for Steel, Sheet, Carbon, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for.
5. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
6. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
7. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
8. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
9. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
10. ASTM C14 - Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe.
11. ASTM C14M - Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe.
12. ASTM C443 - Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.

13. ASTM C443M - Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.
14. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

B. National Fire Protection Association:
1. NFPA 90A - Standard for the Installation of Air Conditioning and Ventilating Systems.
2. NFPA 90B - Standard for the Installation of Warm Air Heating and Air Conditioning Systems.
3. NFPA 96 - Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations.

C. Sheet Metal and Air Conditioning Contractors:
1. SMACNA - Fibrous Glass Duct Construction Standards.
2. SMACNA - HVAC Air Duct Leakage Test Manual.
3. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.

D. Underwriters Laboratories Inc.:
1. UL 181 - Factory-Made Air Ducts and Connectors.

1.3 PERFORMANCE REQUIREMENTS

A. Variation of duct configuration or sizes other than those of equivalent or lower loss coefficient is not permitted except by written permission. Size round ducts installed in place of rectangular ducts in accordance with ASHRAE table of equivalent rectangular and round ducts.

1.4 SUBMITTALS

A. See DDC General Conditions.

B. Shop Drawings: Submit duct fabrication drawings, drawn to scale not smaller than 3/8 inch equals 1 foot, on drawing sheets same size as Contract Documents, indicating:
1. Fabrication, assembly, and installation details, including plans, elevations, sections, details of components, and attachments to other work.
2. Duct layout, indicating pressure classifications and sizes in plan view. For exhaust duct systems, indicate classification of materials handled as defined in this section.
3. Fittings.
4. Reinforcing details and spacing.
5. Seam and joint construction details.
6. Penetrations through fire rated and other walls.
7. Hangers and supports, including methods for building attachment, vibration isolation, and duct attachment.

C. Product Data: Submit data for duct materials duct liner duct connectors.

D. Samples: Submit two samples of typical shop fabricated duct fittings.

E. Test Reports: Indicate pressure tests performed. Include date, section tested, test pressure, and leakage rate, following SMACNA HVAC Air Duct Leakage Test Manual.

F. Manufacturer's Installation Instructions: Submit special procedures for glass fiber ducts.

G. Manufacturer's Certificate: Certify installation of glass fiber ductwork meet or exceed specified requirements recommended fabrication and installation requirements. Duct products meet or exceed specified requirements.

1.5 CLOSEOUT SUBMITTALS

A. See DDC General Conditions.

B. Project Record Documents: Record actual locations of ducts and duct fittings. Record changes in fitting location and type. Show additional fittings used.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with SMACNA - HVAC Duct Construction Standards - Metal and flexible.

B. Construct ductwork to NFPA 90A and NFPA 90B and NFPA 96 standards.

C. Maintain one copy of each document on site.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

1.8 PRE-INSTALLATION MEETINGS

A. See DDC General Conditions.

B. Convene minimum one week prior to commencing work of this section.

1.9 ENVIRONMENTAL REQUIREMENTS

A. See DDC General Conditions-

B. Do not install duct sealant when temperatures are less than those recommended by sealant manufacturers.

C. Maintain temperatures during and after installation of duct sealant.

1.10 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.11 WARRANTY

A. See DDC General Conditions.

B. Furnish five year manufacturer warranty for ducts.

PART 2 PRODUCT

2.1 DUCT MATERIAL

A. Manufacturers:
1. Armstrong World Industries, Inc.
2. Owens-Corning Fiberglass Corp.
3. Johns Manville
4. 3M Products.

B. Galvanized Steel Ducts: ASTM A653/A653M galvanized steel sheet, lock-forming quality, having G60 G90 zinc coating of in conformance with ASTM A90/A90M.

C. Steel Ducts: ASTM A1008/A1008M ASTM A1011/A1011M ASTM A568/A568M.

D. Aluminum Ducts: ASTM B209 (ASTM B209M); aluminum sheet, alloy 3003-H14. Aluminum Connectors and Bar Stock: Alloy 6061-T6 or of equivalent strength.

E. Stainless Steel Ducts: ASTM A167, Type 304. 316.

F. Concrete Ducts: ASTM C14 (ASTM C14M); hub and spigot concrete sewer pipe with ASTM C443 (ASTM C443M) joints, rubber gaskets.

G. Fasteners: Rivets, bolts, or sheet metal screws.

H. Hanger Rod: ASTM A36/A36M; steel, galvanized; threaded both ends, threaded one end, or continuously threaded.

2.2 DUCTWORK FABRICATION

A. Fabricate and support rectangular ducts in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible and as indicated on Drawings. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.

B. Fabricate and support round ducts with longitudinal seams in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible (Round Duct Construction Standards), and as indicated on Drawings. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.

C. Construct T's, bends, and elbows with minimum radius 1-1/2 times centerline duct width. Where not possible and where rectangular elbows are used, provide airfoil turning vanes. Where acoustical lining is indicated, furnish turning vanes of perforated metal with glass fiber insulation.

D. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.

E. Fabricate continuously welded round and oval duct fittings two gages heavier than duct gages indicated in SMACNA Standard. Minimum 4 inch (100 mm) cemented slip joint, brazed or electric welded. Prime coat welded joints.

F. Provide standard 45-degree lateral wye takeoffs. When space does not allow 45-degree lateral wye takeoff, use 90-degree conical tee connections.

PART 3 EXECUTION

3.1 EXAMINATION

A. DDC General conditions.

B. Verify sizes of equipment connections before fabricating transitions.

3.2 INSTALLATION

A. Install and seal ducts in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible.

B. Install glass fiber ducts in accordance with SMACNA Fibrous Glass Duct Construction Standards. Obtain manufacturer's inspection and acceptance of fabrication and installation at beginning of installation.

C. During construction, install temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.

D. Use crimp joints with or without bead or beaded sleeve couplings for joining round duct sizes 8 inches and smaller.

E. Install duct hangers and supports in accordance with Section 23 05 29.

F. Use double nuts and lock washers on threaded rod supports.

G. Slope underground ducts to plenums or low pump out points at 1: 500. Install access doors for inspection.

H. Paint buried metal ductwork without factory jacket with one coat and seams and joints with additional coat of asphalt base protective coating.

I. Connect flexible ducts to metal ducts with liquid adhesive plus tape.

J. Set plenum doors 6 to 12 inches above floor. Arrange door swing so fan static pressure holds door in closed position.

K. Casings: Install floor mounted casings on 4 inch high concrete curbs. Refer to Section 03 30 00. At floor, rivet panels on 8 inch centers to angles. Where floors are acoustically insulated, furnish liner of 18 gage galvanized expanded metal mesh supported at 12 inch centers, turned up 12 inches at sides with sheet metal shields.

3.3 CLEANING

A. See DDC General Conditions.

B. Clean duct system and force air at high velocity through duct to remove accumulated dust. To obtain sufficient air flow, clean one half of system completely before proceeding to other half. Protect equipment with potential to be harmed by excessive dirt with temporary filters, or bypass during cleaning.

C. Clean duct systems with high power vacuum machines. Protect equipment with potential to be harmed by excessive dirt with filters, or bypass during cleaning. Install access openings into ductwork for cleaning purposes.

END OF SECTION

SECTION 23 33 00 - AIR DUCT ACCESSORIES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Back-draft dampers.
2. Combination fire-and-smoke dampers.
3. Duct access doors.
4. Fire dampers.
5. Volume control dampers.
6. Flexible duct connections.
7. Duct test holes.

B. Related Sections:
1. Section 23 09 00 - Instrumentation and Control for HVAC: Execution and Product requirements for connection and control of Combination Smoke and Fire Dampers for placement by this section.
2. Section 23 31 00 - HVAC Ducts and Casings: Requirements for duct construction and pressure classifications.
3. Section 26 05 03 - Equipment Wiring Connections: Execution requirements for connection of electrical Combination Smoke and Fire Dampers specified by this section.

1.2 REFERENCES

A. Air Movement and Control Association International, Inc.:
1. AMCA 500 - Test Methods for Louvers, Dampers, and Shutters.

B. ASTM International:
1. ASTM E1 - Standard Specification for ASTM Thermometers.

C. National Fire Protection Association:
1. NFPA 90A - Standard for the Installation of Air Conditioning and Ventilating Systems.
2. NFPA 92A - Recommended Practice for Smoke-Control Systems.

D. Sheet Metal and Air Conditioning Contractors:
1. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.

E. Underwriters Laboratories Inc.:
1. UL 555 - Standard for Safety for Fire Dampers.
2. UL 555C - Standard for Safety for Ceiling Dampers.
3. UL 555S - Standard for Safety for Smoke Dampers.

1.3 SUBMITTALS

A. See DDC General Conditions -

B. Shop Drawings: Indicate for shop fabricated assemblies including volume control dampers duct access doors and duct test holes.

C. Product Data: Submit data for shop fabricated assemblies and hardware used.

D. Product Data: Submit for the following. Include where applicable electrical characteristics and connection requirements.
1. Fire dampers including locations and ratings.
2. Smoke dampers including locations and ratings.
3. Backdraft dampers.
4. Flexible duct connections.
5. Volume control dampers.
6. Duct access doors.

E. Product Data: For combination fire and smoke dampers submit the following:
1. Include UL ratings, dynamic ratings, leakage, pressure drop and maximum pressure data.
2. Indicate materials, construction, dimensions, and installation details.
3. Damper pressure drop ratings based on tests and procedures performed in accordance with AMCA 500.

F. Manufacturer's Installation Instructions: Submit for Fire and Combination Smoke and Fire Dampers.

G. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.4 CLOSEOUT SUBMITTALS

A. See DDC General Conditions.

B. Project Record Documents: Record actual locations of access doors.

C. Operation and Maintenance Data: Submit for Combination Smoke and Fire Dampers.

1.5 QUALITY ASSURANCE

A. Dampers tested, rated and labeled in accordance with the latest UL requirements.

B. Damper pressure drop ratings based on tests and procedures performed in accordance with AMCA 500.

C. Maintain one copy of each document on site.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

1.7 PRE-INSTALLATION MEETINGS

A. See DDC General Conditions.

B. Convene minimum one week prior to commencing work of this section.

1.8 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions.

B. Protect dampers from damage to operating linkages and blades.

C. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly indicating manufacturer and material.

D. Storage: Store materials in a dry area indoor, protected from damage.

E. Handling: Handle and lift dampers in accordance with manufacturer's instructions. Protect materials and finishes during handling and installation to prevent damage.

1.9 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.10 COORDINATION

A. See DDC General Conditions.

B. Coordinate Work where appropriate with building control Work.

1.11 WARRANTY

A. See DDC General Conditions.

B. Furnish five year manufacturer warranty for duct accessories.

1.12 EXTRA MATERIALS

A. See DDC General Conditions.

B. Furnish two of each size and type of fusible link.

PART 2 PRODUCTS

2.1 BACK-DRAFT DAMPERS

A. Manufacturers:
1. Ruskin
2. GreenHeck
3. Penn Ventilator
4. Approved Equal

B. Product Description: Multi-Blade, back-draft dampers: Parallel-action, gravity-balanced, Galvanized 16 gage thick steel, or extruded aluminum. Blades, maximum 6 inch width, center pivoted, with felt or flexible vinyl sealed edges. Blades linked together in rattle-free manner with 90-degree stop, steel ball bearings, and plated steel pivot pin. Furnish dampers with adjustment device to permit setting for varying differential static pressure.

2.2 COMBINATION FIRE AND SMOKE DAMPERS

A. Manufacturers:
   1. Ruskin
   2. GreenHeck
   3. Nailor
   4. Approved Equal

B. Fabricate in accordance with NFPA 90A, UL 555, and UL 555S.

C. Fire Resistance: 1-1/2 hours 3 hours.

D. Leakage Rating: Class I, maximum of 8 cfm at 4 inches wg. differential pressure Class II, maximum of 20 cfm at 4 inches wg differential pressure.

E. Damper Temperature Rating: 250 degrees F or 350 degrees F.

F. Frame: 16 gage, galvanized steel.

G. Blades:
   1. Style: Single skin with 3 longitudinal grooves
   2. Action: Opposed.
   3. Orientation: Horizontal.
   4. Material: Minimum 14 gage equivalent thickness, galvanized steel.
   5. Width: Maximum 6 inches.

H. Bearings: Stainless steel pressed into frame.

I. Seals: Silicone blade edge seals and flexible stainless steel jamb seals.

J. Linkage: Concealed in frame.

K. Release Device: Close in controlled manner and allow damper to be automatically reset.

L. Actuator:
   1. Type: Electric 120 volt, 60 hertz, modulating, fail close
   2. Mounting: External.

M. Fusible Link Release Temperature: 165 degrees F.

N. Finish: Mill galvanized.

O. Factory installed sleeve and mounting angles. Furnish silicone caulk factory applied to sleeve at damper frame to comply with leakage rating requirements.

2.3 DUCT ACCESS DOORS

A. Manufacturers:
   1. Green Heck
   2. Nailor
   3. Ruskin
   4. Approved Equal

B. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated on Drawings.

C. Fabrication: Rigid and close fitting of galvanized steel with sealing gaskets and quick fastening locking devices. For insulated ductwork, furnish minimum 1 inch thick insulation with sheet metal cover.
1. Less than 12 inches square, secure with sash locks.
2. Up to 18 inches Square: Furnish two hinges and two sash locks.
3. Up to 24 x 48 inches: Three hinges and two compression latches with outside and inside handles.
4. Larger Sizes: Furnish additional hinge.
5. Access panels with sheet metal screw fasteners are not acceptable.

2.4 VOLUME CONTROL DAMPERS

A. Manufacturers:
1. Ruskin
2. Green Heck
3. Nailor
4. Approved Equal

B. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated on Drawings.

C. Splitter Dampers:
1. Material: Same gage as duct to 24 inches size in both dimensions, and two gages heavier for sizes over 24 inches.
2. Blade: Fabricate of double thickness sheet metal to streamline shape, secured with continuous hinge or rod.
3. Operator: Minimum 1/4 inch diameter rod in self aligning, universal joint action, flanged bushing with set screw.
4. Single Blade Dampers: Fabricate for duct sizes up to 6 x 30 inch.

D. Multi-Blade Damper: Fabricate of opposed blade pattern with maximum blade sizes 8 x 72 inch. Assemble center and edge crimped blades in prime coated or galvanized frame channel with suitable hardware.

E. End Bearings: Except in round ductwork 12 inches and smaller, furnish end bearings. On multiple blade dampers, furnish oil-impregnated nylon or sintered bronze bearings. Furnish closed end bearings on ducts having pressure classification over 2 inches wg.

F. Quadrants:
1. Furnish locking, indicating quadrant regulators on single and multi-blade dampers.
2. On insulated ducts mount quadrant regulators on standoff mounting brackets, bases, or adapters.
3. Where rod lengths exceed 30 inches furnish regulator at both ends.

2.5 FLEXIBLE DUCT CONNECTIONS

A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated on Drawings.

B. Connector: Fabric crimped into metal edging strip.
1. Fabric: UL listed fire-retardant neoprene coated woven glass fiber fabric conforming to NFPA 90A, minimum density 30 oz per sq yd.
2. Net Fabric Width: Approximately 3 inches wide.
3. Metal: 3 inch wide, 24 gage galvanized steel.

C. Leaded Vinyl Sheet: Minimum 0.55 inch thick, 0.87 lbs. per sq ft , 10 dB attenuation in 10 to 10,000 Hz range.

PART 3 EXECUTION

3.1 EXAMINATION

A. See DDC General Conditions.

B. Verify rated walls are ready for fire damper installation.

C. Verify ducts and equipment installation is ready for accessories.

D. Check location of air outlets and inlets and make necessary adjustments in position to conform to architectural features, symmetry, and lighting arrangement.

3.2 INSTALLATION.

A. Install in accordance with NFPA 90A, and follow SMACNA HVAC Duct Construction Standards - Metal and Flexible. Refer to Section 23 31 00 for duct construction and pressure class.

B. Install back-draft dampers on exhaust fans or exhaust ducts nearest to outside and where indicated on Drawings.

C. Access Doors: Install access doors at the following locations and as indicated on Drawings:
1. Spaced every 50 feet of straight duct.
2. Upstream of each elbow.
3. Upstream of each reheat coil.
4. Before and after each duct mounted filter.
5. Before and after each duct mounted coil.
6. Before and after each duct mounted fan.
7. Before and after each automatic control damper.
8. Before and after each fire damper smoke damper combination fire and smoke damper.
9. Downstream of each VAV box.
10. Install at locations for cleaning kitchen exhaust ductwork in accordance with NFPA 96.

D. Access Door Sizes: Install minimum 8 x 8 inch size for hand access, 18 x 18 inch size for shoulder access, and as indicated on Drawings. Install 4 x 4 inch for balancing dampers only. Review locations prior to fabrication.

E. Install temporary duct test holes where indicated on Drawings and required for testing and balancing purposes. Cut or drill in ducts. Cap with neat patches, neoprene plugs, threaded plugs, or threaded or twist-on metal caps.

F. Install fire dampers and combination fire and smoke dampers at locations as indicated on Drawings. Install with required perimeter mounting angles, sleeves, breakaway duct connections, corrosion resistant springs, bearings, bushings and hinges.
1. Install smoke dampers and combination smoke and fire dampers in accordance with NFPA 92A.
2. Install dampers square and free from racking with blades running horizontally.
3. Do not compress or stretch damper frame into duct or opening.
4. Handle damper using sleeve or frame. Do not lift damper using blades, actuator, or jack shaft.
5. Install bracing for multiple section assemblies to support assembly weight and to hold against system pressure. Install bracing as needed.

3.3 DEMONSTRATION

A. See DDC General Conditions.

B. Demonstrate re-setting of fire dampers to Owner's representative.

3.4 SCHEDULES

A. Dial Thermometer Location:
1. Each supply air zone.
2. Outside air.
3. Return air.
4. Mixed air.

B. Static Pressure and Filter Gages:
1. Built up filter banks.
   a. Location:
   b. Scale range:
2. Unitary filter sections.
   a. Location:
   b. Scale range:
3. Supply fan discharge.
   a. Location:
   b. Scale range:
4. Building static.
   a. Location:
   b. Scale range:

END OF SECTION

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SECTION 23 34 00 - HVAC FANS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Inline ceiling fans.

B. Related Sections:
   1. Section 23 05 13 - Common Motor Requirements for HVAC Equipment: Product requirements for motors for placement by this section.
   2. Section 23 05 48 - Vibration and Seismic Controls for HVAC Piping and Equipment: Product requirements for resilient mountings and snubbers for fans for placement by this section.
   3. Section 23 07 00 - HVAC Insulation: Product requirements for power ventilators for placement by this section.
   4. Section 23 09 00 - Instrumentation and Control for HVAC: Product requirements for control components to interface with fans.
   5. Section 23 33 00 - Air Duct Accessories: Product requirements for duct accessories for placement by this section.
   6. Section 26 05 03 - Equipment Wiring Connections: Execution and product requirements for connecting equipment specified by this section.

1.2 REFERENCES

A. American Bearing Manufacturers Association:
   1. ABMA 9 - Load Ratings and Fatigue Life for Ball Bearings.
   2. ABMA 11 - Load Ratings and Fatigue Life for Roller Bearings.

B. Air Movement and Control Association International, Inc.:
   1. AMCA 99 - Standards Handbook.
   2. AMCA 204 - Balance Quality and Vibration Levels for Fans.
   3. AMCA 210 - Laboratory Methods of Testing Fans for Aerodynamic Performance Rating.
   4. AMCA 300 - Reverberant Room Method for Sound Testing of Fans.
   5. AMCA 301 - Methods for Calculating Fan Sound Ratings from Laboratory Test Data.

C. American Refrigeration Institute:
   1. ARI 1060 - Air-to-Air Energy Recovery Ventilation Equipment Certification Equipment Program.

D. National Electrical Manufacturers Association:
   1. NEMA MG 1 - Motors and Generators.
   2. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

E. Underwriters Laboratories Inc.:
   1. UL 705 - Power Ventilators.

1.3 SUBMITTALS

A. See DDC General Conditions-

B. Shop Drawings: Indicate size and configuration of fan assembly, mountings, weights, ductwork and accessory connections.

C. Product Data: Submit data on each type of fan and include accessories, fan curves with specified operating point plotted, power, RPM, sound power levels for both fan inlet and outlet at rated capacity, electrical characteristics and connection requirements.

D. Manufacturer's Installation Instructions: Submit fan manufacturer's instructions.

E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.4 CLOSEOUT SUBMITTALS

A. See DDC General Conditions

B. Operation and Maintenance Data: Submit instructions for lubrication, motor and drive replacement, spare parts list, and wiring diagrams.

1.5 QUALITY ASSURANCE

A. Performance Ratings: Conform to AMCA 210.

B. Sound Ratings: AMCA 301, tested to AMCA 300, and bear AMCA Certified Sound Rating Seal.

C. UL Compliance: UL listed and labeled, designed, manufactured, and tested in accordance with UL 705.

D. Balance Quality: Conform to AMCA 204.

E. Energy Recovery Unit Wheel Energy Transfer Rating: Meet ARI 1060.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

1.7 PRE-INSTALLATION MEETINGS

A. See DDC General Conditions.

B. Convene minimum one week prior to commencing work of this section.

1.8 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions.

B. Protect motors, shafts, and bearings from weather and construction dust.

1.9 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.10 WARRANTY

A. See DDC General Conditions.

B. Furnish five year manufacturer's warranty for fans.

1.11 WARRANTY SERVICE

A. See DDC General Conditions.

B. Furnish service and maintenance of fans for one year from Date of Substantial Completion.

C. Examine each fan components bi-monthly. Clean, adjust, and lubricate equipment.

D. Include systematic examination, adjustment, and lubrication of fans, and controls checkout and adjustments. Repair or replace parts in accordance with manufacturer's operating and maintenance data. Use parts produced by manufacturer of original equipment.

E. Perform work without removing fans from service during building normal occupied hours.

F. Provide emergency call back service at all hours during working hours for this maintenance period.

G. Maintain adequate stock of parts for replacement or emergency purposes. Have personnel available to ensure fulfillment of this maintenance service, without unreasonable loss of time.

H. Perform maintenance work using competent and qualified personnel under supervision of manufacturer or original installer.

I. Do not assign or transfer maintenance service to agent or subcontractor without prior written consent of City of New York.

1.12 EXTRA MATERIALS

A. See DDC General Conditions.

B. Furnish two sets of belts for each fan.

PART 2 PRODUCTS

2.1 INLINE CEILING FANS

A. Manufacturers:
1. Acme Engineering and Manufacturing Corp.
2. Greenheck Corp.
3. Loren Cook Company.
4. Penn Ventilation.

B. Centrifugal Fan Unit: Direct driven with galvanized steel housing, resilient mounted motor, and gravity back draft damper in discharge opening, integral inlet and outlet duct collar.

C. Disconnect Switch: Fan mounted toggle switch for thermal overload protected motor.

D. Wheel: Centrifugal forward curved type constructed of injection molded or polypropylene resin.

E. Motor: Open drip proof type with permanently lubricated sealed bearings and thermal overload protection, mounted on rubber-shear isolators.

2.2 CENTRIFUGAL SQUARE INLINE FANS

A. Manufacturers:
1. Acme Engineering and Manufacturing Corp.
2. Greenheck Corp.
3. Loren Cook Company.
4. Penn Ventilation.
5. Approved Equal

B. Product Description: V-belt direct drive with galvanized steel housing lined with 1inch acoustic glass fiber insulation integral inlet cone, removable access doors on 3 sides, inlet and outlet duct collar, gravity backdraft damper in discharge, horizontal hanging brackets.

C. Fan Wheel: Backward inclined centrifugal type, aluminum construction.

D. Sheaves: Cast iron or steel, dynamically balanced, bored to fit shafts and keyed; variable and adjustable pitch motor sheaves selected so required rpm is obtained with sheaves set at mid-position; fan shaft with self-aligning pre-lubricated ball bearings.

E. Motor and Drive Mounting: Out of air stream.

F. Motor: Open drip proof. Totally enclosed fan cooled NEMA MG1.

G. Accessories:
1. Belt guard.
2. Motor cover.
3. Inlet safety screen.
4. Outlet safety screen.
5. Flexible duct connector.

6. Filter box with permanent throwaway type filter.
7. Flanged inlet outlet.
8. Inlet Outlet ductwork companion flange.
9. Disconnect Switch: NEMA 250 Type 1 Type 1, lockable Type 1, heavy duty Type 3R enclosure.
10. Fan speed controller.

PART 3 EXECUTION

3.1 EXAMINATION

A. See DDC General Conditions.

3.2 INSTALLATION

A. Suspended Cabinet Fans: Install flexible connections specified in Section 23 33 00 between fan and ductwork. Ensure metal bands of connectors are parallel with minimum one inch flex between ductwork and fan while running.

B. Install backdraft dampers on inlet to exhaust.

C. Provide backdraft dampers on outlet from cabinet and ceiling fans and as indicated on Drawings.

D. Install safety screen where inlet or outlet is exposed.

E. Pipe scroll drains to nearest floor drain.

F. Install backdraft dampers on discharge of exhaust fans and as indicated on Drawings. Refer to Section 23 33 00.

G. Provide sheaves required for final air balance.

3.3 MANUFACTURER'S FIELD SERVICES

A. See DDC General Conditions.

B. Furnish services of factory trained representative for minimum of one days to start-up, calibrate controls, and instruct Owner on operation and maintenance.

3.4 CLEANING

A. See DDC General Conditions.

B. Vacuum clean coils and inside of fan cabinet.

3.5 DEMONSTRATION

A. See DDC General Conditions.

B. Demonstrate fan operation and maintenance procedures.

3.6 PROTECTION OF FINISHED WORK

A. See DDC General Conditions.

B. Do not operate fans for until ductwork is clean, filters in place, bearings lubricated, and fan has been test run under observation.

END OF SECTION

SECTION 23 37 00 - AIR OUTLETS AND INLETS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Diffusers.
   2. Registers
   3. Grilles.
   4. Door grilles.

B. Related Sections:
   1. Section 09 91 00 - Painting Execution and product requirements for Painting of ductwork visible behind outlets and inlets specified by this section.
   2. Section 23 09 00 - Instrumentation and Control for HVAC: Operators for adjustable louvers.
   3. Section 23 33 00 - Air Duct Accessories: Volume dampers for inlets and outlets.

1.2 REFERENCES

A. Air Movement and Control Association International, Inc.:
   1. AMCA 500 - Test Methods for Louvers, Dampers, and Shutters.

B. American Society of Heating, Refrigerating and Air-Conditioning Engineers:
   1. ASHRAE 70 - Method of Testing for Rating the Performance of Air Outlets and Inlets.

C. Sheet Metal and Air Conditioning Contractors:
   1. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.

1.3 SUBMITTALS

A. See DDC General Conditions-

B. Product Data: Submit sizes, finish, and type of mounting. Submit schedule of outlets and inlets showing type, size, location, application, and noise level.

C. Samples: Submit two of each required air outlet and inlet type.

D. Test Reports: Rating of air outlet and inlet performance.

E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.4 CLOSEOUT SUBMITTALS

A. See DDC General Conditions.

B. Project Record Documents: Record actual locations of air outlets and inlets.

1.5 QUALITY ASSURANCE

A. Test and rate diffuser, register, and grille performance in accordance with ASHRAE 70.

B. Test and rate louver performance in accordance with AMCA 500.

C. Maintain one copy copies of each document on site.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience, and with service facilities.

1.7 MOCK-UP

A. See DDC General Conditions.

B. Construct typical exterior interior ceiling module with supply and return air outlets.

C. Locate where directed by Architect/Engineer. Where indicated on Drawings.

D. Incorporate accepted mock-up as part of Work.

1.8 PRE-INSTALLATION MEETINGS

A. See DDC General Conditions.

B. Convene minimum one week prior to commencing work of this section.

1.9 WARRANTY

A. See DDC General Conditions.

B. Furnish five year manufacturer warranty for air outlets and inlets.

1.10 EXTRA MATERIALS

A. See DDC General Conditions.

PART 2 PRODUCTS

2.1 ROUND CEILING DIFFUSERS

A. Manufacturers:
1. Anemostat Air Products
2. Titus.
3. Nailor.
4. Approved Equal:

B. Product Description: Type: Round, adjustable pattern, stamped or spun, multi-core diffuser to discharge air in 360 degree pattern, with sector baffles where indicated.

Diffuser collar not more than 1 inch above ceiling. In plaster ceilings, furnish plaster ring and ceiling plaque.

C. Fabrication: Steel with baked enamel off-white finish.

D. Accessories: Radial opposed-blade damper and multi-louvered equalizing grid with damper adjustable from diffuser face.

2.2 RECTANGULAR CEILING DIFFUSERS

A. Manufacturers:
1. Anemostat Air Products
2. Titus.
3. Nailor.
4. Approved Equal

B. Type: Square, adjustable pattern, stamped, multi-core multi-louvered diffuser to discharge air in 360 degree one way two-way three-way four-way pattern with sector baffles where indicated.

C. Frame: Surface mount Snap-in Inverted T-bar Spline type. In plaster ceilings, furnish plaster frame and ceiling frame.

D. Fabrication: Steel Aluminum with baked enamel off-white finish.

E. Accessories: Radial opposed-blade Butterfly Combination splitter damper and multi-louvered equalizing grid with damper adjustable from diffuser face.

2.3 CEILING SUPPLY REGISTERS/GRILLES

A. Manufacturers:
1. Anemostat Air Products
2. Titus.
3. Nailor.
4. Approved Equal

B. Type: Streamlined and individually adjustable curved blades to discharge air along face of grille, one-way two-way deflection.

C. Frame: 1-1/4 inch margin with countersunk screw concealed mounting and gasket.

D. Fabrication: Aluminum extrusions with factory off-white enamel prime coat finish.

E. Damper: Integral, gang-operated, opposed-blade type with removable key operator, operable from face.

2.4 CEILING EXHAUST AND RETURN REGISTERS/GRILLES

A. Manufacturers:
1. Anemostat Air Products
2. Titus.
3. Nailor.
4. Approved Equal

B. Type: Streamlined blades, 3/4 inch minimum depth, 3/4 inch maximum spacing, with blades set at 45 degrees, vertical horizontal face.

C. Frame: 1-1/4 inch margin with countersunk screw concealed mounting.

D. Fabrication: Steel with 20 gage minimum frames and 22 gage minimum blades, steel and aluminum with 20 gage minimum frame, or aluminum extrusions, with factory off-white enamel baked enamel prime coated, color as selected.

E. Damper: Integral, gang-operated, opposed blade type with removable key operator, operable from face where not individually connected to exhaust fans.

2.5 WALL SUPPLY REGISTERS/GRILLES

A. Manufacturers:
1. Anemostat Air Products
2. Titus.
3. Nailor.
4. Approved Equal

B. Type: Streamlined and individually adjustable blades, 3/4 inch minimum depth, 3/4 inch maximum spacing with spring or other device to set blades, vertical horizontal face, single double deflection.

C. Frame: 1-1/4 inch margin with countersunk screw concealed mounting and gasket.

D. Fabrication: Steel with 20 gage minimum frames and 22 gage minimum blades, steel and aluminum with 20 gage minimum frame, or aluminum extrusions, with factory off-white enamel baked enamel prime coat clear lacquer finish, color to be selected.

E. Damper: Integral, gang-operated opposed blade type with removable key operator, operable from face.

F. Gymnasiums: Furnish front pivoted or welded in place blades, securely fastened to be immobile.

2.6 WALL SUPPLY REGISTERS/GRILLES

A. Manufacturers:
1. Anemostat Air Products
2. Titus.
3. Nailor.
4. Approved Equal

B. Type: Streamlined and individually adjustable curved blades to discharge air along face of grille with one-way two-way deflection.

C. Frame: 1-1/4inch margin with countersunk screw concealed mounting and gasket.

D. Fabrication: Aluminum extrusions with factory off-white enamel clear lacquer prime coat finish.

E. Damper: Integral, gang-operated, opposed blade type with removable key operator, operable from face.

2.7 WALL EXHAUST AND RETURN REGISTERS/GRILLES

A. Manufacturers:
1. Anemostat Air Products
2. Titus.
3. Nailor.
4. Approved Equal

B. Type: Streamlined blades, 3/4 inch minimum depth, 3/4 inch maximum spacing, with spring or other device to set blades, vertical horizontal face.

C. Frame: 1-1/4 inch margin with countersunk screw concealed mounting.

D. Fabrication: Steel with 20 gage minimum frames and 22 gage minimum blades, Steel and aluminum with 20 gage minimum frame, or Aluminum extrusions, with factory off-white enamel baked enamel prime coated clear lacquer finish, color to be selected.

E. Damper: Integral, gang-operated, opposed-blade type with removable key operator, operable from face.

F. Gymnasiums: Furnish front pivoted or welded in place blades, securely fastened to be immobile.

2.8 DOOR GRILLES

A. Manufacturers:
1. Anemostat Air Products
2. Titus.
3. Nailor.
4. Approved Equal

B. Frame: 20 gage steel with auxiliary frame to give finished appearance on both sides of door, with factory prime coat finish.

PART 3 EXECUTION

3.1 EXAMINATION

A. See DDC General Conditions.

B. Verify inlet and outlet locations.

C. Verify ceiling wall systems are ready for installation.

3.2 INSTALLATION

A. Install diffusers to ductwork with airtight connection.

B. Install balancing dampers on duct take-off to diffusers, grilles, and registers, whether or not dampers are furnished as part of diffuser, grille, and register assembly. Refer to Section 23 33 00.

C. Paint visible portion of ductwork behind air outlets and inlets matte black. Refer to Section 09 91 00.

3.3 INTERFACE WITH OTHER PRODUCTS

A. Check location of outlets and inlets and make necessary adjustments in position to conform to architectural features, symmetry, and lighting arrangement.

END OF SECTION

SECTION 23 51 00-BREECHINGS, CHIMNEYS, AND STACKS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Breeching.
2. Type B double wall gas vents.
3. Refractory lined metal stacks.
4. Double wall metal stacks.
5. Single wall metal stacks.
6. Induced draft fans.

B. Related Sections:
1. Section 03 30 00 - Cast-In-Place Concrete: Concrete for stack foundations.
2. Section 23 05 13 - Common Motor Requirements for HVAC Equipment: Product requirements for draft fan motors for placement by this section.
3. Section 23 05 29 - Hangers and Supports for HVAC Piping and Equipment: Product requirements for hangers and supports for placement by this section.
4. Section 23 07 00 - HVAC Insulation: Execution requirements for insulation specified by this section.
5. Section 26 05 03 - Equipment Wiring Connections: Execution requirements for electrical connections specified by this section.

1.2 REFERENCES

A. American National Standards Institute:
1. ANSI Z21.66 - Automatic Vent Damper Devices for Use with Gas-Fired Appliances.
2. ANSI Z21.67 - Mechanically Actuated Automatic Vent Damper Device.
3. ANSI Z21.68 - Thermatically Actuated Automatic Vent Damper Devices.
4. ANSI Z95.1 - Oil Burning Equipment, Installation.

B. ASTM International:
1. ASTM A167 - Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
2. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
3. ASTM A924/A924M - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
4. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
5. ASTM C401 - Standard Classification of Alumina and Alumina-Silicate Castable Refractories.

C. National Fire Protection Association:
1. NFPA 31 - Standard for the Installation of Oil-Burning Equipment.
2. NFPA 54 - National Fuel Gas Code.

3. NFPA 82 - Standard on Incinerators and Waste and Linen Handling Systems and Equipment.
4. NFPA 211 - Standard for Chimneys, Fireplaces, Vents, and Solid Fuel Burning Appliances.

D. Sheet Metal and Air Conditioning Contractors:
1. SMACNA - Guide for Steel Stack Construction.
2. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.

E. Underwriters Laboratories Inc.:
1. UL 103 - Factory-Built Chimneys for Residential Type and Building Heating Appliances.
2. UL 127 - Factory-Built Fireplaces.
3. UL 378 - Draft Equipment.
4. UL 441 - Gas Vents.
5. UL 641 - Type L Low-Temperature Venting Systems.
6. UL 959 - Medium Heat Appliance Factory Built Chimneys.

1.3 DEFINITIONS

A. Breeching: Vent Connector.

B. Chimney: Primarily vertical shaft enclosing at least one vent for conducting flue gases outdoors.

C. Smoke Pipe: Round, single wall vent connector.

D. Vent: Portion of a venting system designed to convey flue gases directly outdoors from a vent connector or from an appliance when a vent connector is not used.

E. Vent Connector: Part of a venting system that conducts the flue gases from the flue collar of an appliance to a chimney or vent, and may include a draft control device.

1.4 DESIGN REQUIREMENTS

A. Design refractory lined metal stacks for wind loading of 110 mph and seismic loads for Zone.

1.5 SUBMITTALS

A. See DDC General Conditions-

B. Shop Drawings: Indicate general construction, dimensions, weights, support and layout of breeching. Submit layout drawings indicating plan view and elevations where factory built unit is used; signed and sealed by professional engineer.

C. Product Data: Submit data indicating factory built chimneys, including dimensional details of components and flue caps, dimensions and weights, electrical characteristics and connection requirements.

D. Manufacturer's Installation Instructions: Submit assembly, support details, and connection requirements.

E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.6 QUALITY ASSURANCE

A. Maintain one copy of each document on site.

B. Provide factory built vents and chimneys used for venting natural draft appliances complying with NFPA 211 and UL listed and labeled.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

1.8 ENVIRONMENTAL REQUIREMENTS

A. See DDC General Conditions

B. Maintain water integrity of roof during and after installation of chimney or vent.

1.9 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.10 WARRANTY

A. See DDC General Conditions.

B. Furnish five year manufacturer warranty for manufactured units.

PART 2 PRODUCTS

2.1 BREECHING

A. Manufacturers:
1. Selkirk Metalbestos.
2. Metal Fab Inc.
3. American Metal Products Company.

B. Fabricate of ASTM A1011/A1011M carbon steel. Fabricate breeching less than 24 inch diameter of ASTM A653/A653M galvanized sheet steel, lock forming quality with ASTM A924/A924M G90 G165 zinc coating.

C. Fabricate breeching from following minimum gages. Refer to SMACNA HVAC Duct Construction Standards - Metal and Flexible.
1. Sizes up to 12 inches: 18 gage.
2. Sizes 13 to 24 inches: 16 gage.

D. Furnish adjustable self-actuating barometric draft dampers, where indicated on Drawings, full size of breeching.

E. Furnish cleanout doors of same gage as breeching, where indicated on Drawings.

F. Weld longitudinal seams. Fabricate joints by welding, lapping and bolting, or with companion flanges. For breeching less than 24 inches diameter, furnish groove seam (pipe lock or flat lock) with end joints beaded and crimped.

G. Reinforce rectangular breeching with angle frames and round breeching with flanged girth joints or angle frames. Refer to SMACNA HVAC Duct Construction Standards - Metal and Flexible.
1. Sizes up to 30 inches: No reinforcing required.

H. Fabricate breeching fittings to match adjoining breeching. Fabricate elbows with centerline radius equal to breeching width or diameter. Limit angular tapers to 20 degrees maximum.

2.2 TYPE B DOUBLE WALL GAS VENTS

A. Manufacturers:
1. Selkirk Metal Bestos.
2. Metal Fab Inc.
3. American Metal Products Company.
4. Approved Equal

B. Fabrication: Inner pipe of sheet aluminum, and outer pipe of galvanized sheet steel, tested in compliance with UL 441.

C. Vent Dampers: Electrically Mechanically Thermally actuated, same size as draft hood collar, constructed of stainless steel or galvanized steel, with corrosion-resistant components, in compliance with ANSI Z21.66. ANSI Z21.67. ANSI Z21.68.

2.3 DOUBLE WALL METAL STACKS

A. Manufacturers:
1. Selkirk Metal Bestos.
2. Metal Fab Inc.
3. American Metal Products Company.
4. Approved Equal

B. Furnish double wall metal stacks, tested to UL 103 UL 127 UL 641 and UL listed, for use with building heating equipment, in compliance with NFPA 211.

C. Fabricate with 1 inch minimum air space between walls. Construct inner jacket of 20 gage ASTM A167 Type 304 Type 316 stainless steel. Construct outer jacket of aluminum coated steel Type 304 Type 316 stainless steel 24 gage for sizes 10 inches to 24 inches and 20 gage for sizes 28 inches to 48 inches.

D. Accessories, UL labeled:
1. Ventilated Roof Thimble: Consists of roof penetration, vent flashing with spacers and storm collar.

2. Exit Cone: Consists of inner cone, and outer jacket, to increase stack exit velocity 1.5 times.
3. Stack Cap: Consists of conical rainshield with inverted cone for partial rain protection with low flow resistance.

2.4 SINGLE WALL METAL STACKS

A. Fabricators:
1. Selkirk Metal Bestos.
2. Metal Fab Inc.
3. American Metal Products Company.
4. Approved Equal

B. When stack wall thickness is different than NFPA 211 minimum, furnish stack wall thickness conforming to accepted engineering design provisions of SMACNA Guide.

C. Furnish stack base plate and anchor details in accordance with SMACNA Guide for anchorage to concrete ground level foundation with minimum compressive strength of 4,000 psi. Furnish concrete foundation as indicated on Drawings.

PART 3 EXECUTION

3.1 PREPARATION

A. Install concrete inserts for support of breeching, chimneys, and stacks in coordination with formwork.

3.2 INSTALLATION

A. Install in accordance with NFPA 54 NFPA 31 SMACNA Guide for Steel Stack Construction.

B. Install breeching with minimum of joints. Align accurately at connections, with internal surfaces smooth.

C. Support breeching from building structure, rigidly with suitable ties, braces, hangers and anchors to hold to shape and prevent buckling. Support vertical breeching, chimneys, and stacks at 12 foot spacing, to adjacent structural surfaces, or at floor penetrations. Refer to SMACNA HVAC Duct Construction Standards - Metal and Flexible for equivalent duct support configuration and size.

D. Install stacks on concrete foundations. Refer to Section 03 30 00.

E. Pitch breeching with positive slope up from fuel-fired equipment to chimney or stack.

F. Coordinate installation of dampers, and induced draft fans.

G. Insulate breeching in accordance with Section 23 07 00.

H. For Type B double wall gas vents, maintain UL listed minimum clearances from combustibles. Assemble pipe and accessories for complete installation.

I. Install vent dampers, locating close to draft hood collar, and secured to breeching.

J. Assemble and install stack sections in accordance with NFPA 82, industry practices, and in compliance with UL listing. Join sections with acid-resistant joint cement. Connect base section to foundation using anchor lugs.

K. Level and plumb chimney and stacks.

L. Clean breeching, chimneys, and stacks during installation, removing dust and debris.

M. Install slip joints allowing removal of appliances without removal or dismantling of breeching, breeching insulation, chimneys, or stacks.

N. Provide minimum length maximum 2 feet of breeching to connect appliance to chimney. Provide Type B chimney continuously from appliances.

END OF SECTION

SECTION 23 63 13

AIR-COOLED REFRIGERANT CONDENSERS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes refrigerant condenser package, charge of refrigerant and oil, controls and control connections, refrigerant piping and connections, motor starters, electrical power connections.

B. Related Sections:
1. Section 23 05 13 - Common Motor Requirements for HVAC Equipment: Product requirements for motors for placement by this section.
2. Section 23 05 48 - Vibration and Seismic Controls for HVAC Piping and Equipment: Product requirements for vibration isolation for placement by this section.

1.2 REFERENCES

A. Air-Conditioning and Refrigeration Institute:
1. ARI 210/240 - Unitary Air-Conditioning and Air-Source Heat Pump Equipment.
2. ARI 365 - Commercial and Industrial Unitary Air-Conditioning Condensing Units.
3. ARI 460 - Remote Mechanical-Draft Air-Cooled Refrigerant Condensers.

B. American Society of Heating, Refrigerating and Air-Conditioning Engineers:
1. ASHRAE 15 - Safety Code for Mechanical Refrigeration.
2. ASHRAE 20 - Method of Testing for Rating Remote Mechanical-Draft Air-Cooled Refrigerant Condensers.
3. ASHRAE 90.1 - Energy Standard for Buildings except Low-Rise Residential Buildings.

C. National Electrical Manufacturers Association:
1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

D. Underwriters Laboratories Inc.:
1. UL 207 - Refrigerant-Containing Components and Accessories, Nonelectrical.

1.3 SUBMITTALS

A. See DDC General Conditions

B. Shop Drawings: Indicate components, assembly, dimensions, weights and loading, required clearances, and location and size of field connections. Include schematic layouts

showing condenser, refrigeration compressors, cooling coils, refrigerant piping and accessories required for complete system.

C. Product Data: Submit rated capacities, weights, accessories, electrical requirements, and wiring diagrams.

D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

E. Manufacturer's Field Reports: Submit start-up report

1.4 CLOSEOUT SUBMITTALS

A. See DDC General Conditions

B. Operation and Maintenance Data: Submit start-up instructions, maintenance instructions, parts lists, controls, and accessories.

1.5 QUALITY ASSURANCE

A. Construction and Ratings: In accordance with ARI 210/240, ARI 365, ARI 460, UL 207. Testing in accordance with ASHRAE 20.

B. Performance Ratings: Energy Efficiency Ratio (EER) not less than prescribed by ASHRAE 90.1when tested in accordance with ARI 210/240, ARI 365, ARI 460..

C. Maintain one copy of each document on site.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

1.7 PRE-INSTALLATION MEETINGS

A. See DDC General Conditions.

B. Convene minimum one (1) week prior to commencing work of this section.

1.8 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions..

B. Comply with manufacturer's installation instruction for rigging, unloading and transporting units.

C. Protect units on site from physical damage.

1.9 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.10 WARRANTY

A. 5 year compressor warranty.

1.11 WARRANTY SERVICE

A. See DDC General Conditions.

B. Furnish service and maintenance of condensing units for one (1) year from Date of Substantial Completion.

C. Examine unit components monthly. Clean, adjust, and lubricate equipment.

D. Include systematic examination, adjustment, and lubrication of unit, including fan belt replacement, and controls checkout and adjustments. Repair or replace parts in accordance with manufacturer's operating and maintenance data. Use parts produced by manufacturer of original equipment.

E. Perform work without removing units from service during building normal occupied hours.

F. Provide emergency call back service at all hours for this maintenance period.

G. Maintain adequate stock of parts for replacement or emergency purposes. Have personnel available to ensure fulfillment of this maintenance service, without unreasonable loss of time.

H. Perform maintenance work using competent and qualified personnel under supervision of manufacturer or original installer.

I. Do not assign or transfer maintenance service to agent or subcontractor without prior written consent of City of New York.

1.12 EXTRA MATERIALS

A. See DDC General Conditions.

B. Furnish two (2) sets of fan belts.

PART 2 PRODUCTS

2.1 CONDENSING UNITS

A. Manufacturers:
   1. LG .
   2. Panasonic.
   3. Mitsubishi
   4. Approved Equal

B. Product Description:
   1. Packaged, factory assembled, pre-wired unit, suitable for outdoor use consisting of casing, condensing coil and fans, integral sub-cooling coil, liquid accumulator screens, and controls.

2.2 HOUSING

A. House components in welded steel frame with galvanized steel panels with weather resistant, baked enamel finish.

B. Mount starters, disconnects, and controls in weatherproof panel with full opening access doors. Furnish mechanical interlock to disconnect power when door is opened.

C. Furnish removable access doors or panels with quick fasteners.

D. Furnish welded steel floor mounting stand and duct collars at coil inlet and fan outlet.

2.3 CONDENSER COILS

A. Coils: Corrosion resistance fins mechanically bonded to seamless copper tubing. Furnish sub-cooling circuits as applicable. Air test under water to 425 psig , and vacuum dehydrate. Seal with holding charge of nitrogen refrigerant.

B. Coil Guard: Expanded metal with lint screens.

C. Configuration: Two refrigeration circuits each with receiver.

2.4 FANS AND MOTORS

A. Vertical Horizontal discharge direct driven propeller type condenser fans with fan guard on discharge, equipped with roller or ball bearings with grease fittings extended to outside of casing.

B. Weatherproof motors suitable for outdoor use, single phase permanent split capacitor or 3 phase, with permanent lubricated ball bearings and built-in current and thermal overload protection; refer to Section 23 05 13.

2.5 CONTROLS

A. Factory wired and mounted control panel, NEMA 250 Type 4 enclosure, containing fan motor starters, fan cycling thermostats, head pressure controls,compressor interlock and control transformer.

B. Furnish controls to permit operation down to -4 degrees F ambient temperature.

C. Furnish thermostat to cycle fan motors in response to outdoor temperature.

D. Furnish head pressure switch to cycle fan motors in response to refrigerant condensing pressure.

E. Furnish solid state control to vary speed of one condenser fan motor in response to refrigerant condensing pressure.

F. Furnish electronic low ambient control consisting of mixing damper assembly, controlled to maintain constant refrigerant condensing pressure.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install in accordance with ASHRAE 15.

B. Install connection to electrical power wiring in accordance with Section 26 05 03

3.2 INTERFACE WITH OTHER PRODUCTS

A. Install units on vibration isolators on structural steel. Refer to Section 23 05 48.

3.3 MANUFACTURER'S FIELD SERVICES

A. See DDC General Conditions

B. Furnish cooling season start-up and winter season shutdown service, for first year of operation. If initial start-up and testing takes place in winter and machines are to remain inoperative. Repeat start-up and testing operation at beginning of first cooling season.

3.4 ADJUSTING

A. See DDC General Conditions

3.5 DEMONSTRATION AND TRAINING

A. DDC General Conditions.

B. Demonstrate starting, maintenance, and operation of unit.

C. Demonstrate low ambient operation during winter testing or service specified above.

3.6 SCHEDULES- BASIS OF DESIGN

A. Air-Cooled Refrigerant Condensers:

Drawing Code	CU-1	CU-2
Location	Roof	Roof
[Manufacturer]	LG	LG
[Model Number]	ARUB144BT2	ARUB432BT3
Cooling Capacity	144.0	432.0
Entering Air Temp.	91.9	91.9
Condenser Fans Type	Prop	Prop
Number	4	8
Refrigerant	R-410A	R-410A
Compressor	DC-Scroll	DC-Scroll

END OF SECTION

SECTION 23 81 26

SPLIT-SYSTEM AIR-CONDITIONERS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Air handling unit.
   2. Condensing unit.

B. Related Sections:
   1. Section 23 05 48 - Vibration and Seismic Controls for HVAC Piping and Equipment: Vibration isolators.
   2. Section 23 09 93 - Sequence of Operations for HVAC Controls: Sequences of operation applying to units in this section.
   3. Section 23 22 13 - Steam and Condensate Heating Piping: Execution requirements for connection to steam supply and steam condensate return piping specified by this section.
   4. Section 23 33 00 - Air Duct Accessories: Flexible connections.
   5. Section 26 05 03 - Equipment Wiring Connections: Electrical connection to units.

1.2 REFERENCES

A. Air-Conditioning and Refrigeration Institute:
   1. ARI 210/240 - Unitary Air-Conditioning and Air-Source Heat Pump Equipment.
   2. ARI 270 - Sound Rating of Outdoor Unitary Equipment.
   3. ARI 340/360 - Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment.
   4. ARI 365 - Commercial and Industrial Unitary Air-Conditioning Condensing Units.

B. American Society of Heating, Refrigerating and Air-Conditioning Engineers:
   1. ASHRAE 52.1 - Gravimetric and Dust-Spot Procedures for Testing Air-Cleaning Devices Used in General Ventilation for Removing Particulate Matter.
   2. ASHRAE 90.1 - Energy Standard for Buildings Except Low-Rise Residential Buildings.

C. ASTM International:
   1. ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus.

D. National Electrical Manufacturers Association:
   1. NEMA MG 1 - Motors and Generators.

E. National Fire Protection Association:

1. NFPA 90A - Standard for the Installation of Air Conditioning and Ventilating Systems.

1.3 SUBMITTALS

A. See DDC General conditions

B. Product Data: Submit data indicating:
1. Cooling and heating capacities.
2. Dimensions.
3. Weights.
4. Rough-in connections and connection requirements.
5. Duct connections.
6. Electrical requirements with electrical characteristics and connection requirements.
7. Controls.
8. Equipment noise rating
9. Accessories.

C. Manufacturer's Installation Instructions: Submit assembly, support details, connection requirements, and include start-up instructions.

D. Manufacturer's Certificate: Certify Products meet or exceed specified requirements Manufacturer's Field Reports: Submit start-up report for each unit.

1.4 CLOSEOUT SUBMITTALS

A. See DDC General Conditions

B. Record actual locations of controls installed remotely from units.

C. Operation and Maintenance Data: Submit manufacturer's descriptive literature, operating instructions, installation instructions, and maintenance and repair data.

1.5 QUALITY ASSURANCE

A. Performance Requirements: Energy Efficiency Rating (EER) not less than prescribed by ASHRAE 90.1 when used in combination with compressors and evaporator coils when tested in accordance with ARI 210/240, ARI 340/360.

B. Cooling Capacity: Rate in accordance with ARI 210/240, ARI 340/360, ARI 365.

C. Sound Rating: Measure in accordance with ARI 270.

D. Insulation and adhesives: Meet requirements of NFPA 90A.

E. Maintain one copy of each document on site.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three year experience.

B. Installer: Company specializing in performing Work of this section with minimum three year experience.

C. The installing contractor of a variable refrigerant system must complete an installation training program offered by the selected manufacturer. In addition to the training requirement prior installation is required factory commissioning upon start up of the systems in the field is required. The commissioning process must be performed to validate the extended warranty. The data collected is to be submitted to the manufacturer for record. The submitted record copy is to ensure the system was installed and operating optimally.

1.7 PRE-INSTALLATION MEETINGS

A. See DDC General Conditions.

B. Convene minimum one week prior to commencing work of this section.

1.8 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions.

B. Accept units and components on site in factory protective containers, with factory shipping skids and lifting lugs. Inspect for damage.

C. Comply with manufacturer's installation instruction for rigging, unloading and transporting units.

D. Protect units from weather and construction traffic by storing in dry, roofed location.

1.9 COORDINATION

A. See DDC General Conditions.

B. Coordinate installation of condensing units with roof structure. Coordinate installation of air handling units with building structure.

1.10 WARRANTY

A. See DDC General Conditions.

B. The Manufacturer to warranty the system of proper operation at 416 feet length and 300 feet elevation of refrigerant piping.

C. Limited Warranty

1. THE MANUFACTURER SHALL warrant to the customer that under normal use and maintenance for comfort cooling and conditioning applications such products (the "Products") will be free from defects in material or workmanship. This warranty applies to parts only and is limited in duration to one (1) year from the earlier to occur of (a) the date of original installation, whether or not actual use begins on that date, or (b) twenty-four (24) months from the date of shipment by Manufacturer. Customer must present proof of the original date of receipt and of installation of the Product in order to establish the effective date of this warranty. Otherwise the effective date will be deemed to be the date of manufacture plus sixty (60) days. Repaired or replacement parts are warranted for the balance of the warranty period applicable to the original part following the date on which the repaired or replacement part is provided to the Customer.

D. Extended Warranty

1. For its compressors only, Manufacturer provides the above warranty for a six (6) year period. This extended warranty for compressors is limited in duration to six (6) years from the earlier to occur of (a) the date of original installation, whether or not actual use begins on that date, or (b) twenty-four (24) months from the date of shipment by manufacturer, and applies to the compressor and compressor parts only. The effective date of this extended warranty shall be established as above.

1.11 WARRANTY SERVICE

A. See DDC General Conditions.

B. Furnish service and maintenance of equipment for one year from Date of Substantial Completion. Include maintenance items as shown in manufacturer's operating and maintenance data, including filter replacements, fan belt replacement, and controls checkout and adjustments.

C. Furnish 24-hour emergency service on breakdowns and malfunctions for this maintenance period. Furnish capability of response time within hours.

1.12 MAINTENANCE MATERIALS

A. See DDC General Conditions.

B. Furnish one set for each unit of fan belts and filters.

1.15 INSTALLATION REQUIREMENTS

A. The system must be installed by a Manufacturer factory trained contractor/dealer.

1.16 OPERATING RANGE

A. The operating range in cooling will be (-4°F) 23°F DB ~ 122°F DB. Each system as standard shall be capable of on site reprogramming to allow low ambient cooling operation to -4°F DB.

B. The operating range in heating will be 0°F DB – 77°F DB / -4°F WB – 60°F WB. Simultaneous cooling/heating operating range will be (-4°F) 23°F WB ~ 60°F WB.

C. Cooling mode indoor room temperature range will be 57°F-77°F WB. Heating mode indoor room temperature range will be 59°F-80°F DB.

1.17 REFRIGERANT PIPING

A. The system shall be capable of refrigerant piping up to 540 actual feet or 620 equivalent feet from the condensing unit to the furthest indoor unit, a total combined liquid line length of 3,280 feet of piping between the condensing and indoor units with 295 feet maximum vertical difference, without any oil traps .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.

Part 2– PRODUCTS

2.01 VARIABLE REFRIGERANT VOLUME (BASIS OF DESIGN) CONDITIONING: THREE PIPE HEAT RECOVERY

A. Manufacturers:
1. LG
2. Panasonic
3. Mitsubishi
4. Approved Equal

2.02 VARIABLE REFIGERANT RECOVERY

A. The variable capacity, heat recovery air conditioning system shall be a Variable Refrigerant Volume Series (heat and cool model) split system as specified. The system shall consist of multiple evaporators, branch selector boxes, joints and headers, a three pipe refrigeration distribution system using PID control and VRV condenser unit. The condenser shall be a direct expansion (DX), air-cooled heat recovery, multi-zone air-conditioning system with variable speed inverter driven compressors using R-410A refrigerant. The condensing unit may connect an indoor evaporator capacity up to 200% of the condensing unit capacity. All zones are each capable of operating separately with individual temperature control. A dedicated hot gas pipe shall be required to ensure optimum heating operation performance.

B. The condensing units shall be interconnected to indoor units and shall range in capacity from in accordance with engineering schedule 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.

C. Operation of the system shall permit either individual cooling or heating of each indoor unit simultaneously or all of the indoor units associated with each branch of the cool/heat selector box. Each indoor unit or group of indoor units shall be able to provide set temperature independently via a local remote controller.

D. Branch selector boxes shall be located as shown on the drawing. The branch selector boxes shall have the capacity to control up to 216 MBH (cooling) downstream of the branch selector box. Each branch of the branch selector box shall consist of five electronic expansion valves, refrigerant control piping and electronics to facilitate communications between the box and main processor and between the box and indoor units. The branch selector box shall control the operational mode of the subordinate indoor units. The use of five EEV's ensures continuous heating during defrost, no heating impact during changeover and reduced sound levels. The use of solenoid valves for changeover and pressure equalization shall not be acceptable due to refrigerant noise.

2.03 FEATURES AND BENEFITS

A. Voltage Platform –Heat recovery condensing units shall be available with a 208-230V/3/60 power supply.
B. Advanced Zoning – A single system shall provide for up to 58 zones.
C. Autocharging – Each system shall have a refrigerant auto-charging function.
D. Defrost Heating – Each system shall maintain continuous heating during defrost operation. Reverse cycle (cooling mode) defrost operation shall not be permitted due to the potential reduction in space temperature.
E. Oil Return Heating – Each system shall maintain continuous heating during oil return operation. Reverse cycle (cooling mode) oil return during heating operation shall not be permitted due to the potential reduction in space temperature.
F. Low Ambient Cooling – Each system shall be capable of low ambient cooling operation to -4°F DB.
G. Independent Control – Each indoor unit shall use a dedicated electronic expansion valve for independent control.
H. VFD Inverter Control – Each condensing unit shall use a high efficiency, variable speed "inverter" compressor coupled with inverter fan motors for superior part load performance. Compressor capacity shall be modulated automatically to maintain constant suction and condensing pressures while varying the refrigerant volume for the needs of the cooling or heating loads.
   Indoor units shall use PID to control superheat to deliver a comfortable room temperature condition and optimize efficiency.
I. Flexible Design –
   1. Systems shall be capable of up to 540ft (640ft equivalent) of linear piping between the condensing unit and furthest located indoor unit.
   2. Systems shall be capable of up to 3,280ft total "one-way" piping in the piping network.

3. Systems shall have a vertical (height) separation of up to 295ft between the condensing unit and the indoor units.
4. Systems shall be capable of up to 295ft from the first branch point.
5. The condensing unit shall have the ability to connect an indoor unit evaporator capacity of up to 200% of the condensing unit capacity.
6. Systems shall be capable of 49ft between indoor units.
7. Condensing units shall be supported with a fan motor ESP up to 0.32". WG as standard to allow connection of discharge ductwork and to prevent discharge air short circuiting.

J. Simple Wiring – Systems shall use 16/18 AWG, 2 wire, multi-stranded, non-shielded and non-polarized daisy chain control wiring.
K. Energy Efficiency – System shall have equivalent or better performance than high efficiency air cooled or water cooled chiller systems.
L. Outside Air – Systems shall provide outside air capability.
M. Advanced Diagnostics – Systems shall include a self diagnostic, auto-check function to detect a malfunction and display the type and location.
N. Each condensing unit shall incorporate contacts for electrical demand shedding.
O. Advanced Controls – Each system shall have at least one remote controller capable of controlling up to 16 indoor units.
Each system shall be capable of integrating with open protocol BACnet and LonWorks building management systems.
P. Low Sound Levels – Each system shall use indoor and condensing units with quiet operation as low as 27 dB(A).

2.04 QUALITY ASSURANCE

A. 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.
B. All wiring shall be in accordance with the National Electric Code (NEC).
C. 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.
D. Mechanical equipment for wind-born debris regions shall be designed in accordance with ASCE 7-2010 and installed to resist the wind pressures on the equipment and the supports.
E. The condensing unit will be factory charged with R-410A.

2.05 DELIVERY, STORAGE AND HANDLING

A. Unit shall be stored and handled according to the manufacturer's recommendations.

Part 3 – EXECUTION

3.01 CONDENSING UNIT

A. General: The condensing unit is designed specifically for use with series components.
1. The condensing 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 scroll compressors, motors, fans, condenser coil, electronic expansion valves, solenoid valves, 4-way valve, distribution headers, capillaries, filters, shut off valves, oil separators, service ports and refrigerant regulator.

High/low pressure gas line, liquid and suction lines must be individually insulated between the condensing and indoor units.

2. The condensing unit can be wired and piped with access from the left, right, rear or bottom.
3. The connection ratio of indoor units to condensing unit shall be permitted up to 200%.
4. Each condensing system shall be able to support the connection of up to 56 indoor units dependant on the model of the condensing unit.
5. The sound pressure level standard shall be that value as listed in the engineering manual for the specified models at 3 feet from the front of the unit. The condensing 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 unit shall incorporate an auto-charging feature.
8. The condensing unit shall be modular in design and should allow for side-by-side installation with minimum spacing.
9. The following safety devices shall be included on the condensing unit; high pressure sensor and 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.
10. To ensure the liquid refrigerant does not flash when supplying to the various indoor units, the circuit shall be provided with a sub-cooling feature.
11. Oil recovery cycle shall be automatic occurring 2 hours after start of operation and then every 8 hours of operation. Each system shall maintain continuous heating during oil return operation. Reverse cycle (cooling mode) oil return during heating operation shall not be permitted due to the potential reduction in space temperature.
12. The condensing unit shall be capable of heating operation at 0°F dry bulb ambient temperature without additional low ambient controls or an auxiliary heat source.
13. The system shall continue to provide heat to the indoor units in heating operation while in the defrost mode. Reverse cycle (cooling mode) defrost during heating operation shall not be permitted due to the potential reduction in space temperature.

B. Unit Cabinet:

1. The condensing 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 one or more propeller type, direct-drive 350 or 750 W fan motors that have multiple speed operation via a DC (digitally commutating) inverter.
2. The condensing unit fan motor shall have multiple speed operation of the DC (digitally commutating) inverter type, and be of high external static pressure and shall be factory set as standard at 0.12 in. WG. A field setting switch to a maximum 0.32 in. WG pressure is available to accommodate field applied duct for indoor mounting of condensing units.

3. The fan shall be a vertical discharge configuration with a nominal airflow maximum range of 6,700 CFM to 20,650 CFM dependent on model specified.

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. Night setback control of the fan motor for low noise operation by way of automatically limiting the maximum speed shall be a standard feature. .

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 compressors shall be variable speed (PVM 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 (INV frequency or STD ON/OFF) 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 "G2-type" with a maximum speed of 7,980 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 as low as 4% to 100%.
5. Each non-inverter compressor shall also be of the hermetically sealed scroll type.
6. Each compressor shall be equipped with a crankcase heater, high pressure safety switch, and internal thermal overload protector.
7. Oil separators shall be standard with the equipment together with an intelligent oil management system.
8. The compressor shall be spring mounted to avoid the transmission of vibration.
9. In the case of multiple condenser modules, conjoined operation hours of the compressors shall be balanced by means of the Duty Cycling Function, ensuring sequential starting of each module at each start/stop cycle, completion of oil return, completion of defrost or every 8 hours.

F. Electrical:

1. The power supply to the condensing unit shall be 208-230 volts, 3 phase, 60 hertz +/- 10%.

Power Supply Voltage	Voltage Range
208-230V/3/60	187V-253V

2. The control voltage between the indoor and condensing unit shall be 16VDC non-shielded, stranded 2 conductor cable.
3. The control wiring shall be a two-wire multiplex transmission system, making it possible to connect multiple indoor units to one condensing unit with one 2-cable wire, thus simplifying the wiring installation.

3.02 EXAMINATION

A. See DDC General Conditions

B. Verification of existing conditions before starting work.

C. Verify concrete pad for condensing unit is ready for unit installation.

3.03 INSTALLATION - AIR HANDLING UNIT

A. Install air handling units on vibration isolators. Refer to Section 23 05 48.

3.04 INSTALLATION - CONDENSING UNIT

A. Install condensing units on vibration isolators. Refer to Section 23 05 48.

B. Install units on angle iron steel and vibration isolators

C. Install electrical devices furnished loose for field mounting.

D. Install control wiring between air handling unit, condensing unit, and field installed accessories.

E. Install connection to electrical power wiring in accordance with Section 26 05 03.

F. Contractor shall document existing (baseline) noise level of the units,

G. Contractor to document post installation noise level to prove compliance.

3.05 MANUFACTURER'S FIELD SERVICES

A. See DDC General Conditions.

B. Furnish initial start-up and shutdown during first year of operation, including routine servicing and checkout.

3.06 CLEANING

A. See DDC General Conditions.

B. Vacuum clean coils and inside of unit cabinet.

C. Install new throwaway filters in units at Substantial Completion.

3.07 DEMONSTRATION

A. See DDC General Conditions

B. Demonstrate air handling unit operation and maintenance.

C. Demonstrate starting, maintenance, and operation of condensing unit including low ambient temperature operation.

D. Furnish services of manufacturer's technical representative for one 8 hour day to instruct Owner's personnel in operation and maintenance of units. Schedule training with Owner, provide at least 7 days notice to Commissioner of training date.

3.08 PROTECTION OF FINISHED WORK

A. See DDC General Conditions

B. Do not operate air handling units until ductwork is clean, filters are in place, bearings lubricated, and fan has been test run under observation.

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CONTRACT # 4

ELECTRICAL WORK

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SECTION 260013 – ELECTRICAL CONTRACTOR WORK

ALLOWANCE FOR INCIDENTAL ASBESTOS ABATEMENT

1.01 SCOPE FOR ASBESTOS ABATEMENT WORK

A. The "General Conditions" apply to the work of this Section.

B. The Asbestos abatement contractor shall remove asbestos containing materials as needed to perform the other work of this Contract when discovered during the course of work. When required, the Asbestos abatement contractor shall replace the ACM with non-asbestos containing materials. An allowance of **$5,000.00** for the **Electrical Contractor** is herein established for this incidental work when so ordered and authorized by the Commissioner.

C. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE RULES AND REGULATIONS OF THE ASBESTOS CONTROL PROGRAM AS PROMULGATED BY TITLE 15 CHAPTER I OF RCNY AND NEW YORK STATE DEPARTMENT OF LABOR INDUSTRIAL CODE RULE 56 CITED AS 12 NYCRR, PART 56 WHICHEVER IS MORE STRINGENT AS PER LATEST AMENDMENTS TO THESE LAWS AND AS MODIFIED HEREIN BY THESE SPECIFICATIONS.

D. ALL DISPOSAL OF ASBESTOS CONTAMINATED MATERIAL SHALL BE PER LOCAL LAW 70/85.

E. THE ASBESTOS ABATEMENT CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT CERTAIN METHODS OF ASBESTOS ABATEMENT ARE PROTECTED BY PATENTS. TO DATE, PATENTS HAVE BEEN ISSUED WITH RESPECT TO "NEGATIVE PRESSURE ENCLOSURE" OR "NEGATIVE-AIR" OR "REDUCED PRESSURE" AND "GLOVE BAG".

F. THE ASBESTOS ABATEMENT CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR AND SHALL HOLD THE DEPARTMENT OF DESIGN AND CONSTRUCTION AND THE CITY HARMLESS FROM ANY AND ALL DAMAGES, LOSSES AND EXPENSES RESULTING FROM ANY INFRINGEMENT BY THE ASBESTOS ABATEMENT CONTRACTOR OF ANY PATENT, INCLUDING BUT NOT LIMITED TO THE PATENTS DESCRIBED ABOVE, USED BY THE ASBESTOS ABATEMENT CONTRACTOR DURING PERFORMANCE OF THIS AGREEMENT.

G. "Asbestos" shall mean any hydrated mineral silicate separable into commercially usable fibers, including but not limited to chrysotile (serpentine), amosite (cumingtonite-grunerite), crocidolite (riebeckite), tremolite, anthrophyllite and actinolite.

H. Prior to starting, the Asbestos abatement contractor must notify the Commissioner of the Department of Design and Construction if he/she anticipates any difficulty in performing the Work as required by these Specifications. The Asbestos abatement contractor is responsible to prepare and submit all filings, notifications, etc. required by all City, State and Federal regulatory agencies having jurisdiction.

The Asbestos abatement contractor is responsible for submitting the Asbestos Project Notification Form (ACP-7 Form) to the Department of Environmental Protection, Asbestos Control Program, as per Title 15, Chapter I of RCNY and to the NYSDOL as per Industrial Code Rule 56.

The Asbestos abatement contractor is responsible for preparing, and submitting Asbestos Variance Application (ACP-9). If a Variance is required, the Asbestos abatement contractor is responsible to retain a NYSDOL Asbestos Project Designer, as defined in Title 15, Chapter 1 of the RCNY to prepare and submit the required variance.

The Asbestos abatement contractor is responsible for preparing and submitting an Asbestos Abatement Permit and/or Work Place Safety Plans (WPSP) that may be required for the completion of the Contract or incidental work. If such plans are required, the Asbestos abatement contractor is responsible to retain a NYSDOL Licensed Design Professional as defined in Title 15, Chapter 1 of the RCNY to prepare and submit the required plans.

The Asbestos abatement contractor is responsible for the submission of all required documents to the NYCDEP to acquire the appropriate Asbestos Project Conditional Closeout (ACP-20) and/or Asbestos Project Completion Forms (ACP-21) on a timely basis for the completion of the incidental work encountered under this contract.

The Asbestos abatement contractor will be required to attend an on-site job meeting with the Construction Project Manager prior to the start of work to examine conditions and plan the sequence of operations, etc.

The Asbestos abatement contractor shall have a NYSDOL/NYCDEP Asbestos Supervisor onsite to oversee the work and conduct a final visual inspection as required by both Title 15, Chapter 1 of the RCNY and NYSDOL Industrial Code Rule 56.

I. All work shall be done during regular working hours unless the Asbestos abatement contractor requests authorization to work in other then regular working hours and such authorization is granted by the Commissioner. (Regular work hours are those hours during which any given facility, in which work is to be done, is customarily open and functioning, normally between the hours of 8:00 A.M. and 4:00 P.M. Monday - Friday.) If such work schedule is authorized by the Commissioner, the work shall be done at no additional cost to the City.

J. The Commissioner may order that work be done in other than regular working hours as herein by defined and this order may require the Asbestos abatement contractor to pay premium or overtime wages to complete the work. If the Commissioner orders work in other than regular working hours, the Asbestos abatement contractor shall multiply the unit price for that portion of the work requiring premium wages by 1.50 when computing payment in accordance with Paragraph 1.09. All requests for premium payment must be supported by certified payroll sheets and field sheets approved by the Construction Project Manager.

1.02 QUALIFICATIONS OF ASBESTOS ABATEMENT CONTRACTOR

A. Requirements: The asbestos abatement contractor must demonstrate compliance with the special experience requirements set forth in subparagraphs (1) through (5) below. The asbestos abatement contractor must, submit documentation demonstrating compliance with all listed requirements. Such documentation shall include without limitation, all required licenses, certificates, and documentation.

1. The asbestos abatement contractor must, whether an individual, corporation, partnership, joint venture or other legal entity, must demonstrate for the three year period prior to the work, that it has been licensed by the New York State Department of Labor, as an "Asbestos abatement contractor".

2. The asbestos abatement contractor must, for the three year period prior to the work, have been in the business of providing asbestos abatement services as a routine part of its daily operations.

3. The asbestos abatement contractor proposing to do asbestos abatement work must be thoroughly experienced in such work and must provide evidence of having successfully performed and completed in a timely fashion at least five (5) asbestos abatement projects of similar size and complexity. The aggregate cost of these projects must be at least $250,000.00 in each of the three years.

4. For each project submitted to meet the experience requirements set forth above, the asbestos abatement contractor must submit the following information for the project; name and location of the project; name title and telephone number of the owner or the owner's representative who is familiar with the asbestos abatement contractor's work, brief description of the work completed as a prime or sub-asbestos abatement contractor; amount of contract or subcontract and the date of completion.

5. The asbestos abatement contractor must demonstrate that it has the financial resources, supervisory personnel and equipment necessary to carry out the work and to comply with the required performance schedule, taking into consideration other business commitments. The asbestos

abatement contractor must submit such documentation as may be required by the Department of Design and Construction to demonstrate that it has the requisite capacity to perform the required services of this contract.

B. Insurance Requirements: The asbestos abatement contractor must provide asbestos liability insurance in the following amount: 1 million dollars per occurrence, 2 million dollars aggregate (combined single limit). The City of New York shall be named as an additional insured on such insurance policy.

C. Throughout the specifications, reference is made to codes and standards which establish qualities and types of workmanship and materials, and which establish methods for testing and reporting on the pertinent characteristics thereof.

1.03 ASBESTOS ABATEMENT CONTRACTOR RESPONSIBILITIES

The Asbestos abatement contractor will visit the subject location within one (1) working day of notification to ascertain actual work required. If the project is identified as being "urgent", then work shall commence no later than 48 hours from the time of notification. In this event, the asbestos abatement contractor shall immediately notify when applicable EPA NESHAPS Coordinator, NYSDOL Asbestos Control Bureau and NYCDEP Asbestos Control Program of start of the work and file the necessary Asbestos Notifications and any applicable Variance Applications with the regulatory agencies cited above..

In the event that the project is not classified as "urgent" the Asbestos abatement contractor shall notify the EPA NESHAPS Coordinator, NYSDOL and NYCDEP by submitting the requisite asbestos project notification forms, postmarked 10 days before activity begins if 260 linear feet or more and/or 160 square feet or more of asbestos containing material will be disturbed.

The following information must be included in the notification:

A. Name and address of building City or operator;

B. Project description:

1. Size - square feet, number of linear feet, etc;

2. Age - date of construction and renovations (if known);

3. Use - i.e., office, school, industrial, etc.

4. Scope - repair, demolition, cleaning, etc.

C. Amount of asbestos involved in work and an explanation of techniques used to determine the amount;

D. Building location/address, including Block and Lot numbers;

E. Work schedule including the starting and completion dates;

F. Abatement methods to be employed;

G. Procedures for removal of asbestos-containing material;

H. Name, title and authority of governmental representative sponsoring project.

1.04 WORK INCLUDED IN UNIT PRICE

The Asbestos abatement contractor will be paid a basic unit price of **$25.00** per square feet for the removal and disposal of asbestos containing material and replacement of the same with non-asbestos containing materials.

Unit price shall include all costs necessary to do the work of this Contract, including but not limited to: labor, materials, equipment, utilities, disposal, insurance, overhead and profit.

1.05 AIR MONITORING – ASBESTOS ABATEMENT CONTRACTOR

A. "Air Sampling" shall mean the process of measuring the fiber content of a known volume of air collected during a specific period of time. The procedure utilized for asbestos follows the N1OSH Standard Analytical Method 7400 or the provisional transmission electron microscopy methods developed by the USEPA and/or National Institute of Standard and Technology which are utilized for lower detectability and specific fiber identification.

B. Air monitoring of Asbestos abatement contractor's personnel will be performed in conformance with OSHA requirements, (All costs associated with this work are deemed included in the unit price.).

C. Qualifications of Testing Laboratory:

The industrial hygiene laboratory shall be a current proficient participant in the American Industrial Hygiene Association (AIHA) PAT Program. The laboratory identification number shall be submitted and approved by the City. The laboratory shall be accredited by the AIHA and New York State Department of Health Environmental Laboratory Approval Program (ELAP).

Note: Work area air testing and analysis before, during and upon completion of work (clearance testing) will be performed by a Third Party Air Monitor under separate Contract with the City.

1.06 THIRD PARTY MONITORING AND LABORATORY

A. The NYCDDC, at its own expense, will employ the services of an independent Third Party Air Monitoring Firm and Laboratory. The Third Party Air Monitor will perform air sampling activities and project monitoring at the Work Site.

B. The Laboratory will perform analysis of air samples utilizing Phase Contrast Microscopy (PCM) and/or Transmission Electron Microscopy (TEM).

C. The Third Party Air Monitoring Firm and the designated Project Monitor shall have access to all areas of the asbestos removal project at all times and shall continuously inspect and monitor the performance of the Asbestos abatement contractor to verify that said performance complies with this Specification. The Third-Party Air Monitor shall be on site throughout the entire abatement operation.

D. The NYCDDC will be responsible for costs incurred with the Third Party Air Monitoring Firm and laboratory work. Any subsequent additional testing required due to limits exceeded during initial testing shall be paid for by the Asbestos abatement contractor.

1.07 PAYMENT REQUEST DOCUMENTATION

B. The following information shall be included for each payment request:

1. Description of work performed.
2. Linear footage and pipe sizes involved.
3. Square footage for boiler & breaching insulation removed.
4. Square footage of non pipe and boiler areas removed, patched, enclosed, sealed, or painted.
5. Square footage of encapsulation, sealing, patching, and painting involved.
6. Total cost associated with compliance with the assigned task.
7. Architectural, Electrical, HVAC, Plumbing, etc. work incidental to the Asbestos Abatement Work.
8. A certified copy (in form 4312-39) to the Comptroller or Financial Officer of the New York City to the effect that the financial statement is true.
9. A signed copy (in form 6506q-6) of certificate of compliance with non-discriminatory provisions of the Contract.
10. Attach a copy of valid workmen compensation insurance.

11. Valid asbestos insurance per occurrence.

12. General liability insurance when required.

C. Each payment request shall include a grand total for all work completed that billing period, the landfill waste manifests and a copy of waste transporter permit. The Department of Design and Construction will inspect the work performed, review the cost and approve or disapprove requests for payment.

D. EXPOSURE LOG: With this final payment, the Asbestos abatement contractor shall submit a listing of the names and social security numbers of all employees actively engaged in the abatement work of this Contract. This list shall include a summary showing each part of the abatement work in which the employee was engaged and the dates thereof.

1.08 QUANTITY CALCULATIONS

In order to determine the square footage involved for the various pipe sizes of pipe insulation that might be encountered, the following table is to be used.

PIPE INSULATION SIZE O.D.	PIPE SIZE O.D.	SQUARE FOOTAGE PER LINEAR FOOT
2-1/2"	1/2"	0.65
2-3/4"	3/4"	0.72
3"	1"	0.79
3-1/4"	1-1/4"	0.85
3-1/2"	1-1/2"	0.92
4"	2"	1.05
4-1/2"	2-1/2"	1.18
5"	3"	1.31
6"	3-1/4"	1.57
7"	3-1/2"	1.83
8"	4"	2.09
9"	5"	2.36
10"	6"	2.62
12"	8"	3.14
14"	10"	3.67
16"	12"	4.19
18"	14"	4.71

1.09 METHOD OF PAYMENT

Payment shall be made in accordance with Items A through R below. Payment shall be calculated based on the actual quantity of the item performed by the asbestos abatement contractor, times the unit price specified below. Credits may apply to certain times, as specified below.

A. **REMOVAL, DISPOSAL AND REPLACEMENT OF ASBESTOS CONTAINING PIPE INSULATION:** Actual linear footage, multiplied by the square footage factor listed for the respective pipe size in Section 1.09, multiplied by the unit price in Section 1.05.

EXAMPLE: 100 lin.ft. of 1/2" pipe and 100 lin.ft. of 6" pipe, including elbows, tees. Flanges, etc.

100 X 0.65 = 65 sq.ft. 65 x unit price = Payment

100 X 2.62 = 262 sq.ft. 262 x unit price = Payment

B. **REMOVAL, DISPOSAL AND REPLACEMENT OF BOILER INSULATION:** (all types including Silicate Block and including the removal/replacement of metal jacketing) Payment shall be made at 1.5 times the unit price per square foot.

EXAMPLE: Item B. removal and replacement of 1000 S.F. of boiler insulation (incl. Silicate block)

1000 S.F. X (1.5) X the Unit Price = Payment

C. **REMOVAL, DISPOSAL AND REPLACEMENT OF TANK INSULATION:** (all types including removal/replacement of metal jacketing) Payment shall be made at 1.5 times the unit price per square foot.

D. **REMOVAL, DISPOSAL AND REPLACEMENT OF BOILER UPTAKE, & BREACHING INSULATION:** (all types including stiffening angles and wire lath) Payment shall be made at 2.0 times the unit price per square foot.

E. **REMOVAL, DISPOSAL AND REPLACEMENT OF DUCT INSULATION:** Payment shall be made at 1.0 times the unit price per square foot.

F. **REMOVAL, DISPOSAL AND REPLACEMENT OF SOFT ASBESTOS CONTAINING MATERIAL:** (Including sprayed-on fire proofing and sound proofing) Payment shall be made at 1.0 times the unit price per square foot of surface area. Area of irregular surfaces must be calculated and confirmed with DDC representative.

G. **ACOUSTIC PLASTER REPAIR AND/OR ENCAPSULATION:** Payment shall be made at 0.5 times the unit price per square foot.

H. **PATCHING OR REPAIR** of items listed in A through F will be paid at 0.33 times the unit price per square foot.

I. **REMOVAL, DISPOSAL AND REPLACEMENT OF WATERPROOFING ASBESTOS CONTAINING MATERIAL:** (including friable and non-friable waterproofing material from interior and exterior walls, floors, foundations, penetrations, louvers, vents and openings other than windows, doors and skylights) Payment shall be made at 0.5 times the unit price per square foot.

J. **REMOVAL, DISPOSAL AND REPLACEMENT OF ASBESTOS CONTAINING ELECTRICAL WIRING INSULATION:** (including friable and non-friable wiring insulation) Payment shall be made at 0.33 times the unit price per square foot.

K. **PAINTING:** Payment shall be made at 0.05 times the unit price per square foot.

L. **REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING PLASTER:** from ceilings and walls, including any wire lath and disposal as asbestos containing waste. Payment shall be made at 0.80 times the unit price per square foot.

M. **REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING FLOOR TILES, CEILING TILES, TRANSITE PANELS:** (including any adhesive, glue, mastic and/or underlayment) and disposal as asbestos containing waste. Payment shall be made at 0.40 times the unit price per square foot. If multiple layers are discovered, each additional layer shall be paid at 0.20 times the unit price per square foot.

N. **ADDITIONAL CLEAN UP/HOUSEKEEPING OF WORK AREA:** (excluding pre-cleaning of work area required by regulations) HEPA vacuuming and wet cleaning of asbestos contaminated surface. Payment shall be made at 0.20 times the unit price per square foot. When GLOVE BAG is employed to remove ACM, cost of HEPA vacuuming and wet cleaning of floor area up to 3 feet on each side of glove-bag shall be included in unit price and no extra payment will be made.

O. **REMOVAL, DISPOSAL OF ASBESTOS-CONTAINING ROOFING MATERIAL:** including mastic, flashing and sealant compound and provide temporary asbestos-free roof covering consisting of one layer of rolled roofing paper sealed with asphaltic roofing compound. Payment shall be made at 0.8 times the unit price per square foot. Credit at a rate of 0.33 times the unit price will be taken for each square foot of temporary roof covering which the Asbestos abatement contractor is directed not to install.

P. **PICK-UP AND DISPOSAL OF GROSS DEBRIS:** (excluding any waste generated from abatement under Item A-R) at a rate of $150 per cubic yard for asbestos contaminated waste and $75 per cubic yard for non-asbestos

contaminated waste. This cost includes all labor and material cost associated with work.

Q. **REMOVAL OF ASBESTOS-CONTAINING BRICK, BLOCK, MORTAR, CEMENT OR CONCRETE:** along with all surfacing materials including wire lath and/or other supporting structures and disposal as ACM waste. Payment shall be made at a rate of $25.00 per cubic foot of material removed.

R. **REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING WINDOW/DOOR CAULKING:** including friable and non-friable caulking, weather-stripping, glazing, sealants or other waterproofing materials applied to windows, doors, skylights, etc. Payment shall be made at the rate of $400.00 per opening regardless of size or configuration. This cost includes labor, consumable materials, set-up/breakdown, removal and disposal, as required.

Note 1: CREDIT: For items listed in A through F, a credit at a rate of 0.33 times the unit price, times the respective multiplier (for each item) will be taken for each square foot of insulation which the asbestos abatement contractor is not directed to reapply.

Note 2: MINIMUM PAYMENT: The minimum payment per call at any individual job sites or various job sites during the same day will be eight hundred dollars ($800.00).

Note 3: All payments shall be made as described in paragraph 1.09 herein.

Note 4: WORKING HIGHER THAN 12 FEET ABOVE FLOOR LEVEL OR WORK REQUIRING COMPLEX SCAFFOLDING OR CONSTRUCTION WORK PLATFORMS: Provisions are made in this Contract to compensate the Asbestos abatement contractor for work performed in locations that are difficult to access due to work at elevations that are significantly higher than the normal work level. The unit price for these items will be paid at 1.20 times the unit price described in Paragraphs 1.09, A through R for those portions of the work that are more than twelve (12) feet above the grade for that would be judged as the normal working level.

1.10 GUARANTEE

A. Work performed in compliance with each task shall be guaranteed for a period of one year from the date the completed work is accepted by the Department of Design and Construction.

B. The Commissioner of The Department of Design and Construction will notify the Asbestos abatement contractor in writing regarding defects in work under the guarantee.

1.11 OCCUPANCY OF SITE NOT EXCLUSIVE

Attention is specifically drawn to the fact that contractors, performing the work of other Contracts, may be brought upon any of the work sites of this Contract. Therefore, the

Asbestos abatement contractor shall not have exclusive rights to any site of his work and shall fully cooperate and coordinate his work with the work of other contractors who may be brought upon any site of the work of this Contract. This paragraph applies to those areas outside the regulated Work Area as defined by Title 15, Chapter I of RCNY.

1.12 SUBMITTALS

A. Pre-Construction Submittals:

1. Attend a pre-construction meeting scheduled by the City of New York Department of Design and Construction. This meeting shall also be attended by a designated representative of the City of New York third party air monitoring firm, facility manager and the Construction Project Manager. At this meeting, the Asbestos abatement contractor shall present three copies of the following items:
   a. Asbestos abatement contractor's scope of work, work plan and schedule.

   b. Asbestos project notifications, approved variances and plans to Government Agencies.

   c. Copies of Permits, clearance and licenses if required.

   d. Schedules: the Asbestos abatement contractor shall provide to the Construction Project Manager a copy of the following schedules for approval. Once approved, schedules shall be maintained and updated as received. Asbestos abatement contractor shall post a copy of all schedules at the site:

      (1) A construction schedule stating critical dates of the project including, but not limited to, mobilization, Work Area preparation, demolition, gross removal, fine cleaning, encapsulation, inspections, clearance monitoring, and phase of refinishing and final inspections. The schedule shall be updated biweekly, at a minimum.

      (2) A schedule of staffing stating number of workers per shift per activity, name and number of supervisor(s) per shift, shifts per day, and total days to be worked.

      (3) Submit all changes in schedule or staffing to the Construction Project Manager prior to implementation.

e. Written description of emergency procedures to be followed in case of injury or fire. This section must include evacuation procedures, source of medical assistance (name and telephone number to nearest hospital) and procedures to be used for access by medical personnel (examples: first aid squad and physician). NOTE: Necessary Emergency Procedures Shall Take Priority Over All Other Requirements of These Specifications.

f. Material Safety Data Sheets (MSDS) for encapsulants, sealants, firestopping foam, cleaners/disinfectants, spray adhesive and any and all potentially hazardous materials that may be employed on the project. No work involving the aforementioned will be allowed to proceed until MSDS are reviewed.

g. Worker Training and Medical Surveillance: The Asbestos abatement contractor shall submit a list of the persons who will be employed by him /her to perform the removal work. Present evidence that workers have received proper training required by the regulations and the medical examinations required by OSHA 29 CFR 1926.1101.

h. Logs: Specimen copies of daily progress log, visitor's log, and disposal log.

(1) The Asbestos abatement contractor shall provide a permanently bound log book of minimum 8-1/2" x 11" size at the entrance to the Worker and Waste Decontamination enclosure system as hereinafter specified. Log book shall contain on title page the project name, name, address and phone number of the Asbestos abatement contractor; name, address and phone number of Asbestos abatement contractor and City's third party air monitoring firm; emergency numbers including, but not limited to local Fire/Rescue Department. Log book shall contain a list of personnel approved for entry into the Work Area.

(2) All entries into the log shall be made in non-washable, permanent ink and such pen shall be strung to or otherwise attached to the log to prevent removal from the log-in area. Under no circumstances shall pencil entries be permitted. Any significant events occurring during the abatement project shall be entered into the log. Upon completion of the job, the Asbestos abatement contractor shall submit the logbook containing a day-to-day record of personnel log entries countersigned by the Construction Project Manager every day.

i. Worker's Acknowledgments: Submit statements signed by each employee that the employee has received training in the proper handling of ACM, understands the health implications and risks involved; and understands the use and limitations of the respiratory equipment to be used.

B. During Construction Submittals:

1. Security and safety logs showing names of person entering workspace, date and time of entry and exit, record of any accident, emergency evacuation, and any other safety and/or health incident.

2. Progress logs showing the number of workers, supervisors, hours of work and tasks completed shall be submitted daily to the Construction Project Manager.

3. Floor plans indicating Asbestos abatement contractor's current work progress shall be submitted for review by the Construction Project Manager.

4. All Asbestos abatement contractors' air monitoring and inspection results.

C. Project Closeout Submittals:

Upon completion of the project and as a condition of acceptance, the Asbestos abatement contractor shall present two copies of the following items, bound and indexed:

1. Lien Waivers from Asbestos abatement contractor, Sub-Asbestos abatement contractors and Suppliers,

2. Daily OSHA air monitoring results,

3. All Waste Manifests (Asbestos and Construction Debris), seals and disposal logs,

4. Field Sign-In/Sign-Out Logs for every shift,

5. Copies of all Building Department Forms and Permits,

6. A Letter of Compliance stating that all the work on this project was performed in accordance with the Specifications and all applicable Federal, State and Local regulations,

7. All Warranties as stated in the Specifications,

a. Fully executed disposal certificates and transportation manifest.

8. Project Record: The Asbestos abatement contractor shall maintain a project record for all small and large asbestos projects. During the project, the project record shall be kept on site at all times. Upon completion of the project, the project record shall be maintained by the City of New York. The project record shall be submitted to DDC as part of the close out documents. The project record shall consist of:

   a. Copies of licenses of all asbestos abatement contractors involved in the project;

   b. Copies of NYCDEP and NYSDOL supervisor and handler certificates for all workers engaged in the project;

   c. Copies of all project notifications and reports filed with NYCDEP, NYSDOL and USEPA for the project, with any amendments or variances;

   d. Copies of all asbestos abatement permits, including associated approved plans and work place safety plan;

   e. A copy of the air sampling log and all air sampling results;

   f. A copy of the abatement asbestos abatement contractor's daily log book;

   g. Copies of all asbestos waste manifests;

   h. A copy of all Project Monitor's Reports (ACP-15).

   i. A copy of each ATR-1 Form completed for the asbestos project (if required).

   j. A copy of each Asbestos Project Conditional Closeout Report (ACP-20) if required.

   k. A copy of the Asbestos Project Completion Form (ACP-21).

1.13 PROTECTION OF FURNITURE AND EQUIPMENT

Cover all furniture and equipment that cannot be removed from Work Areas. Movable furniture and equipment will be removed from Work Areas by the Asbestos abatement contractor prior to start of work. At the conclusion of the work (after final air testing), the Asbestos abatement contractor will remove all plastic covering on walls, floors, furniture, equipment and reinstall furniture and equipment. He shall remove and store all sheaths, curtains and drapes, and reinstall same following final clean up.

1.14 UTILITIES

A. General:

All temporary facilities shall be subject to the approval of the Commissioner. Prior to starting work at any site, locations and/or sketches (if required) of temporary facilities must be submitted to the Construction Project Manager for the required approval.

B. Water:

The Department of Design and Construction will furnish all water needed for construction, at no cost to the Asbestos abatement contractor in buildings under their jurisdiction. However, it is the responsibility of the Asbestos abatement contractor to ensure that hot water is provided for showering in the decontamination unit. The Asbestos abatement contractor shall furnish, install and maintain any needed equipment to meet these requirements at his own expense.

C. Electricity:

The Department of Design and Construction will furnish all electricity needed for construction, at no cost to the Asbestos abatement contractor in a building, under their jurisdiction. The Asbestos abatement contractor is responsible for routing the electric power to the abatement Work Area.

All temporary lighting and temporary electrical service for Work Area shall be in weatherproof enclosures and be ground fault protected.

D. In leased spaces, arrangements for water supplies and electricity must be made with the landlord. However, all such arrangements must be made through and are subject to approval of the Department of Design and Construction. Utilities will be provided at no cost to the Asbestos abatement contractor. However, it is the Asbestos abatement contractor's (or the Electrical contractor's) responsibility to furnish and install a suitable distribution system to the Work Area. This system will be provided at no cost to the City.

1.15 FEES

The Asbestos abatement contractor shall be responsible for any and all fees or charges imposed by Local, State or Federal Law, Rule and Regulation applicable to the work specified herein, including fees or charges which may be imposed subsequent to the date of the Bid opening.

END OF SECTION

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SECTION 26 04 05 – SPECIAL REQUIREMENTS FOR ELECTRICAL WORK

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Where items of General condition are repeated in this Section of Specification, it is intended to qualify or to call particular attention to them; it is not intended that any other parts of General Conditions shall be assumed to be omitted if not repeated herein.

B. Provisions of this Division apply equally and specifically to Contractors and Subcontractors supplying labor and/or equipment and/or materials as required under Heating, Ventilating and Air conditioning, Plumbing, Sprinkler and Electrical.

1.2 DEFINITIONS:

A. Specifications are of simplified form and include incomplete sentences. Words or phrases such as "Contractor shall," "shall be," "furnish, " "provide", "a, "an," "the," and "all" have been omitted for brevity.

B. "Contractor" or: Contractor or Subcontractor working under his respective Section (Heating, Ventilation and Air Conditioning, Plumbing, Sprinkler, or Electrical) or his Specification.

C. Install": to erect, mount and connect complete with related accessories.

D. "Supply": to purchase, procure, acquire and deliver complete with related accessories.

E. "Furnish" to purchase for installation by another trade.

F. "Provide": to supply, install and connect up complete and ready for safe and regular operation of particular work referred to unless specifically otherwise noted.

G. "Piping": piping, fittings, valves, hangers, and other accessories related to such piping.

H. "Concealed": hidden from sight as in chases, furred spaces, shafts, hung ceilings, or embedded in construction.

I. "Exposed": "not concealed" as defined.

J. "HVAC": Heating, Ventilating and Air Conditioning.

K. "Plumbing Contractor": Contractor doing Plumbing Work.

L. "Work": labor, materials, equipment, apparatus, controls, accessories and other items required for proper and complete installation.

M. "Wiring": raceway, fittings, wire, boxes and related items. "Circuitry" is synonymous with " wiring".

N. "Indicated" "shown" or "noted": as indicated, shown or noted on Drawings or Specifications.

O. "Similar" or "equal": of base bid manufacturer, equal in materials, weight, size, design and efficiency of specified product, conforming with "Base Bid Manufacturers", in opinion of Architect/ Engineer.

P. "Reviewed," "satisfactory," "accepted," or "directed": as reviewed, satisfactory, accepted or directed by or to Architect.

Q. "Motor Controllers": manual or automatic starters (with or without switches), individual pushbuttons, or hand-off-automatic (HOA) switches controlling operation of motors.

R. "Control Devices": automatic sensing and switching devices such as thermostats, pressure, float, electro-pneumatic switches and electrodes controlling operation of equipment.

1.3 CODES, REGULATIONS, FEES, PERMITS, CERTIFICATES AND STANDARDS:

A. N.Y. City Building Code.

1. National Electrical Code with New York City Amendments.
2. NFPA National Fire Protection Association.
3. ASME American Society of Mechanical Engineers.
4. ANSI American National Standards Institute.
5. ASTM American Society for Testing Materials.
6. AWWA American Water Works Association.
7. NEMA National Electrical Manufacturers Association.
8. ASHRAE American Society of Heating, Refrigeration and Air Conditioning Engineers.
9. SMACNA Sheet Metal and Air Conditioning Contractors National Association, Inc.
10. ARI Air Conditioning and Refrigeration Institute.
11. UL Underwriter's Laboratories.
12. AMCA Air Moving and Conditioning Association
13. ADC Air Diffusion Council.
14. AABC Associated Air Balance Council
15. Local Water Company rules and Regulations
16. NFPA-90A Air Conditioning and Ventilation Systems.
17. N.Y. State Energy Conservation Code
18. IEEE Institute of Electrical and Electronic Engineers.
19. OSHA Occupational Safety and Health Administration.
20. Factory Mutual.
21. FIA Factory Insurance Association
22. NECA National Electrical Contractors Association

1.4 INTENT:

A. Specifications and Drawings: The Intent is for the Contractor to furnish and install all electrical equipment and devices test and leave ready for operation. The entire installation shall be performed with new first-class quality materials equipment and apparatus.

B. Apparatus, appliance, material, incidental accessories, minor details, or work not shown on Drawings, but mentioned in Specifications, or vice versa, necessary to make work complete and perfect in every respects, ready for operation, shall be provided without additional expenses to City of New York.

1.5 DRAWINGS:

A. Drawings are generally diagrammatic and intended to convey scope of work and indicate general arrangement of equipment; ducts, conduits, piping, and fixtures.

B. Locations of items shown on Drawings or called for in Specifications that are not definitely fixed by dimension are approximately only. Exact locations necessary to secure best conditions and results shall be determined at project and shall have approval of Commissioner before being installed.

C. Follow drawings in laying out work and check Drawings of other trades to verify spaces in which work to be installed. Maintain maximum headroom and space conditions. Notify commissioner before proceeding with installation.

D. When directed by Commissioner, without extra charge, make reasonable modification in layout as needed to prevent conflict with work or other trades or for proper execution of work.

E. Piping, ductwork, conduits connected to equipment may required different size connection than indicated on Drawings. Provide transition pieces as required at equipment.

1.6 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS:

A. Questions or disagreements arising as to true intent of Specifications or Drawings, quality of work required thereby, shall be decided by commissioner, whose interpretations thereof shall be final, conclusive and binding.

B. In case of disagreement between Drawings and Specifications, or within either document itself, the better quality, greater quality or more costly work shall be included in Contract Price and the matter referred to commissioner's attention for decision and/or adjustment.

C. Maintain awareness to avoid space conflict with other trades.

1.7 VISITING THE SITE:

A. Before submitting final proposal, examine site of proposed work to determine existing conditions that may affect work, as this Section will be held responsible for any assumptions in regard thereto.

1.8 EQUIPMENT AND MATERIALS

A. Proposal and bid must cover items on Drawings and in Specifications.

B. Words "or approved equal" shall be understood to apply only to those items of equipment and material listed under paragraph "List of Approved Manufacturers" or as otherwise indicated on Drawings or in Specifications.

C. Within twenty (20) working days after acceptance of proposal, and prior to submission of shop drawings for review, a complete list of manufacturers shall be submitted to Commissioner of equipment materials proposed for work. No reviews will be rendered on shop drawings submitted before completed list of manufacturers is submitted. Submission of list shall not preclude submission of shop drawings of items covered in list.

D. Remove materials or equipment installed before "No Objection" comment from Commissioner, is obtained and/or in opinion of Commissioner materials or equipment does not meet intent of Drawings and Specifications, at no extra cost to City of New York.

E. Equipment and materials required for installation under these Specifications shall be new and without blemish or defect. Electrical equipments shall bear labels attesting to Underwriters' Laboratories approval. Where no specific indication as to type or quality of material or equipment label is installed, a first class standard article shall be provided.

F. Equipment other than specified or detailed on Drawings requiring redesign of structure, partitions, foundations, piping, wiring, or other part of mechanical, electrical, architectural layout, shall be provided with new drawings and detailing as required and therefore at no additional cost to City of New York.

G. Where deviation from Contract Documents requires a different quantity and arrangement of ductwork, piping, wiring, conduit, and equipment from that specified or indicated on Drawings, furnish and install any such ductwork, piping, structural supports, insulation, controllers, motors starters, electrical wiring, and conduit, and other additional equipment required by system, at no additional cost to City of New York.

H. Equipment of one type shall be product of same manufacturer.

I. Note that comments 'No Exception Taken" or "Make Corrections Noted" on shop drawing or other information submitted in accordance with specified requirements herein before does not assure that Commissioner attests to dimensional accuracy or dimensional suitability of materials or equipment involved or mechanical performance of equipment. Comments on shop drawings does not invalidate Plans and Specification if shop drawings are in conflict with Plans and Specifications.

J. Lubricate equipment as recommend by manufacturer, during temporary construction use and provide complete lubrication and new filters just prior to acceptance.

1.9 SUBMITTALS:

A. Prior to purchasing or delivery to job site, but sufficiently in advance of requirements necessary to allow Commissioner ample time for review, submit copies of shop drawings of equipments, as stated in Specifications.

B. Contractor in accepting this Contract verifies familiarization with General Construction Drawings and Specifications, and that during progress of job, will keep abreast of work of other trades and will constantly be informed of field conditions to be encountered, including accurate measurements of applicable parts of actual buildings as they are erected. Any change in location of equipment, piping, or connections necessitated by Contractor shall be at own expense, within schedule of completion of project.

C. Documents shall not be accepted for approval unless:
1. Six (6) copies of each are submitted, one (1) of these copies being transparent type.
2. Include complete information pertaining to appurtenances and accessories, but at least as much information as indicated in Contract Documents.
3. Submitted as package where pertaining to related items.
4. Properly marked with service or function identification as related to project where they consist of catalogue sheets displaying other items which are not applicable.
5. Required certificates are submitted with approval.
6. Letter of transmittal submitted with shop drawings

D. Each trade contractor shall participate in the production of a set of coordinated drawings for the entire project. This drawing shall show all trades being fully coordinated. This drawing set shall be coordinated for all trades and maintain all ceiling heights, construction requirements, etc. Work in any given area may not proceed until a coordinated drawing for the area exists.

1.10 GUARANTEES:

A. All work performed and materials installed shall be free from inherent defects and keep same in original form. Replace damaged, defective materials or workmanship, free of cost to owner, for period of one year from date of acceptance, upon notice from Commissioner.

B. Install Equipment in connection with this Contract to meet performance requirements set forth by Commissioner.

C. Replace Non-durable replaceable items such as air filter media, lamps, etc. within one week of date of acceptance.

D. Certification shall be submitted attesting that specified performance criteria are met by systems installed.

E. Permits and inspection certificates shall be obtained, paid for, and made available for completion work.

F. Work not subject to approval of an authority having jurisdiction (AHJ)shall be governed by applicable sections of overall National Fire Code as published by the National Fire Protection Association.

G. Fees, permits, taxes or certificates required by governing bodies, (board of Fire Underwriters, B.S.A., M.E.A., D.A.R.) or other agencies affecting work as specified herein, or required for Certificates of Occupancy, shall be obtained and paid for by

Contractor as part of basic contract.

1.11 CONCRETE FOUNDATIONS, PADS, AND INSERTS:

A. Furnish sizes, locations, and templates for erection of concrete work, to accommodate equipment.

B. Submittals:
   1. Procedure
      a. Prepare and make submissions listed below.

   2. Shop Drawings
      a. Size of concrete pad
      b. Shape
      c. Templates

C. Concrete pads: 4" high housekeeping, extend 6" beyond equipment on sides. Provide inserts to accommodate seismic bracing.

1.12 CLEANING AND PROTECTION:

A. Protect conduit and equipment during storage at site, from damage, rain, dirt, and ground water.

B. After completion of project, clean interior exterior and surface of equipment included in this Section, including concrete residue.

1.13 OPERATING AND MAINTENANCE INSTRUCTIONS:

A. Submittals:
   1. Furnish to Commissioner six (6) sets of operating and maintenance instructions for all electrical equipment.

B. Operating and maintenance instructions shall contain following minimum items.
   1. Maintenance and operating instructions prepared by Contractor.
   2. Programming and seismic software with all password protection.
   3. Control diagrams and sequence of operations with all parameter set points and operating ranges indicated.
   4. General operating instructions.
   5. Preventive maintenance requirements.
   6. Data sheets defining dimensions, capacities and utility requirements for all equipment.
   7. A complete part list for each piece of equipment including assembly drawings and recommended spare parts.
   8. Schedules Department of Energy (DOE) design versus Actual test parameters for all equipment.
   9. Detailed schematic electrical diagrams of all electrical equipment, mechanical equipment, control systems and all external interlocks.
   10. Variable Frequency Drive O&M data shall be provided with all field installed, set up parameters.

11. Warranty information on each piece of equipment/device as required by the contract documents.

C. Special tools for proper operation and maintenance of equipment provided under this Section shall be delivered to Commissioner and receipt obtained for same.

D. After final test and adjustments have been completed, fully instruct Commissioner in details of operation of any specialized equipment for a sufficient length of time to assure that such Commissioner is properly qualified to take over operation and maintenance of said equipment. Instruction period shall be a minimum of two (2) four-hour periods.

1.14 ACCESS DOORS IN FINISHED CONSTRUCTION:

A. Furnish access doors where access is required to concealed equipment.

B. Submittals:
1. Procedure
a. Prepare and make submission listed below
1) Access doors
2) Accessories
3) Submit sample to Commissioner for review and approval.

C. Frames shall be formed from not less than No. 16 U.S. Standard gauge steel sheet and doors shall be formed form not less than No. U.S. Standard gauge steel sheet.

D. Access doors shall have screw driver operated camlocks and concealed hinges. Doors and frames shall be given a shop coat of an approved rust-inhibitive primer

E. Access doors shall be of the following types as manufactured by Inland-Ryerson Construction Products Co., or approved equal.
1. Milcor Flush Panel Style M – for areas with wall board, tile or masonry finish.
2. Milcor Panel Stgle AT – for acoustical ceilings.
3. Milcor Fire Rated – for fire rated barriers.
4. Approved equal.

F. Access doors shall be delivered at grade for receiving and installation by contractor.

G. Tags shall be applied to each access door indicating location of access door.

1.15 MANUFACTURERS:

A. Base bid on material or equipment specified by:
1. Name of manufacturer.
2. Brand or trade name.
3. Catalog reference.

B. Where 2 or more manufactures are named, choice optional with Bidder.

1.16 DRILLING AND CUTTING:

A. Beams, girders and other principal structure members shall not be cut or drilled, unless permission has been granted in writing by Commissioner.

B. Drilling at structural slabs or cutting of structural welds must be approved by the structural engineer in consort with the Commissioner.

1.17 RESTORATION:

A. If such drilling or cutting is done on finished surfaces of equipment or structure, any marring of surface shall be made good by repair or replacement. Restoration due to cutting or drilling and damage to building or its contents, and penetration of waterproofing because of installation of work shall be repaired to satisfaction of Commissioner at no expense to City of New York.

1.18 SLEEVES:

A. Sleeves, etc., passing through walls or floors, shall be furnished and set by Contractor installing conduits. Sleeves in waterproofed floors shall be provided with flashing extending 12" in directions from sleeve and secured waterproofing. Flashing shall be turned down into space between pipe and sleeve and caulked watertight. Flashing shall be 20 oz. Cold rolled copper.

1.19 SEISMIC RESTRAINTS :

A. All electrical equipment, whether isolated or not, shall be bolted to structure to allow for minimum 0.5 "g" of acceleration and 1.0 "g" for life safety equipment and systems. Bolt points and diameter of inserts shall be submitted and verified as part of the Contractor's submission for each piece of equipment and certified by a Licensed Civil or Structural Engineer.

B. All isolated electrical equipment and/or components shall be restrained by Type 1 or Type II devices as specified hereinafter.

C. All seismic restraints shall be capable of safely accepting 0.5 "g" (1.0 "g" for life safety systems) external forces without failure and shall maintain equipment in a captive position. Seismic restraints shall not short circuit isolation systems or transmit objectionable vibration or noise, and shall be provided on all equipment as scheduled on drawings. Calculations by registered Civil or Structural Engineer shall be submitted to verify snubber capacities for each piece of equipment.

D. Seismic restraints are not required for the following, provided they are not part of life safety systems:
   1. Conduits suspended by individual hangers 12 in. or less in length from the top of the conduit to the supporting structure.
   2. Conduits less than 2-1/2 in. diameter.
   3. Pendulum lighting fixtures, except they shall be designed for a component seismic coefficient (Cc) of 1.5 and the vertical support shall be designed with a safety factor of 4.

E. Floor concrete pads shall be provided with inserts at intervals not to exceed two feet apart to prevent movements

F. Equipment must be bolted to pads or be secured to walls or pendant supports.

G. Equipment mounted on springs does not require additional seismic restraints providing that the spring mountings:
1. Comply with general characteristics of spring isolators.
2. Have vertical limit stops and are capable of supporting equipment at fixed elevation during equipment erection.
3. Incorporate seismic snubbing restraint in all directions at specified acceleration loadings.
4. Acceptable seismic spring mountings are:

Mason Industries
Type SSLR - M.I.I.
Type SAWR - V.M.C.I.
Type BXL - V.E.C.

H. Seismic Restraint Types:
1. Seismic Restraint Type I:
   a. Each corner or side seismic restraint shall incorporate minimum 5/8 inch thick pad limit stops. Restraints shall be made of plate, structural members of square metal tubing in a welded assembly, incorporating resilient pads. Angle bumpers are not acceptable. System to be field bolted to deck with 1.5 "g" acceleration capacity.
   b. Seismic spring mountings as described above are an acceptable alternative providing all seismic loading requirements are met.
   c. Mason Industries Type Z-1011, Type Z-1225, or as approved.

2. Seismic Restraint Type II: Metal cable type with approved fastening devices to equipment and structure. System to be field bolted to deck or overhead structural members or deck with aircraft cable and clamps as per SMACNA guidelines.

PART 2 Products. (Not Used)

PART 3 Execution. (Not Used)

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SECTION 26 04 10 – BASIC ELECTRICAL REQUIREMENTS

PART 1 GENERAL

1.1 REFERENCES

A. National Electrical Code with New York Amendments.

1.2 DESCRIPTION OF WORK

A. Scope of Work: Provide all labor, materials, equipment and services necessary for complete safe installation in conformity with applicable codes and authorities having jurisdiction; including but not limited to the following:

1. Cutting and patching, except as noted in "AIA" Document A201 and "Supplementary Conditions for Mechanical and Electrical Work."
2. Removal of existing or construction equipment and devices which are not being reused.
3. Removal and rerouting of existing electrical services to accommodate new construction.
4. Electrical service and distribution system including metering.
5. Coordinate with utility company and service providers.
6. Wiring devices, lighting fixtures, lighting controls accessories.
7. Lighting and power panels.
8. Raceways and wire.
9. Emergency and exit lighting on all floors.
10. Wiring of mechanical , plumbing and sprinkler equipment.
11. Branch wiring for lighting, receptacles, and control wiring for all equipment furnished by others.
12. Conduits system for Tel/Data, security, and low voltage systems.
13. Miscellaneous low voltage systems. Tel/Data, Cable, Security, and other low voltage systems.
14. Intercommunication system.
15. .Fire alarm system/Sprinkler alarm and smoke detection system..

B. Related work specified elsewhere.

1. Temporary light and power.

2. Finished painting.

3. Supplying and setting motors, starters, variable frequency drives, etc.

4. Excavation and backfilling.

1.3 SUBMITTALS

A. All equipment and materials furnished under this Contract shall be subject to the approval of the Commissioner.

B. A list of manufacturer's catalogue or figure numbers for each such material as conduit, wire and cable, fittings, fuses, outlet boxes, wiring devices, etc., shall be submitted for approval prior to ordering or fabrication of these materials.

C. In addition, 1 print of shop drawings, giving dimensions, wiring diagrams, capacities, photometric data and other such pertinent data, shall be submitted for approval of the following:

1. Main distribution switchboard, metering equipment and arrangement, electrical room layout.

2. Lighting and power panelboards.

3. Lighting fixtures.

4. Wiring devices and device plates.

5. Sprinkler alarm and smoke detection system/Fire alarm devices.

D. Manufacturer's shop drawings will not be accepted for approval by the Engineer unless such shop drawings bear evidence of their having been fully checked for suitability by the Contractor.

1.4 COORDINATION

A. Each individual Contractor shall be held responsible for coordination of the project. The interface of work, timing, and coordination shall be fully thought out before a work stage is implemented. The coordination between trades is of paramount importance.

1.5 GROUNDING

A. Provide, as necessary to fulfill all electrical code authority requirements, all system grounding and all grounding and bonding of non-current carrying metal parts of electrical equipment.

1.6 TESTING

A. Before an application for final acceptance of the work will be considered, all tests deemed necessary to show proper execution of the work shall have been performed and completed in the presence of code enforcing authorities exercising jurisdiction over construction work at the project. Scheduling of all testing procedures shall be arranged to suit the convenience of the code enforcing authorities.

1.7 ELECTRICAL WORK AT SITE

A. The Contractor is required to furnish equipment consisting of a number of correlated electrical devices or appliances, mounted in a single enclosure, or on a common base, shall deliver this unit to the site of the work, complete with internal wiring and connections, terminal boxes and ample electrical leads, ready for connection and operation in the electrical system. 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 who furnished the unit, without cost to the City of New York.

1.8 COORDINATION OF ELECTRICAL WORK

A. Contractor shall keep in close touch with the construction progress and obtain the necessary information for the accurate placement of his work in ample time before building construction operation blocks his work. Each Contractor is urged to consult freely, the Contract Drawings, as well as approved equipment shop drawings on file. This will aid in avoiding interference, omissions and errors in the electrical installation.

1.9 WORK INCLUDED IN OTHER SECTIONS

A. The following items related to the electrical work shall not be considered as being part of the electrical contract. These items will be furnished by others and wired by electrical contractor. Motor starters will be furnished to electrical contractor for installation and wiring.

1. Furnishing motors, motor starters and motor actuating devices, not provide under the mechanical or elevator contract

1.10 SUPPORTS

A. Supporting methods for all electrical equipment and circuitry shall conform to the best practice and utilize only approved materials, and shall be in accordance with the standard published by the United States National Electrical Contractors Association and applicable NYC Codes as referenced in 260405.

1.11 FASTENINGS

A. All fastenings to attach electrical work to the building structure shall be of an approved type. In general, the only acceptable fastening methods shall be as follows:

1. Wood screws on wood.

2. Bolts and expansion shields on concrete or brick.

3. Toggle bolts on hollow masonry.

4. Machine screws, approved clamps, or welded threaded studs on steel.

1.12 MOUNTING HEIGHTS

A. Heights of wall-mounted outlets and equipment shall be in accordance with the following list (dimensions are above finished floor to the center line, unless otherwise noted.):

1.	Receptacle outlet in field Constructed wall or partition, Unless specified below. (Re-eptacle shall be vertically mounted.....	18 inches.
2.	Combination ground fault receptacles in bathroom above countertop splash back or sink rim.....	0'-6" to Centerline
3.	Receptacle outlet in mechanical spaces.....	4'-0"
4.	Lighting control/switch.....	4'-0"
5.	Individual motor starter.....	5'-0"
6.	Individual distribution system switch device (with or without over-current protection).....	5'-0"
7.	Light and power panelboard.....	6'-6" to centerline of highest overcurrent device.
8.	Telephone outlets	
	a. Walls except kitches.....	18 inches
	b. Kitchens.....	48 inches
9.	Exit light.....	bottom 3"

		above top of back.
10.	Bracket lighting outlet.....	as directed by Engineer
11.	Fire alarm horn/strobe.....	80" AFF or 6" below ceiling whichever is lower.
12.	Fire alarm pull station.....	48" AFF

B. All dimensions indicated on architectural drawings take precedence over the above list and shall be adhered to. Obtain Commissioner's approval to confirm dimensions prior to rough in.

1.13 PAINTING

A. Regardless of any assignment between trades for painting, the responsibility for the following is properly performed at no extra cost, shall be part of the electrical work.

1. All corroded, damaged or defaced surface, shop coats or finishes on items installed as part of the electrical work, regardless of by whom furnished, shall be properly cleaned and touched-up.

2. All channel or angle iron supporting racks shall be field painted with approved rust resistant paint.

PART 2 Products. (Not Used)

PART 3 Execution. (Not Used)

END OF SECTION

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SECTION 26 04 15 – BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes grounding electrodes and conductors; equipment grounding conductors; bonding methods and materials; conduit and equipment supports; anchors and fasteners; nameplates and labels; wire markers; raceway markers; underground warning tape; sealing and fireproofing of sleeves and openings between conduits, cable trays, wireways, troughs, cable bus, and bus duct.

1.2 REFERENCES

A. NECA (National Electrical Contractors Association) - Standard of Installation.

B. NETA ATS (International Electrical Testing Association) - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

C. National Electrical Code, New York City Amendments.

1.3 SYSTEM DESCRIPTION

A. Identify electrical components as follows:
1. Nameplate for each electrical distribution and control equipment enclosure.
2. Label for identification of individual wall switches and receptacles, control device stations.
3. Wire marker for each conductor at panelboard gutters; pull boxes, outlet and junction boxes, and each load connection.
4. Raceway marker for each raceway longer than 10 feet.
5. Underground warning tape along length of each underground raceway.

1.4 DESIGN REQUIREMENTS

A. Select materials, sizes, and types of anchors, fasteners, and supports to carry loads of equipment and raceway, including weight of wire and cable in raceway.

PART 2 PRODUCTS

2.1 NAMEPLATES AND LABELS

A. Nameplates: Engraved three-layer laminated plastic, black letters on white background.

B. Letter Size:
1. ¼" letters for identifying individual equipment and loads.
2. ¼" letters for identifying grouped equipment and loads.

C. Labels: Embossed adhesive tape, with 3/16 white letters on black background.

2.2 WIRE MARKERS

A. Description: Tubing type wire markers.

B. Legend:
1. Power and Lighting Circuits: Branch circuit or feeder number.

2.3 CONDUIT MARKERS

A. Description: Nameplate fastened with straps.

B. Color:
2. 208 Volt System: Black lettering on white background.
3. Fire Alarm System: Red lettering on white background.
4. Telecommunication, Audio Visual Security System; blue lettering on white background.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify final backfill and compaction has been completed before driving rod electrodes.

B. Verify abandoned wiring and equipment serve only abandoned facilities.

3.2 INSTALLATION

A. Identification Components:
5. Degrease and clean surfaces to receive nameplates and labels.
6. Install nameplate and label parallel to equipment lines.
7. Secure nameplate to equipment front using screws.
8. Secure nameplate to inside surface of door on recessed panelboard in finished locations.
9. Conduit Marker Spacing: 20" on center.
10. Identify underground conduits using one underground warning tape for each trench at 3 inches below finished grade.

3.3 FIELD QUALITY CONTROL

A. Inspect and test in accordance with NETA ATS, except Section 4.

B. Grounding and Bonding: Perform inspections and tests listed in NETA ATS, Section 7.13.

END OF SECTION

SECTION 26 05 03 - EQUIPMENT WIRING CONNECTIONS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes electrical connections to equipment.

B. Related Sections:
1. Section 26 05 19 - Low-Voltage Electrical Power Conductors and Cables.
2. Section 26 05 33 - Raceway and Boxes for Electrical Systems.

1.2 REFERENCES

A. National Electrical Manufacturers Association:
1. NEMA WD 1 - General Requirements for Wiring Devices.
2. NEMA WD 6 - Wiring Devices-Dimensional Requirements.

1.3 SUBMITTALS

A. See DDC General Conditions:

B. Product Data: Submit wiring device manufacturer's catalog information showing dimensions, configurations, and construction.

C. Manufacturer's installation instructions.

1.4 CLOSEOUT SUBMITTALS

A. See DDC General Conditions:.

B. Project Record Documents: Record actual locations, sizes, and configurations of equipment connections.

1.5 COORDINATION

A. See DDC General Conditions: -

B. Obtain and review shop drawings, product data, manufacturer's wiring diagrams, and manufacturer's instructions for equipment furnished under other sections.

C. Determine connection locations and requirements.

D. Sequence rough-in of electrical connections to coordinate with installation of equipment.

E. Sequence electrical connections to coordinate with start-up of equipment.

PART 2 PRODUCTS

2.1 CORD AND PLUGS

A. Attachment Plug Construction: Conform to NEMA WD 1.

B. Configuration: NEMA WD 6; match receptacle configuration at outlet furnished for equipment.

C. Cord Construction: Type SO multiconductor flexible cord with identified equipment grounding conductor, suitable for use in damp locations.

D. Size: Suitable for connected load of equipment, length of cord, and rating of branch circuit overcurrent protection.

PART 3 EXECUTION

3.1 EXAMINATION

A. See DDC General Conditions: -

B. Verify equipment is ready for electrical connection, for wiring, and to be energized.

3.2 EXISTING WORK

A. Remove exposed abandoned equipment wiring connections, including abandoned connections above accessible ceiling finishes.

B. Disconnect abandoned utilization equipment and remove wiring connections. Remove abandoned components when connected raceway is abandoned and removed. Install blank cover for abandoned boxes and enclosures not removed.

C. Extend existing equipment connections using materials and methods compatible with existing electrical installations, or as specified.

3.3 INSTALLATION

A. Make electrical connections.

B. Make conduit connections to equipment using flexible conduit. Use liquidtight flexible conduit with watertight connectors in damp or wet locations.

C. Connect heat producing equipment using wire and cable with insulation suitable for temperatures encountered.

D. Install receptacle outlet to accommodate connection with attachment plug.

E. Install cord and cap for field-supplied attachment plug.

F. Install suitable strain-relief clamps and fittings for cord connections at outlet boxes and equipment connection boxes.

G. Install disconnect switches, controllers, control stations, and control devices to complete equipment wiring requirements.

H. Install terminal block jumpers to complete equipment wiring requirements.

I. Install interconnecting conduit and wiring between devices and equipment to complete equipment wiring requirements.

J. Coolers and Freezers: Cut and seal conduit openings in freezer and cooler walls, floor, and ceilings.

3.4 ADJUSTING

A. See DDC General Conditions: -

B. Cooperate with utilization equipment installers and field service personnel during checkout and starting of equipment to allow testing and balancing and other startup operations. Provide personnel to operate electrical system and checkout wiring connection components and configurations.

END OF SECTION

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SECTION 26 05 19 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes building wire and cable; armored cable; metal clad cable; and wiring connectors and connections.

B. Related Sections:
1. Section 26 05 53 - Identification for Electrical Systems: Product requirements for wire identification.

1.2 REFERENCES

A. International Electrical Testing Association:
1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

B. National Fire Protection Association:
1. NFPA 70 - National Electrical Code.
2. NFPA 262 - Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air-Handling Spaces.

C. Underwriters Laboratories, Inc.:
1. UL 1277 - Standard for Safety for Electrical Power and Control Tray Cables with Optional Optical-Fiber Members.

1.3 SYSTEM DESCRIPTION

A. Product Requirements: Provide products as follows:
1. Solid conductor for feeders and branch circuits 10 AWG and smaller.
2. Stranded conductors for control circuits.
3. Conductor not smaller than 12 AWG for power and lighting circuits.
4. Conductor not smaller than 14 AWG for control circuits.
5. Increase wire size in branch circuits to limit voltage drop to a maximum of 3 percent.

B. Wiring Methods: Provide the following wiring methods:
1. Concealed Dry Interior Locations: Use only building wire, Type THHN/THWN insulation, in raceway, armored cable or metal clad cable.
2. Exposed Dry Interior Locations: Use only building wire, Type THHN/THWN insulation, in raceway.
3. Above Accessible Ceilings: Use only building wire, Type THHN/THWN insulation, in raceway, armored cable or metal clad cable.
4. Wet or Damp Interior Locations: Use only building wire, Type THHN/THWN insulation, in raceway
5. Exterior Locations: Use only building wire, Type THHN/THWN insulation, in raceway
6. Underground Locations: Use only building wire , Type THHN/THWN insulation, in raceway.

1.4 DESIGN REQUIREMENTS

A. Conductor sizes are based on copper.

1.5 SUBMITTALS

A. See DDC General Conditions:

B. Product Data: Submit for building wire and each cable assembly type.

C. Test Reports: Indicate procedures and values obtained.

1.6 CLOSEOUT SUBMITTALS

A. See DDC General Conditions:

B. Project Record Documents: Record actual locations of components and circuits.

1.7 QUALITY ASSURANCE

A. Provide wiring materials located in plenums with peak optical density not greater than 0.5, average optical density not greater than 0.15, and flame spread not greater than 5 feet (1.5 m) when tested in accordance with NFPA 262.

1.8 FIELD MEASUREMENTS

A. Verify field measurements are as indicated on Drawings.

1.9 COORDINATION

A. See DDC General Conditions:

B. Where wire and cable destination is indicated and routing is not shown, determine routing and lengths required.

C. Wire and cable routing indicated is approximate unless dimensioned.

PART 2 PRODUCTS

2.1 BUILDING WIRE

A. Manufacturers:
1. American Insulated Wire Corp.
2. General Cable Co.
3. Republic Wire.
4. Rome Cable.
5. Southwire.
6. Approved Equal

B. Product Description: Single conductor insulated wire.

C. Conductor: Copper.

D. Insulation Voltage Rating: 600 volts.

E. Insulation Temperature Rating: 75 degrees C.

F. Insulation Material: Thermoplastic

2.2 ARMORED CABLE

A. Manufacturers:
1. Diamond Wire & Cable Co.
2. Essex Group Inc.
3. General Cable Co.
4. Approved Equal

B. Conductor: Copper.

C. Insulation Voltage Rating: 600 volts.

D. Insulation Temperature Rating: 75 degrees C.

E. Insulation Material: Thermoplastic.

F. Armor Material: Steel.

G. Armor Design: Interlocked metal tape.

2.3 METAL CLAD CABLE

A. Manufacturers:
1. Diamond Wire & Cable Co.
2. Essex Group Inc.
3. General Cable Co.
4. Approved Equal.

B. Conductor: Copper.

C. Insulation Voltage Rating: 600 volts.

D. Insulation Temperature Rating: 75 degrees C.

E. Insulation Material: Thermoplastic.

F. Armor Material: Steel.

G. Armor Design: Interlocked metal tape.

H. Jacket: None.

2.4 WIRING CONNECTORS

A. Split Bolt Connectors:
1. Thomas and Belts.
2. Burndy
3. Blackburn
4. Approved Equal

B. Solderless Pressure Connectors:
1. Thomas and Belts.
2. Amphenol
3. Burndy
4. Approved Equal

C. Spring Wire Connectors:
1. Thomas and Belts.
2. Burndy
3. 3M
4. Approved Equal

D. Compression Connectors:
1. Thomas and Belts.
2. Burndy
3. 3M
4. Approved Equal

2.5 TERMINATIONS

A. Terminal Lugs for Wires 6 AWG and Smaller: Solderless, compression type copper.

B. Lugs for Wires 4 AWG and Larger: Color keyed, compression type copper, with insulating sealing collars.

PART 3 EXECUTION

3.1 EXAMINATION

A. DDC General Conditions: .

B. Verify interior of building has been protected from weather.

C. Verify mechanical work likely to damage wire and cable has been completed.

D. Verify raceway installation is complete and supported.

3.2 PREPARATION

A. Completely and thoroughly swab raceway before installing wire.

3.3 EXISTING WORK

A. Remove exposed abandoned wire and cable, including abandoned wire and cable above accessible ceiling finishes. Patch surfaces where removed cables pass through building finishes.

B. Disconnect abandoned circuits and remove circuit wire and cable. Remove abandoned boxes when wire and cable servicing boxes is abandoned and removed. Install blank cover for abandoned boxes not removed.

C. Provide access to existing wiring connections remaining active and requiring access. Modify installation or install access panel.

D. Extend existing circuits using materials and methods compatible with existing electrical installations, or as specified.

E. Clean and repair existing wire and cable remaining or wire and cable to be reinstalled.

3.4 INSTALLATION

A. Route wire and cable to meet Project conditions.

B. Neatly train and lace wiring inside boxes, equipment, and panelboards.

C. Identify wire and cable under provisions of Section 26 05 53. Identify each conductor with its circuit number or other designation indicated.

D. Special Techniques--Building Wire in Raceway:
1. Pull conductors into raceway at same time.
2. Install building wire 4 AWG and larger with pulling equipment.

E. Special Techniques - Cable:
1. Protect exposed cable from damage.
2. Support cables above accessible ceiling, using spring metal clips or metal cable ties to support cables from structure or ceiling suspension system. Do not rest cable on ceiling panels.
3. Use suitable cable fittings and connectors.

F. Special Techniques - Wiring Connections:
1. Clean conductor surfaces before installing lugs and connectors.
2. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.
3. Tape uninsulated conductors and connectors with electrical tape to 150 percent of insulation rating of conductor.
4. Install split bolt connectors for copper conductor splices and taps, 6 AWG and larger.
5. Install solderless pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller.
6. Install insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.

G. Install stranded conductors for branch circuits 10 AWG and smaller. Install crimp on fork terminals for device terminations. Do not place bare stranded conductors directly under screws.

H. Install terminal lugs on ends of 600 volt wires unless lugs are furnished on connected device, such as circuit breakers.

I. Size lugs in accordance with manufacturer's recommendations terminating wire sizes. Install 2-hole type lugs to connect wires 4 AWG and larger to copper bus bars.

J. For terminal lugs fastened together such as on motors, and other apparatus, or when space between studs is small enough that lugs can turn and touch each other, insulate for dielectric strength of 2-1/2 times normal potential of circuit.

3.5 WIRE COLOR

A. General:
   1. For wire sizes 10 AWG and smaller, install wire colors in accordance with the following:
      a. Black, red, and blue for circuits at 120/208 volts single or three phase.
   2. For wire sizes 8 AWG and larger, identify wire with colored tape at terminals, splices and boxes. Colors are as follows:
      a. Black, red, and blue for circuits at 120/208 volts single or three phase.

B. Neutral Conductors: White. When two or more neutrals are located in one conduit, individually identify each with proper circuit number.

C. Branch Circuit Conductors: Install three or four wire home runs with each phase uniquely color coded.

D. Feeder Circuit Conductors: Uniquely color code each phase.

E. Ground Conductors:
   1. For 6 AWG and smaller: Green.
   2. For 4 AWG and larger: Identify with green tape at both ends and visible points including junction boxes.

3.6 FIELD QUALITY CONTROL

A. See DDC General Conditions: -.

B. Inspect and test in accordance with NETA ATS, except Section 4.

C. Perform inspections and tests listed in NETA ATS, Section 7.3.1.

END OF SECTION

SECTION 26 05 26 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Wire.
   2. Mechanical connectors.

1.2 REFERENCES

A. Institute of Electrical and Electronics Engineers:
   1. IEEE 142 - Recommended Practice for Grounding of Industrial and Commercial Power Systems.
   2. IEEE 1100 - Recommended Practice for Powering and Grounding Electronic Equipment.

B. International Electrical Testing Association:
   1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

C. National Fire Protection Association:
   1. NFPA 70 - National Electrical Code.

1.3 CLOSEOUT SUBMITTALS

A. See DDC general conditions-.

PART 2 PRODUCTS

2.1 WIRE

A. Material: Stranded copper.

B. Bonding Conductor: Copper conductor insulated.

2.2 MECHANICAL CONNECTORS

A. Manufacturers:
   1. Erico, Inc.
   2. ILSCO Corporation.
   3. O-Z Gedney Co.
   4. Thomas & Betts, Electrical.
   5. Approved Equal

B. Description: Bronze connectors, suitable for grounding and bonding applications, in configurations required for particular installation.

PART 3 EXECUTION

3.1 PREPARATION

A. Remove paint, rust, surface contaminants at connection points

3.2 EXISTING WORK

A. Modify existing grounding system to maintain continuity to accommodate renovations.

B. Extend existing grounding system using materials and methods compatible with existing electrical installations, or as specified.

3.3 INSTALLATION

A. Install in accordance with IEEE 142.

B. Bond together each metallic raceway, pipe, duct and other metal object entering.

C. Equipment Grounding Conductor: Install separate, insulated conductor within each feeder and branch circuit raceway. Terminate each end on suitable lug, bus, or bushing.

D. Permanently ground entire light and power system in accordance with NEC, including service equipment, distribution panels, lighting panelboards, switch and starter enclosures, motor frames, grounding type receptacles, and other exposed non-current carrying metal parts of electrical equipment.

E. Install branch circuits feeding isolated ground receptacles with separate insulated grounding conductor, connected only at isolated ground receptacle, ground terminals, and at ground bus of serving panel.

F. Accomplish grounding of electrical system by using insulated grounding conductor installed with feeders and branch circuit conductors in conduits. Size grounding conductors in accordance with NEC. Install from grounding bus of serving panel to ground bus of served panel, grounding screw of receptacles, lighting fixture housing, light switch outlet boxes or metal enclosures of service equipment. Ground conduits by means of grounding bushings on terminations at panelboards with installed number 12 conductor to grounding bus.

G. Grounding electrical system using continuous metal raceway system enclosing circuit conductors in accordance with NEC.

H. Permanently attach equipment and grounding conductors prior to energizing equipment.

3.4 FIELD QUALITY CONTROL

A. See DDC general conditions-.

B. Inspect and test in accordance with NETA ATS, except Section 4.

C. Grounding and Bonding: Perform inspections and tests listed in NETA ATS, Section 7.13.

D. Perform continuity testing in accordance with IEEE 142.

E. When improper grounding is found on receptacles, check receptacles in entire project and correct. Perform retest.

END OF SECTION

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SECTION 26 05 29 - HANGERS AND SUPPORTS FOR ELECTRICAL/COMMUNICATION SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Conduit supports.
2. Formed steel channel.
3. Spring steel clips.
4. Sleeves.
5. Mechanical sleeve seals.
6. Firestopping relating to electrical work.
7. Firestopping accessories.
8. Equipment bases and supports.

B. Related Sections:
1. Section 03 30 00 - Cast-In-Place Concrete: Product requirements for concrete for placement by this section.
2. Section 26 05 29 - Hangers and Supports for Electrical Systems.

1.2 REFERENCES

A. National Fire Protection Association:
1. NFPA 70 - National Electrical Code.

B. Underwriters Laboratories Inc.:
1. UL 263 - Fire Tests of Building Construction and Materials.
2. UL 723 - Tests for Surface Burning Characteristics of Building Materials.
3. UL 1479 - Fire Tests of Through-Penetration Firestops.
4. UL 2079 - Tests for Fire Resistance of Building Joint Systems.
5. UL - Fire Resistance Directory.

1.3 DEFINITIONS

A. Firestopping (Through-Penetration Protection System): Sealing or stuffing material or assembly placed in spaces between and penetrations through building materials to arrest movement of fire, smoke, heat, and hot gases through fire rated construction.

1.4 SYSTEM DESCRIPTION

A. Firestopping Materials: UL 263, UL 1479 to achieve fire ratings as noted on Drawings for adjacent construction, but not less than 1 hour fire rating.
1. Ratings may be 3-hours for firestopping in through-penetrations of 4-hour fire rated assemblies unless otherwise required by applicable codes.

B. Surface Burning: UL 723 with maximum flame spread / smoke developed rating of 25/450.

C. Firestop interruptions to fire rated assemblies, materials, and components.

1.5 PERFORMANCE REQUIREMENTS

A. Firestopping:

1. Conform to applicable code for fire resistance ratings and surface burning characteristics.

2.Firestopping: Provide certificate of compliance from authority having jurisdiction indicating approval of materials used.

1.6 SUBMITTALS

A. See DDC General Conditions:

B. Shop Drawings: Indicate system layout with location and detail of trapeze hangers.

C. Product Data:
1. Hangers and Supports: Submit manufacturers catalog data including load capacity.
2. Firestopping: Submit data on product characteristics, performance and limitation criteria.

D. Firestopping Schedule: Submit schedule of opening locations and sizes, penetrating items, and required listed design numbers to seal openings to maintain fire resistance rating of adjacent assembly.

E. Design Data: Indicate load carrying capacity of hangers and supports.

F. Manufacturer's Installation Instructions:
1. Hangers and Supports: Submit special procedures and assembly of components.
2. Firestopping: Submit preparation and installation instructions.

G. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

H. Engineering Judgements: For conditions not covered by UL listed designs, submit judgements by licensed professional engineer suitable for presentation to authority having jurisdiction for acceptance as meeting code fire protection requirements.

1.7 QUALITY ASSURANCE

A. Through Penetration Firestopping of Fire Rated Assemblies: UL 1479 with 0.10 inch water gage minimum positive pressure differential to achieve fire F-Ratings and temperature T-Ratings as indicated on Drawings, but not less than 1-hour.
1. Wall Penetrations: Fire F-Ratings as indicated on Drawings, but not less than 1-hour.
2. Floor and Roof Penetrations: Fire F-Ratings and temperature T-Ratings as indicated on Drawings, but not less than 1-hour.
a. Floor Penetrations Within Wall Cavities: T-Rating is not required.

B. Through Penetration Firestopping of Non-Fire Rated Floor and Roof Assemblies: Materials to resist free passage of flame and products of combustion.
1. Noncombustible Penetrating Items: Noncombustible materials for penetrating items connecting maximum of three stories.

2. Penetrating Items: Materials approved by authorities having jurisdiction for penetrating items connecting maximum of two stories.

C. Fire Resistant Joints in Fire Rated Floor, Roof, and Wall Assemblies: UL 2079 to achieve fire resistant rating as indicated on Drawings for assembly in which joint is installed.

D. Surface Burning Characteristics: 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

1.8 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions:

B. Accept materials on site in original factory packaging, labeled with manufacturer's identification.

C. Protect from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original packaging.

1.9 ENVIRONMENTAL REQUIREMENTS

A. See DDC General Conditions: -

B. Do not apply firestopping materials when temperature of substrate material and ambient air is below 60 degrees F.

C. Maintain this minimum temperature before, during, and for minimum 3 days after installation of firestopping materials.

PART 2 PRODUCTS

2.1 CONDUIT SUPPORTS

A. Manufacturers:
1. Allied Tube & Conduit Corp.
2. O-Z Gedney Co.
3. Cooper B-Line Industries
4. Approved Equal.

B. Hanger Rods: Threaded high tensile strength galvanized carbon steel with free running threads.

C. Beam Clamps: Malleable Iron, with tapered hole in base and back to accept either bolt or hanger rod. Set screw: hardened steel.

D. Conduit clamps for trapeze hangers: Galvanized steel, notched to fit trapeze with single bolt to tighten.

E. Conduit clamps - general purpose: One hole malleable iron for surface mounted conduits.

F. Cable Ties: High strength nylon temperature rated to 185 degrees F (85 degrees C). Self locking.

2.2 FORMED STEEL CHANNEL

A. Manufacturers:
1. Allied Tube & Conduit Corp.
2. B-Line Systems
3. Midland Ross Corporation, Electrical Products Division
4. Unistrut Corp.
5. Approved Equal.

B. Product Description: Galvanized 12 gage (2.8 mm) thick steel. With holes 1-1/2 inches (38 mm) on center.

2.3 SPRING STEEL CLIPS

A. Manufacturers:
1. Thomas & Betts
2. Marine CO electric
3. Midland Ross Corp.
4. Approved Equal

B. Product Description: Mounting hole and screw closure.

2.4 SLEEVES

A. Sleeves for Through Non-fire Rated Floors: 18 gage thick galvanized steel.

B. Sleeves for Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Steel pipe or 18 gage thick galvanized steel.

C. Sleeves for power and communication raceways, Through Fire Rated and Fire Resistive Floors and Walls, and Fire Proofing: Prefabricated fire rated sleeves including seals, UL listed.

D. Fire-stopping Insulation: Glass fiber type, non-combustible.

2.5 MECHANICAL SLEEVE SEALS

A. Manufacturers:
1. Thunderline Link-Seal, Inc.
2. Pikotek Link Seals
3. Cortex Link Seals
4. Approved equal

2.6 FIRESTOPPING

A. Manufacturers:
1. Dow Corning Corp.
2. Hilti Corp.
3. 3M fire Protection Products
4. Approved equal.

4. Approved equal.

B. Product Description: Different types of products by multiple manufacturers are acceptable as required to meet specified system description and performance requirements; provide only one type for each similar application.
1. Silicone Firestopping Elastomeric Firestopping: Singlecomponent silicone elastomeric compound and compatible silicone sealant.
2. Foam Firestopping Compounds: Single component foam compound.
3. Formulated Firestopping Compound of Incombustible Fibers: Formulated compound mixed with incombustible non-asbestos fibers.
4. Fiber Stuffing and Sealant Firestopping: Composite of mineral fiber stuffing insulation with silicone elastomer for smoke stopping.
5. Mechanical Firestopping Device with Fillers: Mechanical device with incombustible fillers and silicone elastomer, covered with sheet stainless steel jacket, joined with collars, penetration sealed with flanged stops.
6. Intumescent Firestopping: Intumescent putty compound which expands on exposure to surface heat gain.
7. Firestop Pillows: Formed mineral fiber pillows.

C. Color: Dark gray.

2.7 FIRESTOPPING ACCESSORIES

A. Primer: Type recommended by firestopping manufacturer for specific substrate surfaces and suitable for required fire ratings.

B. Dam Material: Permanent:
1. Mineral fiberboard.
2. Mineral fiber matting.
3. Sheet metal.
4. Plywood or particle board.
5. Alumina silicate fire board.

C. Installation Accessories: Provide clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.

D. General:
1. Furnish UL listed products.
2. Select products with rating not less than rating of wall or floor being penetrated.

E. Non-Rated Surfaces:
1. Stamped steel, chrome plated, hinged, split ring escutcheons or floor plates or ceiling plates for covering openings in occupied areas where conduit is exposed.
2. For exterior wall openings below grade, furnish modular mechanical type seal consisting of interlocking synthetic rubber links shaped to continuously fill annular space between conduit and cored opening or water-stop type wall sleeve.

PART 3 EXECUTION

3.1 EXAMINATION

A. See DDC general conditions-.

B. Verify openings are ready to receive sleeves.

C. Verify openings are ready to receive firestopping.

3.2 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter affecting bond of firestopping material.

B. Remove incompatible materials affecting bond.

C. Install backing materials to arrest liquid material leakage.

D. Do not drill or cut structural members.

3.3 INSTALLATION - HANGERS AND SUPPORTS

A. Anchors and Fasteners:
1. Concrete Structural Elements: Provide precast inserts, expansion anchors, powder actuated anchors and preset inserts.
2. Steel Structural Elements: Provide beam clamps, spring steel clips, steel ramset fasteners, and welded fasteners.
3. Concrete Surfaces: Provide self-drilling anchors and expansion anchors.
4. Hollow Masonry, Plaster, and Gypsum Board Partitions: Provide toggle bolts and hollow wall fasteners.
5. Solid Masonry Walls: Provide expansion anchors and preset inserts.
6. Sheet Metal: Provide sheet metal screws.
7. Wood Elements: Provide wood screws.

B. Inserts:
1. Install inserts for placement in concrete forms.
2. Install inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.
3. Provide hooked rod to concrete reinforcement section for inserts carrying pipe over 4 inches (100 mm).
4. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.
5. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut flush with top of slab.

C. Install conduit and raceway support and spacing in accordance with NEC.

D. Do not fasten supports to pipes, ducts, mechanical equipment, or conduit.

E. Install multiple conduit runs on common hangers.

F. Supports:
1. Fabricate supports from structural steel or formed steel channel. Install hexagon head bolts to present neat appearance with adequate strength and rigidity. Install spring lock washers under nuts.
2. Install surface mounted cabinets and panelboards with minimum of four anchors.
3. In wet and damp locations install steel channel supports to stand cabinets and panelboards 1 inch (25 mm) off wall.
4. Support vertical conduit at every other floor.

3.4 INSTALLATION - FIRESTOPPING

A. Install material at fire rated construction perimeters and openings containing penetrating sleeves, piping, ductwork, conduit and other items, requiring firestopping.

B. Apply primer where recommended by manufacturer for type of firestopping material and substrate involved, and as required for compliance with required fire ratings.

C. Apply firestopping material in sufficient thickness to achieve required fire and smoke rating, to uniform density and texture.

D. Place foamed material in layers to ensure homogenous density, filling cavities and spaces. Place sealant to completely seal junctions with adjacent dissimilar materials.

E. Remove dam material after firestopping material has cured. Dam material to remain.

F. Fire Rated Surface:
1. Seal opening at floor, wall, partition, ceiling, and roof as follows:
   a. Install sleeve through opening and extending beyond minimum of 1 inch (25 mm) on both sides of building element.
   b. Size sleeve allowing minimum of 1 inch (25 mm) void between sleeve and building element.
   c. Pack void with backing material.
   d. Seal ends of sleeve with UL listed fire resistive silicone compound to meet fire rating of structure penetrated.
2. Where conduit, and wireway, penetrates fire rated surface, install firestopping product in accordance with manufacturer's instructions.

G. Non-Rated Surfaces:
1. Seal opening through non-fire rated wall, partition floor and ceiling as follows:
   a. Install sleeve through opening and extending beyond minimum of 1 inch (25 mm) on both sides of building element.
   b. Size sleeve allowing minimum of 1 inch (25 mm) void between sleeve and building element.
   c. Install type of firestopping material recommended by manufacturer.
2. Install escutcheons floor plates or ceiling plates where conduit, penetrates non-fire rated surfaces in occupied spaces. Occupied spaces include rooms with finished ceilings and where penetration occurs below finished ceiling.
3. Exterior wall openings below grade: Assemble rubber links of mechanical seal to size of conduit and tighten in place, in accordance with manufacturer's instructions.
4. Interior partitions: Seal pipe penetrations at rooms. Apply sealant to both sides of penetration to completely fill annular space between sleeve and conduit.

3.5 INSTALLATION - SLEEVES

A. Exterior watertight entries: Seal with adjustable interlocking rubber links.

B. Conduit penetrations not required to be watertight: Sleeve and fill with silicon foam.

C. Set sleeves in position in forms. Provide reinforcing around sleeves.

D. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

E. Extend sleeves through floors 1inch above finished floor level. Caulk sleeves.

F. Where conduit or raceway penetrates floor, ceiling, or wall, close off space between conduit or raceway and adjacent work with fire stopping insulation and caulk airtight. Provide close fitting metal collar or escutcheon covers at both sides of penetration.

G. Install chrome plated steel or stainless steel escutcheons at finished surfaces.

3.6 FIELD QUALITY CONTROL

A. See DDC general conditions-.

B. Inspect installed firestopping for compliance with specifications and submitted schedule.

3.7 CLEANING

A. See DDC general conditions-.

B. Clean adjacent surfaces of firestopping materials.

3.8 PROTECTION OF FINISHED WORK

A. See DDC general conditions-.

B. Protect adjacent surfaces from damage by material installation.

END OF SECTION

SECTION 26 05 33 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes conduit and tubing, surface raceways, wireways, outlet boxes, pull and junction boxes, and handholes.

B. Related Sections:
1. Section 26 05 03 - Equipment Wiring Connections.
2. Section 26 05 26 - Grounding and Bonding for Electrical Systems.
3. Section 26 05 29 - Hangers and Supports for Electrical Systems.
4. Section 26 05 34 - Floor Boxes for Electrical Systems.
5. Section 26 05 53 - Identification for Electrical Systems.
6. Section 26 27 16 - Electrical Cabinets and Enclosures.
7. Section 26 27 26 - Wiring Devices.

1.2 REFERENCES

A. American National Standards Institute:
1. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated.
2. ANSI C80.3 - Specification for Electrical Metallic Tubing, Zinc Coated.

B. National Electrical Manufacturers Association:
1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
2. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.
3. NEMA OS 1 - Sheet Steel Outlet Boxes, Device Boxes, Covers, and Box Supports.

1.3 SYSTEM DESCRIPTION

A. Raceway and boxes located as indicated on Drawings, and at other locations required for splices, taps, wire pulling, equipment connections, and compliance with regulatory requirements. Raceway and boxes are shown in approximate locations unless dimensioned. Provide raceway to complete wiring system.

B. In or Under Slab on Grade: Provide rigid steel conduit or intermediate metal conduit. Provide cast or nonmetallic metal boxes.

C. Outdoor Locations, Above Grade: Provide rigid steel conduit and intermediate metal conduit. Provide cast metal, pull, and junction boxes.

D. In Slab Above Grade: Provide rigid steel conduit, intermediate metal conduit and electrical metallic tubing. Provide cast sheet metal boxes.

E. Wet and Damp Locations: Provide rigid steel, intermediate metal conduit and electrical metallic tubing. Provide cast metal, junction, and pull boxes. Provide flush mounting outlet box in finished areas.

F. Concealed Dry Locations: Provide rigid steel conduit, intermediate metal conduit and electrical metallic tubing. Provide sheet-metal boxes. Provide flush mounting outlet box in finished areas. Provide hinged enclosure for large pull boxes.

G. Exposed Dry Locations: Provide rigid steel conduit, intermediate metal conduit and electrical metallic. Provide sheet-metal boxes. Provide flush mounting outlet box in finished areas. Provide hinged enclosure for large pull boxes.

1.4 DESIGN REQUIREMENTS

A. Minimum Raceway Size: 3/4 inch unless otherwise specified.

1.5 SUBMITTALS

A. See DDC General Conditions:

B. Product Data: Submit for the following:
1. Flexible metal conduit.
2. Liquidtight flexible metal conduit.
3. Raceway fittings.
4. Conduit bodies.
5. Surface raceway.
6. Wireway.
7. Pull and junction boxes.

1.6 CLOSEOUT SUBMITTALS

A. See DDC General Conditions: .

1.7 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions: -

B. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

1.8 COORDINATION

A. SeeDDC General Conditions: -.

B. Coordinate installation of outlet boxes for equipment connected under Section 26 05 03.

C. Coordinate mounting heights, orientation and locations of outlets mounted above counters, benches, and backsplashes.

PART 2 PRODUCTS

2.1 METAL CONDUIT

A. Manufacturers:
1. Carlon Electrical Products

2. Thomas & Betts Corp.
3. Walker Systems Inc.
4. Approved Equal.

B. Rigid Steel Conduit: ANSI C80.1.

C. Intermediate Metal Conduit (IMC): Rigid steel.

D. Fittings and Conduit Bodies: NEMA FB 1; material to match conduit all steel fittings.

2.2 FLEXIBLE METAL CONDUIT

A. Manufacturers:
1. Carlon Electrical Products
2. Thomas & Betts Corp.
3. Walker Systems Inc.
4. Approved Equal.

B. Product Description: Interlocked steel construction.

C. Fittings: NEMA FB 1.

2.3 LIQUIDTIGHT FLEXIBLE METAL CONDUIT

A. Manufacturers:
1. Carlon Electrical Products
2. Thomas & Betts Corp.
3. Walker Systems Inc.
4. Approved Equal.

B. Product Description: Interlocked steel construction with PVC jacket.

C. Fittings: NEMA FB 1.

2.4 ELECTRICAL METALLIC TUBING (EMT)

A. Manufacturers:
1. Carlon Electrical Products
2. Thomas & Betts Corp.
3. Walker Systems Inc.
4. Approved Equal.

B. Product Description: ANSI C80.3; galvanized tubing.

C. Fittings and Conduit Bodies: NEMA FB 1; steel or malleable iron, set screw type.

2.5 SURFACE METAL RACEWAY

A. Manufacturers:
1. Carlon Electrical Products
2. Hubbell Wiring Devices
3. Thomas & Betts Corp.

4. Walker Systems Inc.
5. The Wiremold Co.
6. Approved Equal.

B. Product Description: Sheet metal channel with fitted cover, suitable for use as surface metal raceway.

C. Size: As indicated

D. Finish: Gray or as directed by Commissioner.

E. Fittings, Boxes, and Extension Rings: Furnish manufacturer's standard accessories; match finish on raceway.

2.6 WIREWAY

A. Manufacturers:
1. Carlon Electrical Products
2. Hubbell Wiring Devices
3. Thomas & Betts Corp.
4. Walker Systems Inc.
5. The Wiremold Co.
6. Approved Equal.

B. Product Description: General purpose type wireway.

C. Knockouts: None

D. Size: length as indicated on Drawings.

E. Cover: Screw cover

F. Connector: Slip-in

G. Fittings: Lay-in type with removable top, bottom, and side; captive screws.

H. Finish: Rust inhibiting primer coating with gray enamel finish.

2.7 OUTLET BOXES

A. Manufacturers:
1. Carlon Electrical Products
2. Thomas & Betts Corp.
3. Approved Equal.

B. Sheet Metal Outlet Boxes: NEMA OS 1, galvanized steel.
1. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; furnish 1/2 inch (13 mm) male fixture studs where required.
2. Concrete Ceiling Boxes: Concrete type.

C. Cast Boxes: NEMA FB 1, Type FD, aluminum cast feralloy. Furnish gasketed cover by box manufacturer. Furnish threaded hubs.

D. Wall Plates for Finished Areas: As specified in Section 26 27 26.

E. Wall Plates for Unfinished Areas: Furnish gasketed cover.

2.8 PULL AND JUNCTION BOXES

A. Manufacturers:
1. Carlon Electrical Products
2. Thomas & Betts Corp.
3. Hoffman.

B. Sheet Metal Boxes: NEMA OS 1, galvanized steel.

C. Hinged Enclosures: As specified in Section 26 27 16.

D. Surface Mounted Cast Metal Box: NEMA 250, Type 4X; flat-flanged, surface mounted junction box:
1. Material: Galvanized cast iron.
2. Cover: Furnish with ground flange, neoprene gasket, and stainless steel cover screws.

E. In-Ground Cast Metal Box: NEMA 250, Type 6, outside flanged, recessed cover box for flush mounting:
1. Material: Galvanized cast iron.
2. Cover: Smooth cover with neoprene gasket and stainless steel cover screws.

PART 3 EXECUTION

3.1 EXAMINATION

A. See DDC General Conditions:

B. Verify outlet locations and routing and termination locations of raceway prior to rough-in.

3.2 EXISTING WORK

A. Remove exposed abandoned raceway, including abandoned raceway above accessible ceiling finishes. Cut raceway flush with walls and floors, and patch surfaces.

B. Remove concealed abandoned raceway to its source.

C. Disconnect abandoned outlets and remove devices. Remove abandoned outlets when raceway is abandoned and removed. Install blank cover for abandoned outlets not removed.

D. Maintain access to existing boxes and other installations remaining active and requiring access. Modify installation or provide access panel.

E. Extend existing raceway and box installations using materials and methods compatible with existing electrical installations, or as specified.

F. Clean and repair existing raceway and boxes to remain or to be reinstalled.

3.3 INSTALLATION

A. Ground and bond raceway and boxes in accordance with Section 26 05 26.

B. Fasten raceway and box supports to structure and finishes in accordance with Section 26 05 29.

C. Identify raceway and boxes in accordance with Section 26 05 53.

D. Arrange raceway and boxes to maintain headroom and present neat appearance.

3.4 INSTALLATION - RACEWAY

A. Raceway routing is shown in approximate locations unless dimensioned. Route to complete wiring system.

B. Arrange raceway supports to prevent misalignment during wiring installation.

C. Support raceway using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.

D. Group related raceway; support using conduit rack. Construct rack using steel channel specified in Section 26 05 29.

E. Do not support raceway with wire or perforated pipe straps. Remove wire used for temporary supports

F. Do not attach raceway to ceiling support wires or other piping systems.

G. Construct wireway supports from steel channel specified in Section 26 05 29.

H. Route exposed raceway parallel and perpendicular to walls.

I. Route raceway installed above accessible ceilings parallel and perpendicular to walls.

J. Route conduit in and under slab from point-to-point.

K. Maximum Size Conduit in Slab Above Grade: 3/4 inch. Do not cross conduits in slab.

L. Maintain clearance between raceway and piping for maintenance purposes.

M. Maintain 12 inch clearance between raceway and surfaces with temperatures exceeding 104 degrees F.

N. Cut conduit square using saw or pipe cutter; de-burr cut ends.

O. Bring conduit to shoulder of fittings; fasten securely.

P. Install conduit hubs or sealing locknuts to fasten conduit to sheet metal boxes in damp and wet locations and to cast boxes.

Q. Install no more than equivalent of three 90 degree bends between boxes. Install conduit bodies to make sharp changes in direction, as around beams. Install hydraulic one-shot bender to fabricate bends in metal conduit larger than 2 inch size.

R. Avoid moisture traps; install junction box with drain fitting at low points in conduit system.

S. Install fittings to accommodate expansion and deflection where raceway crosses seismic and expansion joints.

T. Install suitable pull string or cord in each empty raceway except sleeves and nipples.

U. Install suitable caps to protect installed conduit against entrance of dirt and moisture.

V. Surface Raceway: Install flat-head screws, clips, and straps to fasten raceway channel to surfaces; mount plumb and level. Install insulating bushings and inserts at connections to outlets and corner fittings.

W. Close ends and unused openings in wireway.

3.5 INSTALLATION - BOXES

A. Install wall mounted boxes at elevations to accommodate mounting heights as indicated on Drawings.

B. Orient boxes to accommodate wiring devices oriented as specified in Section 26 27 26.

C. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.

D. In Accessible Ceiling Areas: Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed luminaire.

E. Locate flush mounting box in masonry wall to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat opening.

F. Do not install flush mounting box back-to-back in walls; install with minimum 6 inches separation. Install with minimum 24 inches separation in acoustic rated walls.

G. Secure flush mounting box to interior wall and partition studs. Accurately position to allow for surface finish thickness.

H. Install stamped steel bridges to fasten flush mounting outlet box between studs.

I. Install flush mounting box without damaging wall insulation or reducing its effectiveness.

J. Install adjustable steel channel fasteners for hung ceiling outlet box.

K. Do not fasten boxes to ceiling support wires or other piping systems.

L. Support boxes independently of conduit.

M. Install gang box where more than one device is mounted together. Do not use sectional box.

N. Install gang box with plaster ring for single device outlets.

3.6 INTERFACE WITH OTHER PRODUCTS

A. Install conduit to preserve fire resistance rating of partitions and other elements, using materials and methods in accordance with Section 07 84 00.

B. Route conduit through roof openings for piping and ductwork or through suitable roof jack with pitch pocket.

C. Locate outlet boxes to allow luminaires positioned as indicated on reflected ceiling plan.

D. Align adjacent wall mounted outlet boxes for switches, thermostats, and similar devices.

3.7 ADJUSTING

A. See DDC General Conditions: -

B. Adjust flush-mounting outlets to make front flush with finished wall material.

C. Install knockout closures in unused openings in boxes.

3.8 CLEANING

A. SeeDDC General Conditions: .

B. Clean interior of boxes to remove dust, debris, and other material.

C. Clean exposed surfaces and restore finish.

END OF SECTION

SECTION 26 05 34 - FLOOR BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes floor boxes; floor box service fittings; poke-through fittings; and access floor boxes.

B. Related Sections:
1. Section 07 84 13 – Penetration Firestopping: Firestopping for electrical work.
2. Section 26 05 29 - Hangers and Supports for Electrical Systems:
3. Section 26 05 33 - Raceway and Boxes for Electrical Systems.
4. Section 26 27 26 - Wiring Devices: Receptacles for installation in floor boxes.

1.2 REFERENCES

A. National Electrical Manufacturers Association:
1. NEMA OS 1 - Sheet Steel Outlet Boxes, Device Boxes, Covers, and Box Supports.

1.3 SUBMITTALS

A. SeeDDC General Conditons:

B. Product Data: Submit catalog data for floor boxes service fittings.

C. Samples: Submit two of each service fitting illustrating size, material, configuration, and finish.

1.4 CLOSEOUT SUBMITTALS

A. See DDC General Conditions:

B. Project Record Documents: Record actual locations of each floor box and poke-through fitting.

PART 2 PRODUCTS

2.1 FLOOR BOXES

A. Manufacturers:
1. Square 'D'.
2. Hubbell Co.
3. Raceway Components.
4. Approved Equal

B. Floor Boxes: NEMA OS 1, 1-1/2 inches deep.

C. Adjustability: Fully adjustable.

D. Material: Formed steel.

E. Shape: Rectangular.

2.2 PEDESTAL-TYPE CONVENIENCE OUTLET SERVICE FITTING

A. Manufacturers:
1. Square 'D'.
2. Hubbell Co.
3. Raceway Components.
4. Approved Equal

B. Housing: Satin aluminum.

C. Device Plate: Stainless steel.

D. Configuration: As indicated on drawing.

2.3 FLUSH-COVER-TYPE CONVENIENCE RECEPTACLE SERVICE FITTING

A. Manufacturers:
1. Square 'D'.
2. Hubbell Co.
3. Raceway Components.
4. Approved Equal

B. Material: Aluminum.

C. Configuration: Duplex flap opening.

2.4 PEDESTAL-TYPE COMMUNICATION OUTLET

A. Manufacturers:
1. Square 'D'.
2. Hubbell Co.
3. Raceway Components.
4. Approved Equal

B. Housing: Satin aluminum.

C. Device Plate: Stainless steel.

D. Configuration: As indicated on drawing.

2.5 FLUSH-COVER-TYPE COMMUNICATION OUTLET

A. Manufacturers:
1. Square 'D'.
2. Hubbell Co.
3. Raceway Components.
4. Approved Equal

B. Material: Aluminum.

C. Configuration: 2-1/8 x 1 inch combination threaded opening.

2.6 PEDESTAL-TYPE COMBINATION FITTING

A. Manufacturers:
1. Square 'D'.
2. Hubbell Co.
3. Raceway Components.
4. Approved Equal

B. Housing: Satin aluminum.

C. Device Plate: Stainless steel.

D. Configuration: One duplex convenience receptacle with one bushed opening, 1 inch inside diameter.

2.7 FLUSH-COVER-TYPE COMBINATION FITTING

A. Manufacturers:
1. Square 'D'.
2. Hubbell Co.
3. Raceway Components.
4. Approved Equal

B. Material: Aluminum.

C. Configuration: Duplex flap opening with 2-1/8 x 1 inch combination threaded opening.

2.8 FLUSH-COVER-SERVICE FITTING ACCESSORIES

A. Manufacturers:
1. Square 'D'.
2. Hubbell Co.
3. Raceway Components.
4. Approved Equal

B. Protective Ring: Brassfinish.

C. Split Nozzle: Brass finish.

D. Carpet Ring: Brass.

2.9 POKE-THROUGH FITTINGS

A. Manufacturers:
1. Square 'D'.
2. Hubbell Co.
3. Raceway Components.
4. Approved Equal

B. Product Description: Assembly comprising service fitting, poke-through component, fire stops and smoke barriers, and junction box for conduit termination.

C. Fire Rating: 3 hours.

D. Service Fitting Type: Pedestal.

E. Housing: Satin aluminum.

F. Device Plate: Stainless steel.

G. Configuration: One duplex and one communications outlet as indicated on drawing.

PART 3 EXECUTION

3.1 EXAMINATION

A. See DDC General Conditions:

B. Verify locations of floor boxes and outlets in offices, and work areas prior to rough-in.

3.2 EXISTING WORK

A. Disconnect abandoned service fitting devices and remove service fittings. Install blank cover for abandoned floor boxes not removed.

B. Maintain access to existing floor boxes remaining active and requiring access. Modify installation or provide access panel.

C. Extend existing service fitting installations using materials and methods compatible with existing electrical installations, or as specified.

D. Clean and repair existing service fittings to remain or to be reinstalled.

3.3 INSTALLATION

A. Boxes and fittings are indicated on Drawings in approximate locations unless dimensioned. Adjust box location up to 10 feet to accommodate intended purpose.

B. Floor Box Requirements: Use cast floor boxes for installations in slab on grade; formed steel boxes are acceptable for other installations.

C. Set floor boxes level.

D. Install boxes and fittings to preserve fire resistance rating of slabs and other elements, using materials and methods specified in Section 07 84 00, 26 05 29.

3.4 ADJUSTING

A. See DDC General Conditions: .

B. Adjust floor box flush with finish flooring material.

3.5 CLEANING

A. See DDC General Conditions: .

B. Clean interior of boxes to remove dust, debris, and other material.

END OF SECTION

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SECTION 26 05 53

IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Nameplates.
   2. Labels.

B. Related Sections:
   1. Section 09 91 00 - Painting: Execution requirements for painting specified by this section.

1.2 SUBMITTALS

A. See DDC General Conditions:

B. Product Data:
   1. Submit manufacturer's catalog literature for each product required.
   2. Submit electrical identification schedule including list of wording, symbols, letter size, color coding, tag number, location, and function.

C. Manufacturer's Installation Instructions: Indicate installation instructions, special procedures, and installation.

1.3 CLOSEOUT SUBMITTALS

A. See DDC General Conditions: -

B. Project Record Documents: Record actual locations of tagged devices; include tag numbers.

1.4 DELIVERY, STORAGE, AND HANDLING

A. See DDC General Conditions:

B. Accept identification products on site in original containers. Inspect for damage.

C. Accept materials on site in original factory packaging, labeled with manufacturer's identification, including product density and thickness.

D. Protect insulation from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original wrapping.

PART 2 PRODUCTS

2.1 NAMEPLATES

A. Product Description: Laminated three-layer plastic with engraved black letters on white contrasting background color.

B. Letter Size:
1. 1/8 inch high letters for identifying individual equipment and loads.
2. 1/4 inch high letters for identifying grouped equipment and loads.

C. Minimum nameplate thickness: 1/8 inch.

2.2 LABELS

A. Labels: Embossed adhesive tape, with 3/16 inch white letters on black background.

PART 3 EXECUTION

3.1 PREPARATION

A. Degrease and clean surfaces to receive adhesive for identification materials.

3.2 EXISTING WORK

A. Install identification on existing equipment to remain in accordance with this section.

B. Install identification on unmarked existing equipment.

C. Replace lost nameplates and labels.

D. Re-stencil existing equipment.

3.3 INSTALLATION

A. Install identifying devices after completion of painting.

B. Nameplate Installation:
1. Install nameplate parallel to equipment lines.
2. Install nameplate for each electrical distribution and control equipment enclosure with corrosive-resistant mechanical fasteners, or adhesive.
3. Install nameplates for each control panel and major control components located outside panel with corrosive-resistant mechanical fasteners, or adhesive.
4. Secure nameplate to equipment front using adhesive.
5. Secure nameplate to inside surface of door on recessed panelboard in finished locations.
6. Install nameplates for the following:
   a. Panelboards.
   b. Service Disconnects.

C. Label Installation:

1. Install label parallel to equipment lines.
2. Install label for identification of individual control device stations.
3. Install labels for permanent adhesion and seal with clear lacquer.

END OF SECTION

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SECTION 260800 - COMMISSIONING OF ELECTRICAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this section.

B. The OPR and BOD documentation are included by reference for information only.

C. Division 01 section 'LEED Requirements' for additional LEED requirements.

1.2 SUMMARY

A. This section includes commissioning process requirements for Electrical systems, assemblies, and equipment.

B. Related Sections:

1. Division 01 Section "General Commissioning Requirements" for general commissioning process requirements.

1.3 DESCRIPTION

A. Commissioning: Commissioning is a systematic process of ensuring that all building systems, including the mechanical and electrical systems, have been installed in the prescribed manner, are functionally checked and capable of being operated and maintained to perform with the design intent and have documentation to support proper installation and operation. The Commissioning Agent (CxA) shall provide the City with an unbiased, objective view of the system's installation, operation and performance. This process does not eliminate or reduce the responsibility of each system designer to provide a complete design or installing subcontractors to provide a finished product. Commissioning is intended to enhance the quality of each system installation, startup and transfer to beneficial use by the City.

B. Commissioning during the construction phase is intended to achieve the following specific objectives, according to the Contract Documents:

1. Verify that applicable equipment and systems are installed according to the manufacturer's recommendations and to industry accepted minimum standards and that they receive adequate operational checkout by installing contractors.
2. Verify and document proper performance of equipment and systems.
3. Verify that Operation & Maintenance documentation is complete and transferred to City.
4. Verify that the City's operating personnel are adequately trained.
5. Verify a contract is in place for a post occupancy review with O&M staff within 10 months after Substantial Completion.

C. The Commissioning process shall be a team effort and encompass, as well as coordinate, the traditionally separate functions of system documentation, system installation, equipment startup, control system calibration, testing, balancing and verification and performance checkouts.

D. The CxA will work closely with the construction team, cooperating on and coordinating all Cx activities with the CM, Commissioner's representative, Trade Contractors, subcontractors, manufacturers and equipment suppliers.

E. The Cx process shall not reduce the responsibility of the CM to comply with the Contract Documents.

1.4 DEFINITIONS

A. Refer to Division 01 Section and "General Commissioning Requirements" for definitions.

1.5 SUBMITTALS

A. Refer to Division 01 Section "General Commissioning Requirements" for CxA's role.

B. Refer to DDC General Conditions for specific requirements.

C. In addition, provide the following:

1. Certificates of readiness
2. Certificates of completion of installation, prestart, and startup activities.
3. O&M manuals
4. Test reports

1.6 QUALITY ASSURANCE

A. Test Equipment Calibration Requirements: Contractors will comply with test equipment manufacturer's calibration procedures and intervals. Recalibrate test instruments immediately after instruments have been repaired resulting from being dropped or damaged. Affix calibration tags to test instruments. Furnish calibration records to CxA upon request.

1.7 COORDINATION

A. Refer to Division 01 Section "General Commissioning Requirements" for requirements pertaining to coordination during the commissioning process.

PART 2 - PRODUCTS

2.1 TEST EQUIPMENT

A. All standard testing equipment required to perform startup, initial checkout and functional performance testing shall be provided by the Contractor for the equipment being tested. For example, the electrical contractor of Division 26 shall ultimately be responsible for all standard testing equipment for the electrical systems and controls systems in Division 26. A sufficient quantity of two-way radios shall be provided by each contractor.

B. Special equipment, tools and instruments (specific to a piece of equipment and only available from vendor) required for testing shall be included and left on site, except for stand-alone data logging equipment that may be used by the CxA.

C. Proprietary test equipment and software required by any equipment manufacturer for programming and/or start-up, whether specified or not, shall be provided by the manufacturer of the equipment. Manufacturer shall provide the test equipment, demonstrate its use, and assist in the commissioning process as needed. Proprietary test equipment (and software) shall become the property of the City upon completion of the commissioning process.

D. Data logging equipment and software required to test equipment will be provided by the CxA, but shall not become the property of the City.

E. All testing equipment shall be of sufficient quality and accuracy to test and/or measure system performance with the tolerances specified in the Specifications. If not otherwise noted, the following minimum requirements apply: Temperature sensors and digital thermometers shall have a certified calibration within the past year to accuracy of 0.5°F and a resolution of + or - 0.1°F. Pressure sensors shall have an accuracy of + or - 2.0% of the value range being measured (not full range of meter) and have been calibrated within the last year.

PART 3 - EXECUTION

3.1 GENERAL DOCUMENTATION REQUIREMENTS

A. With assistance from the installing contractors, the CxA will prepare Pre-Functional Checklists for all commissioned components, equipment, and systems

B. Red-lined Drawings:

1. The contractor will verify all equipment, systems, instrumentation, wiring and components are shown correctly on red-lined drawings.
2. Preliminary red-lined drawings must be made available to the Commissioning Team for use prior to the start of Functional Performance Testing.
3. Changes, as a result of Functional Testing, must be incorporated into the final as-built drawings, which will be created from the red-lined drawings.
4. The contracted party, as defined in the Contract Documents will create the as-built drawings.

C. Operation and Maintenance Data:

1. Contractor will provide a copy of O&M literature within 45 days of each submittal acceptance for use during the commissioning process for all commissioned equipment and systems.
2. The CxA will review the O&M literature once for conformance to project requirements.
3. The CxA will receive a copy of the final approved O&M literature once corrections have been mad by the Contractor.

D. Demonstration and Training:

1. Contractor will provide demonstration and training as required by the specifications.
2. A complete training plan and schedule must be submitted by the Contractor to the CxA four weeks (4) prior to any training.

3. A training agenda for each training session must be submitted to the CxA one (1) week prior the training session.
4. The CxA shall be notified at least 72 hours in advance of scheduled tests so that testing may be observed by the CxA and Commissioner's representative. A copy of the test record shall be provided to the CxA, Commissioner.
5. Engage a Factory-authorized service representative to train City's maintenance personnel to adjust, operate, and maintain specific equipment.
6. Train City's maintenance personnel on procedures and schedules for starting and stopping, trouble shooting, servicing, and maintaining equipment.
7. Review data in O&M Manuals.

3.2 CONTRACTOR'S RESPONSIBILITIES

A. Perform commissioning tests as per the written procedure and at the direction of the CxA.

B. Attend construction phase controls coordination meetings.

C. Participate in Electrical systems, assemblies, equipment, and component maintenance orientation and inspection as directed by the CxA.

D. Provide information requested by the CxA for final commissioning documentation.

E. Include requirements for submittal data, operation and maintenance data, and training in each purchase order or sub-contract written.

F. Prepare preliminary schedule for Electrical system orientations and inspections, operation and maintenance manual submissions, training sessions, equipment start-up and task completion for City. Distribute preliminary schedule to commissioning team members.

G. Update schedule as required throughout the construction period.

H. During the startup and initial checkout process, execute the related portions of the prefunctional checklists for all commissioned equipment.

I. Perform all verification and functional performance tests in the presence of the CxA as required.

J. Provide measuring instruments and logging devices to record test data, and provide data acquisition equipment to record data for the complete range of testing for the required test period.

K. Gather operation and maintenance literature on all equipment, and assemble in binders as required by the specifications. Submit to CxA 45 days after submittal acceptance.

L. Coordinate with the CxA to provide 72-hour advance notice so that the witnessing of equipment and system start-up and testing can begin.

M. Notify the CxA a minimum of two weeks in advance of the time for start of the testing work. .

N. Participate in, and schedule vendors and contractors to participate in the training sessions.

O. Provide written notification to the CM/GCC and CxA that the following work has been completed in accordance with the contract documents, and that the equipment, systems, and sub-system are operating as required.
   1. Electrical equipment including switchgear, panel boards, motor control centers, lighting, receptacles, and all other equipment furnished under this Division.
   2. Fire alarm system
   3. Lighting System

P. The equipment supplier shall document the performance of his equipment.

Q. Provide a complete set of red-lined drawings to the CxA prior to the start of Functional Performance Testing.

R. Provide training of the City's operating staff using expert qualified personnel, as specified.

S. Equipment Suppliers
   1. Provide all requested submittal data, including detailed start-up procedures and specific responsibilities of the City, to keep warranties in force.
   2. Assist in equipment testing per agreements with contractors.
   3. Provide information requested by CxA regarding equipment sequence of operation and testing procedures.

T. Refer to Division 01 Section "General Commissioning Requirements" for additional Contractor responsibilities.

3.3 CITY'S RESPONSIBILITIES

A. Refer to Division 01 Section "General Commissioning Requirements" for City's Responsibilities.

3.4 DESIGN PROFESSIONAL'S RESPONSIBILITIES

A. Refer to Division 01 Section "General Commissioning Requirements" for Design Professional's Responsibilities.

3.5 CxA'S RESPONSIBILITIES

A. Refer to Division 01 Section "General Commissioning Requirements" for CxA's Responsibilities.

3.6 TESTING PREPARATION

A. Certify in writing to the CxA that Electrical systems, subsystems, and equipment have been installed, megerred, calibrated, and started and are operating according to the Contract Documents.

B. Certify in writing to the CxA that Electrical instrumentation and control systems have been completed and calibrated, that they are operating according to the Contract Documents, and that pretest set points have been recorded.

C. Certify in writing that testing procedures have been completed and that testing reports have been submitted, discrepancies corrected, and corrective work approved.

D. Place systems, subsystems, and equipment into operating mode to be tested (e.g., normal shutdown, normal auto position, normal manual position, unoccupied cycle, emergency power, and alarm conditions).

E. Inspect and verify the position of each device and interlock identified on checklists.

F. Check safety cutouts, alarms, and interlocks with smoke control and life-safety systems during each mode of operation.

G. Testing Instrumentation: Install measuring instruments and logging devices to record test data as directed by the CxA.

3.7 GENERAL TESTING REQUIREMENTS

A. Provide technicians, instrumentation, and tools to perform commissioning test at the direction of the CxA.

B. Scope of Electrical testing shall include the entire Electrical installation, from the incoming power equipment throughout the distribution system. Testing shall include measuring, but not limited to resistance, voltage, and amperage of system(s) and devices.

C. Test all operating modes, interlocks, control responses, and responses to abnormal or emergency conditions, and verify proper response of building automation system controllers and sensors.

D. The Electrical contractor and other contracted subcontractors, including the fire alarm Subcontractor shall prepare detailed testing plans, procedures, and checklists for Electrical systems, subsystems, and equipment with guidance from CxA.

E. Tests will be performed using design conditions whenever possible.

F. Simulated conditions may need to be imposed using an artificial load when it is not practical to test under design conditions. Before simulating conditions, calibrate testing instruments. Provide equipment to simulate loads. Set simulated conditions and document simulated conditions and methods of simulation. After tests, return settings to normal operating conditions.

G. The CxA may direct that set points be altered when simulating conditions is not practical.

H. If tests cannot be completed because of a deficiency outside the scope of the Electrical system, document the deficiency and report it to the Commissioner. After deficiencies are resolved, reschedule tests.

I. If the testing plan indicates specific seasonal testing, complete appropriate initial performance tests and documentation and schedule seasonal tests.

3.8 ELECTRICAL SYSTEMS, SUBSYSTEMS, AND EQUIPMENT TESTING PROCEDURES

A. Equipment Testing and Acceptance Procedures: Testing requirements are specified in individual Division 26 sections. Provide submittals, test data, inspector record, infrared camera and certifications to the CA.

B. Electrical Instrumentation and Control System Testing: Field testing plans and testing requirements are specified in Division 26. Assist the CxA with preparation of testing plans.

C. Fire Detection and Alarm System Testing: Provide technicians, instrumentation, tools and equipment to test performance of designated systems and devices at the direction of the CxA. The CxA shall determine the sequence of testing and testing procedures for each equipment item and pipe section to be tested.

D. Electrical Distribution System Testing: Provide technicians, load banks, infrared cameras, instrumentation, tools and equipment to test performance of designated systems and devices at the direction of the CxA. The CxA shall determine the sequence of testing and testing procedures for each equipment item and pipe section to be tested

E. The work included in the commissioning process involves a complete and thorough evaluation of the operation and performance of all components, systems and sub-systems. The scope of commissioning work shall include but not limited to the following equipment and systems :

1. Fire Alarm System
2. Lighting Controls
3. Power Distribution System

3.9 DEFICIENCIES/NON-CONFORMANCE, COST OF RETESTING, FAILURE DUE TO MANUFACTURER DEFECT

A. Refer to Division 01 Section "General Commissioning Requirements" for requirements pertaining to deficiencies/non-conformance, cost of retesting, or failure due to manufacturer defect.

3.10 APPROVAL

A. Refer to Division 01 Section "General Commissioning Requirements" for approval procedures.

3.11 DEFERRED TESTING

A. Refer to Division 01 Section "General Commissioning Requirements" for requirements pertaining to deferred testing.

3.12 OPERATION AND MAINTENANCE MANUALS

A. The Operation and Maintenance Manuals shall conform to Contract Documents requirements as stated in Division 01.

B. Refer to Division 01 Section "General Commissioning Requirements" for the AE and CxA roles in the Operation and Maintenance Manual contribution, review and approval process.

3.13 TRAINING OF CITY PERSONNEL

A. Refer to Division 01 Section "General Commissioning Requirements" for requirements pertaining to training.

B. Electrical Contractor. The electrical contractor shall have the following training responsibilities:

1. Provide the CxA with a training plan two weeks before the planned training.

2. Provide designated City's personnel with comprehensive training in the understanding of the systems and the operation and maintenance of each major piece of commissioned electrical equipment or system.
3. Training shall be recorded by the CxA and start with classroom sessions, if necessary, followed by hands on training on each piece of equipment, which shall illustrate the various modes of operation, including startup, shutdown, fire/smoke alarm, power failure, etc.
4. During any demonstration, should the system fail to perform in accordance with the requirements of the O&M manual or sequence of operations, the system will be repaired or adjusted as necessary and the demonstration repeated.
5. The appropriate trade or manufacturer's representative shall provide the instructions on each major piece of equipment. This person may be the start-up technician for the piece of equipment, the installing contractor or manufacturer's representative. Practical building operating expertise as well as in-depth knowledge of all modes of operation of the specific piece of equipment is required. More than one party may be required to execute the training.
6. The training sessions shall follow the outline in the Table of Contents of the operation and maintenance manual and illustrate whenever possible the use of the O&M manuals for reference.
7. Training shall include:
    a. Use the printed installation, operation and maintenance instruction material included in the O&M manuals.
    b. Include a review of the written O&M instructions emphasizing safe and proper operating requirements, preventative maintenance, special tools needed and spare parts inventory suggestions. The training shall include start-up, operation in all modes possible, shut-down, seasonal changeover and any emergency procedures.
    c. Discuss relevant health and safety issues and concerns.
    d. Discuss warranties and guarantees.
    e. Cover common troubleshooting problems and solutions.
    f. Explain information included in the O&M manuals and the location of all plans and manuals in the facility.
    g. Discuss any peculiarities of equipment installation or operation.
8. Hands-on training shall include start-up, operation in all modes possible, including manual, shut-down and any emergency procedures and preventative maintenance of all pieces of equipment.
9. The electrical contractor shall fully explain and demonstrate the operation, function and overrides of any local packaged controls, not controlled by the central control system.
10. Training shall occur after functional testing is complete, unless approved otherwise by the Commissioner's.

END OF SECTION 260800

SECTION 26 09 23 - LIGHTING CONTROL DEVICES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Switches.
   2. Switch plates.
   3. Occupancy sensors.

B. Related Sections:
   1. Section 26 05 03 - Equipment Wiring Connections: Execution requirements for electric connections specified by this section.
   2. Section 26 05 19 - Low-Voltage Electrical Power Conductors and Cables.
   3. Section 26 05 33 - Raceway and Boxes for Electrical Systems: Product requirements for raceway and boxes for placement by this section.
   4. Section 26 05 53 - Identification for Electrical Systems: Product requirements for electrical identification items for placement by this section.
   5. Section 26 24 16 - Panelboards.
   6. Section 26 27 26 - Wiring Devices: Product requirements for wiring devices for placement by this section.

1.2 REFERENCES

A. National Electrical Manufacturers Association:
   1. NEMA AB 1 - Molded Case Circuit Breakers and Molded Case Switches.
   2. NEMA FU 1 - Low Voltage Cartridge Fuses.
   3. NEMA ICS 2 - Industrial Control and Systems: Controllers, Contractors, and Overload Relays, Rated Not More Than 2000 Volts AC or 750 Volts DC.
   4. NEMA ICS 4 - Industrial Control and Systems: Terminal Blocks.
   5. NEMA ICS 5 - Industrial Control and Systems: Control Circuit and Pilot Devices.
   6. NEMA ICS 6 - Industrial Control and Systems: Enclosures.
   7. NEMA KS 1 - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).

1.3 SUBMITTALS

A. See DDC General Conditions:

B. Product Data: Submit manufacturer's standard product data for each system component.

C. Manufacturer's Installation Instructions: Submit for each system component.

1.4 CLOSEOUT SUBMITTALS

A. See DDC general conditions

B. Operation and Maintenance Data:
   1. Submit replacement parts numbers.
   2. Submit manufacturer's published installation instructions and operating instructions.

3. Recommended renewal parts list.

1.5 DELIVERY, STORAGE, AND HANDLING

A. See DDC general conditions-

B. Accept components on site in manufacturer's packaging. Inspect for damage.

C. Protect components by storing in manufacturer's containers indoor protected from weather.

PART 2 PRODUCTS

2.1 SWITCHES

A. Manufacturers:
1. Lutron
2. Leviton Manufacturing Co.
3. Pass and Seymour/Legrand
4. Hubbell Inc.
5. Approved Equal.

B. Wall Switch: Specification Grade
1. Material: Plastic.
2. Color: Ivory, or as directed by Commissioner.

C. Key Switch: Spade key type. Match non-key switch ratings.

2.2 SWITCH PLATES

A. Manufacturers:
1. Lutron
2. Leviton Manufacturing Co.
3. Pass and Seymour/Legrand
4. Hubbell Inc.
5. Approved Equal.

B. Product Description: Specification Grade.
1. Material: Plastic
2. Color: Ivory or as directed by Commissioner.

2.3 OCCUPANCY SENSOR

A. Manufacturers:
1. Douglas Lighting Controls
2. Novitas
3. Watt Stopper
4. Lutron
5. Approved Equal

B. Separate sensitivity and time delay adjustments with LED indication of sensed movement. User adjustable time-delay: 30 seconds to 10 minutes.

C. Furnish with manual override.

D. Operation: Silent.

E. Room Sensors: 360 degrees for ceiling sensors.

F. Corridor and Hallway Sensors:
1. Capable of detecting motion 14 feet wide and 80 feet long with one sensor mounted 10 feet above floor.

PART 3 EXECUTION

3.1 INSTALLATION

A. Mount switches, and occupancy sensors as indicated on Drawings.

B. Install wiring in accordance with Section 26 05 19.

C. Use only properly color coded, stranded wire. Install wire sizes as indicated on Drawings. Install wire in conduit in accordance with Section 26 05 33.

3.2 MANUFACTURER'S FIELD SERVICES

A. See DDC general conditions-.

B. Furnish services for minimum of one day for check, test, and start-up. Perform the following services:
1. Check installation of sensors.
2. Test operation of sensors.
3. Repair or replace defective components.

3.3 ADJUSTING

A. See DDC general conditions-

B. Test each system component after installation to verify proper operation.

C. Test sensors and switches after installation to confirm proper operation.

3.4 DEMONSTRATION

A. See DDC general conditions-.

B. Demonstrate operation of the following system components:
1. Operation of switches.
2. Operation of occupancy sensors.

C. Furnish 8 hours to instruct Commissioner in operation and maintenance of system. Schedule training, provide at least 7 days notice to Commissioner of training date.

END OF SECTION

SECTION 26 09 33 - ARCHITECTURAL DIMMING CONTROLS

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Architectural dimming control systems. See drawing E301 for more information.

1.2 REFERENCES

A. American National Standards Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE)
   1. C62.41-1991 – Recommended Practice for Surge Voltages in Low-Voltage AC Power Circuits.

B. ASTM International (ASTM) (www.astm.org)
   1. D4674 -02a Standard Test Method for Accelerated Testing for Color Stability of Plastics Exposed to Indoor Fluorescent Lighting and Window-Filtered Daylight.

C. International Electrotechnical Commission(www.iec.ch).
   1. (IEC) 801-2 Electrostatic Discharge Testing Standard.
   2. IEC/EN 60669-2-1 Switches for household and similar fixed electrical installations - electronic switches.

D. International Organization for Standardization (ISO)
   1. 9001:2000 – Quality Management Systems.

E. National Electrical Manufacturers Association (NEMA)
   1. WD1 (R2005) - General Color Requirements for Wiring Devices.

F. Underwriters Laboratories, Inc. (UL) (www.ul.com):
   1. 489 (2002) - Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures.
   2. 508 (1999) - Standard for Industrial Control Equipment.
   3. 1472 (1996) - Solid-State Dimming Controls.
   4. 924 (2003) - Emergency Lighting and Power Equipment

1.3 SUBMITTALS

A. Submit under provisions of the DDC

B. Specification Conformance Document: Indicate whether the submitted equipment:
   1. Meets specification exactly as stated.
   2. Meets specification via an alternate means and indicate the specific methodology used.

C. Shop Drawings include:
   1. Load schedule indicating actual connected load, load type, and voltage per circuit, circuits and their respective control zones, circuits that are on emergency, and capacity, phase, and corresponding circuit numbers.
   2. Schematic of system.

D. Product Data: Catalog cut sheets with performance specifications demonstrating compliance

with specified requirements.

1.4 QUALITY ASSURANCE

A. Manufacturer: Minimum 3 years experience in manufacture of architectural lighting controls.

B. Manufacturer's Quality System: Registered to ISO 9001:2000 Quality Standard, including in-house engineering for product design activities.

C. Central dimming control system:
1. Listed by UL specifically for the required loads. Provide evidence of compliance upon request.

1.5 PROJECT CONDITIONS

A. Do not install equipment until following conditions can be maintained in spaces to receive equipment:
1. Ambient temperature: 32 degrees to 104 degrees F.
2. Relative humidity: Maximum 90 percent, non-condensing.
3. Lighting control system must be protected from dust during installation.

1.6 WARRANTY

A. Provide Manufacturer's Warranty:
1. Standard 2-year warranty, Includes:
a. 100 Percent Replacement Parts for Manufacturer Lighting System Components
b. 100 Percent Manufacturer Labor Coverage to Troubleshoot and Diagnose a Lighting Issue
c. First–Available Onsite or Remote Response Time
d. 24 Hours Per Day, 7 Days Per Week Telephone Technical Support, Excluding Manufacturer Holidays
e. Remote Diagnostics for Applicable Systems

1.7 WARRANTY SERVICE

A. Make ordering of new equipment for expansions, replacements, and spare parts available to end user.

B. Make new replacement parts available for minimum of 10 years from date of manufacture.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of design product: Lutron GRAFIK Eye 4000 or approved equal.

2.2 GENERAL

A. Provide system hardware that is designed, tested, manufactured, and warranted by a single manufacturer.

B. Architectural Lighting Controls: Ten-year operational life while operating continually at any temperature in an ambient temperature range of 32 degrees F to 104 degrees F and 90

percent non-condensing relative humidity.

C. Designed and tested to withstand discharges without impairment of performance when subjected to discharges of 15,000 volts per IEC 801-2.

2.3 DIMMING / RELAY PERFORMANCE REQUIREMENTS

A. Electrolytic capacitors to operate at least 20 degrees C below the component manufacturer's maximum temperature rating when device is under fully-loaded conditions in 104 degrees F ambient temperature.

B. Load Handling Thyristors (SCRs and triacs), Field Effect Transistors (FETs), and Isolated Gate Bipolar Transistors (IGBTs): Manufacturer's maximum current rating minimum two times control's rated operating current.

C. Capable of withstanding repetitive inrush current of 50 times operating current without impacting lifetime of dimmer/relay.

D. Design and test dimmers/relays to withstand line-side surges without impairment to performance.
   1. Panels: Withstand surges without impairment of performance when subjected to surges of 6,000 volts, 3,000 amps per ANSI/IEEE C62.41 and per IEC 61000-4-5 surge requirements.
   2. Other power handling devices: Withstand surges without impairment of performance when subjected to surges of 6,000 volts, 200 amps per ANSI/IEEE C62.41.
   3. When power is interrupted and subsequently returned, within 3 seconds lights will automatically return to same levels (dimmed setting, full on, or off) prior to power interruption.

E. Dimmers:
   1. Provide real-time cycle-by-cycle compensation for incoming line voltage variations including changes in RMS voltage (plus or minus 2 percent change in RMS voltage/cycle), frequency shifts (plus or minus 2 Hz change in frequency/second), dynamic harmonics, and line noise.
   2. Systems not providing cycle-by-cycle compensation to include external power conditioning equipment as part of dimming system.
   3. Each dimmer to incorporate electronic "soft-start" default at initial turn-on that smoothly ramps lights up to the appropriate levels within 0.5 seconds.
   4. Control all light sources in smooth and continuous manor. Dimmers with visible steps are not acceptable.
   5. Each dimmer to be assigned a load type that will provide a proper dimming curve for the specific light source.
   6. Possess ability to have load types assigned per circuit, configured in field.
   7. Minimum and maximum light levels user adjustable on circuit-by-circuit basis.
   8. Line Voltage Dimmers; Meet following load-specific requirements:
      a. Magnetic Low Voltage (MLV) transformer:
         1) Contain circuitry designed to control and provide a symmetrical AC waveform to input of magnetic low voltage transformers per UL 1472, Section 5.11.
         2) Dimmers using unipolar load current devices (such as FETs or SCRs) to include DC current protection in the event of a single device failure.
      b. Electronic Low Voltage (ELV) transformer:
         1) Dimmer to operate electronic low voltage transformers via reverse phase control. Alternately, forward phase control dimming may be used if dimming

equipment manufacturer has recommended specific ELV transformers being provided.

c. Fluorescent dimming modules shall be compatible with dimming ballasts provided by lighting fixture manufacturer.

9. Low Voltage Dimming Modules; Meet following requirements:
   a. Coordination between low voltage dimming module and line voltage relay: Capable of being electronically linked to single zone.
   b. Single low voltage dimming module; capable of controlling following light sources:
      1) 0-10V analog voltage signal.
         a) Provide Class 2 isolated 0-10V output signal conforming to IEC 60929.
         b) Sink current via IEC 60929.
         c) Source current.
      2) 10-0V reverse analog voltage signal.
      3) DSI digital communication.
      4) DALI broadcast communication IEC 60929:
         a) Logarithmic intensity values in compliance with IEC 60929.
         b) Linear intensity values for use with LED color intensity control.
      5) PWM IEC 60929.

F. Non-dim circuits to meet the following requirements:
   1. Rated life of relay at full load: Minimum 1,000,000 cycles.
   2. Load switched in manner that prevents arcing at mechanical contacts when power is applied to and removed from load circuits.
   3. Fully rated output continuous duty for inductive, capacitive, and resistive loads.

2.4 POWER PANELS

A. Product: Lutron GP Series or approved equal.

B. Mechanical:
   1. Listed to UL 508 as industrial control equipment. as applicable.
   2. Delivered and installed as a UL listed factory assembled panel.
   3. Field wiring accessible from front of panel without need to remove dimmer assemblies or other components.
   4. Panels passively cooled via free-convection, unaided by fans or other means.
   5. Ship panels with each dimmer in mechanical bypass position by means of jumper bar inserted between input and load terminals. Jumpers to carry full rated load current and be reusable at any time. Mechanical bypass device to allow for switching operation of connected load with dimmer removed by means of circuit breaker.

C. Electrical:
   1. Panels contain branch circuit protection for each input circuit unless the panel is a dedicated feed-through type panel or otherwise indicated on the drawings.
   2. Branch circuit breakers; meet following performance requirements:
      a. Listed to UL 489 as molded case circuit breaker for use on lighting circuits.
      b. Contain visual trip indicator; rated at 10,000 AIC, 120 V Dimming.
      c. Thermal-magnetic construction for overload, short-circuit, and over-temperature protection. Use of breakers without thermal protection requires dimmers/relays to have integral thermal protection to prevent failures when overloaded or ambient temperature is above rating of panel.
      d. Accept tag-out/lock-out devices to secure circuit breakers in off position when

servicing loads.

e. Replaceable without moving or replacing dimmer/relay assemblies or other components in panel.UL listed as switch duty (SWD) so that loads can be switched on and off by breakers.

D. Architectural Lighting Control Panel:
1. Dimmers designed and tested to specifically control incandescent/tungsten, magnetic low voltage, electronic low voltage, fluorescent dimming ballasts, and non-dim loads.
2. Utilize universal 16A continuous-use UL listed dimmer.
3. Utilize multiple load type low voltage dimming module.
4. Limit current rise time to minimum 350 µsec as measured from 10-90 percent of load current waveform and minimum 525 µsec as measured from 0-100 percent of load current waveform at 50 percent rated dimmer capacity at a 90 degree conduction angle. Current rise to be minimum 400 µsec as measured from 10-90 percent of load current waveform and minimum 600 µsec as measured from 0-100 percent of load current waveform at 100 percent rated dimmer capacity at a 90 degree conduction angle.
5. Load faults only affect the given circuit.

E. Panel Processor:
1. Provide following capabilities:
a. Operate circuits directly from panel processor for system diagnostics and provide feedback of system operation.
b. Electronically assign each circuit to any zone in lighting control system.
c. Determine normal/emergency function of panel and set emergency lighting levels.
2. Where indicated on Drawings, panels to provide two control links. Each circuit to be capable of transferring control based on independent programming between architectural control system and theatrical controls utilizing the USITT DMX-512 1990 or ESTA DMX-512A protocol.
3. React to changes from control within 20 milliseconds.

F. Diagnostics and Service:
1. Replacing dimmer/relay does not require re-programming of system or processor.
2. Dimmers/relays: Include diagnostic LED's to verify proper operation and assist in system troubleshooting.
3. Dimming/relay panels: Include tiered control scheme for dealing with component failure that minimizes loss of control for occupant.
a. If lighting control system fails, lights to remain at current level. Panel processor provides local control of lights until system is repaired.
b. If panel processor fails, lights to remain at current level. Circuit breakers can be used to turn lights off or to full light output, allowing non-dim control of lights until panel processor is repaired.
c. If dimmer fails, factory-installed mechanical bypass jumpers to allow each dimmer to be mechanically bypassed. Mechanical bypass device to allow for switching operation of connected load with dimmer removed by means of circuit breaker.

2.5 LOW-VOLTAGE WALL STATIONS

A. Product: Slim Button Preset Lighting Controls with Zone Override or approved equal.

B. Electronics:
1. Use RS485 wiring for low voltage communication.

C. Functionality:

1. Upon button press, LEDs to immediately illuminate.
2. LEDs to reflect the true system status. LEDs to remain illuminated if the button press was properly processed or the LEDs turn off if the button press was not processed.
3. Replacement of units does not require reprogramming.

D. Color:
1. Match NEMA WD1, Section 2
2. Visible parts: Exhibit ultraviolet color stability when tested with multiple actinic light sources as defined in ASTM D4674. Provide proof of testing upon request.

E. Provide faceplates with concealed mounting hardware.

F. Engrave wall stations in English with appropriate button, zone, and scene engraving descriptions.

G. Silk-screened borders, logos, and graduations to use graphic process that chemically bonds graphics to faceplate, resistant to removal by scratching and cleaning.

H. Preset Lighting Control with Zone Override:
1. Intensity for each zone indicated by means of one illuminated bar graph per zone.
2. Fade time indicated by digital display for current scene while fading.
3. Incorporate built-in wide angle infrared receiver.
4. For temporary local overrides, individual raise/lower buttons to allow zones to be adjusted without altering scene values stored in memory.

2.6 ACCESSORIES

A. Emergency Lighting Interface
1. Provide total system listing to UL924.
2. Senses all three phases of power.
3. Provides an output to power panels if power on any phase fails.
4. Accepts a contact closure input from a fire alarm control panel.

B. Tamper Proof Covers:
1. Locking covers for preset control units and wall stations: Reversible to allow lock to be located on either side of control.
2. Compatible with IR controls.
3. Does not reduce specified IR range by more than 50 percent of its original specification.

2.7 SOURCE QUALITY CONTROL

A. Perform full-function testing on 100 percent of all system components and panel assemblies at the factory.

B. Sample burn-in at 104 degrees F ambient temperature of dimming assemblies and panels at full load for 2 hours.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install equipment in accordance with manufacturer's installation instructions.

B. Provide complete installation of system in accordance with Contract Documents. See E-303 for more information.

C. Define each dimmer's/relay's load type, assign each load to a zone, and set control functions.

D. Provide equipment at locations and in quantities indicated on Drawings. Provide any additional equipment required to provide control intent.

E. Systems Integration:
   1. Equipment Integration Meeting Visit
      a. Facility Representative to coordinate meeting between Facility Representative, Lighting Control System Manufacturer and other related equipment manufacturers to discuss equipment and integration procedures.

3.2 SERVICE AND SUPPORT

A. Startup and Programming
   1. Provide factory-certified field service engineer to a site visit to ensure proper system installation and operation under following parameters:
      a. Qualifications for factory-certified field service engineer:
         1) Minimum experience of 2 years training in the electrical/electronic field.
      b. Make a visit upon completion of installation of central dimming control system:
         1) Verify connection of power feeds and load circuits.
         2) Verify connection and location of controls.
         3) Verify proper connection of panel links (low voltage/data) and address panel.
         4) Check dimming/switching panel load types and currents and remove by-pass jumpers.
         5) Verify system operation control by control, circuit by circuit.
         6) Verify proper operation of supplied interfacing equipment to other devices.
         7) Obtain sign-off on system functions.
         8) User to be trained on system operation.

B. Tech Support
   1. Provide factory direct technical support hotline 24 hours per day, 7 days per week.

3.3 FIELD QUALITY CONTROL

A. Manufacturer Services
   1. Aim and Focus Visit
      a. Facility Representative to coordinate on-site meeting with Lighting Control System Manufacturer and Lighting Design Consultant to make required lighting adjustments to the system for conformance with the Lighting Design Consultant's original design intent.
   2. System Optimization Visit
      a. Lighting Control System Manufacturer to visit site 6 months after system start-up to evaluate system usage and discuss opportunities to make efficiency improvements that will fit with the current use of the facility.

3.4 CLOSEOUT ACTIVITIES

A. Training Visit
   1. Lighting Control System Manufacturer to provide 1 day on-site system training to site

personnel.

B. On-site Walkthrough
   1. Lighting Control System Manufacturer to provide a factory certified Field Service Engineer to demonstrate system functionality.

3.5 MAINTENANCE

A. Capable of providing on-site service support within 24 hours.

B. Offer renewable service contract on yearly basis, to include parts, factory labor, and annual training visits. Make service contracts available up to ten years after date of system startup.

END OF SECTION

SECTION 26 24 13

SWITCHBOARDS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes main and distribution switchboards.

B. Related Sections:
1. Section 26 05 26 - Grounding and Bonding for Electrical Systems.
2. Section 25 05 53 - Identification for Electrical Systems.
3. Section 26 28 13 - Fuses.

1.2 REFERENCES

A. National Electrical Code with New York City Amendments.

B. American National Standards Institute:
1. ANSI C12.1 - Code for Electricity Metering.
2. ANSI C39.1 - Requirements, Electrical Analog Indicating Instruments.

C. Institute of Electrical and Electronics Engineers:
1. IEEE C57.13 - Standard Requirements for Instrument Transformers.
2. IEEE C62.41 - Recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits.

D. National Electrical Manufacturers Association:
1. NEMA AB 1 - Molded Case Circuit Breakers and Molded Case Switches.
2. NEMA FU 1 - Low Voltage Cartridge Fuses.
3. NEMA KS 1 - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).
4. NEMA PB 2 - Deadfront Distribution Switchboards.
5. NEMA PB 2.1 - General Instructions for Proper Handling, Installation, Operation, and Maintenance of Deadfront Distribution Switchboards Rated 600 Volts or less.

E. International Electrical Testing Association:
1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

1.3 SUBMITTALS

A. Shop Drawings: Indicate front and side views of enclosures with overall dimensions shown; conduit entrance locations and requirements; nameplate legends; size and number of bus bars for each phase, ground to neutral link; and switchboard instrument details.

B. Product Data: Submit electrical characteristics including voltage, fuse and time-current curves of equipment and components.

C. Test Reports: Indicate results of factory production and field tests.

1.4 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations, configurations, and ratings of switchboards and their components on single line diagrams and plan layouts.

B. Operation and Maintenance Data: Submit spare parts data listing; source and current prices of replacement parts and supplies; and recommended maintenance procedures and intervals.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver in 48 inch maximum width shipping splits, individually wrapped for protection and mounted on shipping skids.

B. Accept switchboards on site. Inspect for damage.

C. Store in clean, dry space. Maintain factory wrapping or provide additional canvas or plastic cover to protect units from dirt, water, construction debris, and traffic.

D. Handle in accordance with NEMA PB 2.1. Lift only with lugs provided. Handle carefully to avoid damage to switchboard internal components, enclosure, and finish.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Conform to NEMA PB 2 service conditions during and after installation of switchboards.

1.8 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.9 SEQUENCING

A. Sequence Work to avoid interferences with building finishes and installation of other products.

1.10 MAINTENANCE MATERIALS

A. Furnish two of each key. All keys to be keyed alike.

B. Furnish two fuse pullers.

1.11 EXTRA MATERIALS

A. Furnish three of each size and type of fuse installed.

PART 2 PRODUCTS

2.1 DISTRIBUTION SWITCHBOARDS

A. Manufacturers:
1. GE Electrical
2. Siemens
3. Square D
4. Electrotech
5. Approved equal

B. Product Description: NEMA PB 2, enclosed switchboard with electrical ratings and configurations as indicated on Drawings.

C. Device Mounting:
1. Main Section: Individually mounted and compartmented.
2. Distribution Section: Panel mounted and front accessible.
3. Auxiliary Section: Individually mounted and front accessible.

D. Bus:
1. Material: Copper, standard size.
2. Connections: Bolted, accessible from front for maintenance.
3. Insulation: Fully insulate load side bus bars.

E. Ground Bus: Extend length of switchboard.

F. Line and Load Terminations: Accessible from front or rear of switchboard, suitable for conductor materials and sizes as indicated on Drawings.

G. Utility Metering Compartment: Furnish metering transformer compartment for Utility Company's use, in accordance with Utility Company requirements.

H. Pull Section: 18 inch width, depth and height to match switchboard. Arrange as indicated on Drawings.

I. Pull Box: Removable top and sides, same construction as switchboard, 24 inch height over top switchboard. Furnish insulating, fire-resistive bottom with separate openings for each circuit to pass into switchboard.

J. Future Provisions: Fully equip spaces for future devices with bussing and bus connections, insulated and braced for short circuit currents. Furnish continuous current rating.

K. Enclosure: Type 1 - General Purpose.

L. Align sections at front only.

M. Switchboard Height: 90 inches, excluding floor sills, lifting members and pull boxes.

N. Room Requirements
1. Provide layout with necessary accesses and clearances.
2. Provide adequate lighting.
3. All egress doors shall open in the direction of egress and shall be equipped with panic bars, pressure plates, or other devices that are latched but could open under simple pressure from inside of the room.

O. Finish: Manufacturer's standard light gray enamel over external surfaces. Coat internal surfaces with minimum one coat corrosion-resisting paint, or plate with cadmium or zinc.

P. Mimic Bus: Show bussing, connections and devices in single line form on front panels of switchboard using black color factory painting.

2.2 FUSIBLE SWITCH ASSEMBLIES

A. Product Description: NEMA KS 1, Type HD, load interrupter knife switch. Handle lockable in OFF position.

B. Fuse clips: Designed to accommodate NEMA FU 1, Class J fuses.

2.3 FUSIBLE SWITCH ASSEMBLIES LARGER THAN 800 AMPERES

A. Product Description: NEMA KS 1, bolted pressure contact.

B. Fuse Provisions: Designed to accommodate NEMA FU 1, Class L fuses.

2.4 ACCESSORIES

A. Provide matching corbin locks to be keyed alike.

2.5 SOURCE QUALITY CONTROL

A. Furnish shop inspection and testing in accordance with NEMA PB 2.

B. Make completed switchboard available for inspection at manufacturer's factory prior to packaging for shipment when requested. Notify Commissioner at least seven days before inspection is allowed.

C. Allow witnessing of factory inspections and tests at manufacturer's test facility. Notify Commissioner at least seven days before inspections and tests are scheduled.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify surface is suitable for switchboard installation.

3.2 INSTALLATION

A. Install in accordance with NEMA PB 2.1.

B. Tighten accessible bus connections and mechanical fasteners after placing switchboard.

C. Install fuses in each switch and coordinate sizes with connected load.

D. Install engraved plastic nameplate.

E. Ground and bond switchboards in accordance with Section 26 05 26.

3.3 FIELD QUALITY CONTROL

A. Inspect and test in accordance with NETA ATS, except Section 4.

B. Perform inspections and tests listed in NETA ATS, Section 7.1.

3.4 ADJUSTING

A. Adjust operating mechanisms for free mechanical movement.

B. Tighten bolted bus connections.

3.5 CLEANING

A. Touch up scratched or marred surfaces to match original finish.

END OF SECTION

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SECTION 26 24 16 - PANELBOARDS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes distribution and branch circuit panelboards.

B. Related Sections:
1. Section 26 05 26 - Grounding and Bonding for Electrical Systems.
2. Section 26 05 53 - Identification for Electrical Systems.
3. Section 26 28 13 - Fuses.

1.2 REFERENCES

A. Institute of Electrical and Electronics Engineers:
1. IEEE C62.41 - Recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits.

B. National Electrical Manufacturers Association:
1. NEMA AB 1 - Molded Case Circuit Breakers and Molded Case Switches.
2. NEMA FU 1 - Low Voltage Cartridge Fuses.
3. NEMA ICS 2 - Industrial Control and Systems: Controllers, Contactors, and Overload Relays, Rated Not More Than 2000 Volts AC or 750 Volts DC.
4. NEMA ICS 5 - Industrial Control and Systems: Control Circuit and Pilot Devices.
5. NEMA KS 1 - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).
6. NEMA PB 1 - Panelboards.
7. NEMA PB 1.1 - General Instructions for Proper Installation, Operation, and Maintenance of Panelboards Rated 600 Volts or Less.

C. International Electrical Testing Association:
1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

D. National Fire Protection Association:
1. NFPA 70 - National Electrical Code.

E. Underwriters Laboratories Inc.:
1. UL 67 - Safety for Panelboards.
2. UL 1283 - Electromagnetic Interference Filters.
3. UL 1449 - Transient Voltage Surge Suppressors.

1.3 SUBMITTALS

A. See DDC General Conditions:.

B. Shop Drawings: Indicate outline and support point dimensions, voltage, main bus ampacity, integrated short circuit ampere rating, circuit breaker and fusible switch arrangement and sizes.

C. Product Data: Submit catalog data showing specified features of standard products.

1.4 CLOSEOUT SUBMITTALS

A. See DDC General Conditions: -

B. Project Record Documents: Record actual locations of panelboards and record actual circuiting arrangements.

C. Operation and Maintenance Data: Submit spare parts listing; source and current prices of replacement parts and supplies; and recommended maintenance procedures and intervals.

PART 2 PRODUCTS

2.1 DISTRIBUTION PANELBOARDS

A. Manufacturers:
1. GE Electrical
2. Siemens
3. Square D
4. Approved Equal.

B. Product Description: NEMA PB 1, circuit breaker type panelboard.

C. Panelboard Bus: Copper current carrying components, ratings as indicated on Drawings. Furnish copper ground bus in each panelboard.

D. Minimum integrated short circuit rating: 22,000 amperes rms symmetrical for 208 volt panelboards.

E. Fusible Switch Assemblies: NEMA KS 1, quick-make, quick-break, load interrupter enclosed knife switch with externally operable handle. Furnish interlock to prevent opening front cover with switch in ON position. Handle lockable in OFF position. Fuse clips: Designed to accommodate NEMA FU 1, Class R fuses.

F. Molded Case Circuit Breakers: NEMA AB 1, circuit breakers with integral thermal and instantaneous magnetic trip in each pole. Furnish circuit breakers UL listed as Type HACR for air conditioning equipment branch circuits.

G. Molded Case Circuit Breakers with Current Limiters: NEMA AB 1, circuit breakers with replaceable current limiting elements, in addition to integral thermal and instantaneous magnetic trip in each pole.

H. Current Limiting Molded Case Circuit Breakers: NEMA AB 1, circuit breakers with integral thermal and instantaneous magnetic trip in each pole, coordinated with automatically resetting current limiting elements in each pole. Interrupting rating 200,000 symmetrical amperes, let-through current and energy level less than permitted for same size NEMA FU 1, Class RK-5 fuse.

I. Controllers: NEMA ICS 2, AC general-purpose Class A magnetic controller for induction motors rated in horsepower.
   1. Two-speed Controllers: Include integral time delay transition between FAST and SLOW speeds.
   2. Full-voltage Reversing Controllers: Include electrical interlock and integral time delay transition between FORWARD and REVERSE rotation.
   3. Control Voltage: 120 volts, 60 Hertz.
   4. Overload Relay: NEMA ICS 2; bimetal.
   5. Auxiliary Contacts: NEMA ICS 2, 2 field convertible contacts in addition to seal-in contact.
   6. Cover Mounted Pilot Devices: NEMA ICS 5, standard.
   7. Pilot Device Contacts: NEMA ICS 5, Form Z.
   8. Pushbuttons: Covered type.
   9. Indicating Lights: LED type.
   10. Selector Switches: Rotary type.
   11. Relays: NEMA ICS 2.
   12. Control Power Transformers: 120 volt secondary, 100 VA minimum, in each motor starter. Furnish fused secondary, and bond unfused leg of secondary to enclosure.

J. Circuit Breaker Accessories: Trip units and auxiliary switches as indicated on Drawings.

K. Enclosure: NEMA PB 1, Type 1.

L. Cabinet Front: Surface door-in-door type, fastened with concealed trim clamps metal directory frame, finished in manufacturer's standard gray enamel.

2.2 BRANCH CIRCUIT PANELBOARDS

A. Manufacturers:
   1. GE Electrical
   2. Siemens
   3. Square D
   4. Approved Equal.

B. Product Description: NEMA PB1, circuit breaker type, lighting and appliance branch circuit panelboard.

C. Panelboard Bus: Copper, current carrying components, ratings as indicated on Drawings. Furnish copper ground bus in each panelboard.

D. Minimum Integrated Short Circuit Rating: 10,000, 22,000 amperes rms symmetrical for 208 volt panelboards.

E. Molded Case Circuit Breakers: NEMA AB 1, bolt-on type thermal magnetic trip circuit breakers, with common trip handle for all poles, listed as Type SWD for lighting circuits, Type HACR for air conditioning equipment circuits, Class A ground fault interrupter circuit breakers as indicated on Drawings. Do not use tandem circuit breakers.

F. Current Limiting Molded Case Circuit Breakers: NEMA AB 1, circuit breakers with integral thermal and instantaneous magnetic trip in each pole, coordinated with automatically resetting current limiting elements in each pole. Interrupting rating 100,000 symmetrical

amperes, let-through current and energy level less than permitted for same size NEMA FU 1, Class RK-5 fuse.

G. Enclosure: NEMA PB 1, Type 1.

H. Cabinet Box: 6 inches deep, 20 inches wide for 208 volt and less panelboards.

I. Cabinet Front: Flush cabinet front with concealed trim clamps, concealed hinge, metal directory frame, and flush lock keyed alike. Finish in manufacturer's standard gray enamel.

PART 3 EXECUTION

3.1 EXISTING WORK

A. Disconnect abandoned panelboards. Remove abandoned panelboards.

B. Maintain access to existing panelboard remaining active and requiring access. Modify installation or provide access panel.

C. Clean and repair existing panelboards to remain or to be reinstalled.

3.2 INSTALLATION

A. Install panelboards in accordance with NEMA PB 1.1.

B. Install panelboards plumb.

C. Install recessed panelboards flush with wall finishes.

D. Height: 6 feet to top of panelboard; install panelboards taller than 6 feet with bottom no more than 4 inches above floor.

E. Install filler plates for unused spaces in panelboards.

F. Provide typed or neatly handwritten circuit directory for each branch circuit panelboard. Revise directory to reflect circuiting changes to balance phase loads.

G. Install engraved plastic nameplates in accordance with Section 26 05 53.

H. Ground and bond panelboard enclosure according to Section 26 05 26. Connect equipment ground bars of panels in accordance with NFPA 70.

3.3 FIELD QUALITY CONTROL

A. See DDC General Conditions: -.

B. Inspect and test in accordance with NETA ATS, except Section 4.

C. Perform circuit breaker inspections and tests listed in NETA ATS, Section 7.6.

D. Perform switch inspections and tests listed in NETA ATS, Section 7.5.

E. Perform controller inspections and tests listed in NETA ATS, Section 7.16.1.

3.4 ADJUSTING

A. See DDC General Conditions:

B. Measure steady state load currents at each panelboard feeder; rearrange circuits in panelboard to balance phase loads to within 20 percent of each other. Maintain proper phasing for multi-wire branch circuits.

END OF SECTION

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SECTION 26 27 16 - ELECTRICAL CABINETS AND ENCLOSURES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes hinged cover enclosures, cabinets, terminal blocks, and accessories.

B. Related Sections:
1. Section 26 05 26 - Grounding and Bonding for Electrical Systems.
2. Section 26 05 33 - Raceway and Boxes for Electrical Systems.
3. Section 26 05 33 – Raceway Boxes for Electrical Systems.

1.2 REFERENCES

A. National Electrical Manufacturers Association:
1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
2. NEMA ICS 4 - Industrial Control and Systems: Terminal Blocks.

1.3 SUBMITTALS

A. See DDC General Conditions:

B. Product Data: Submit manufacturer's standard data for enclosures, cabinets, and terminal blocks.

C. Manufacturer's Installation Instructions: Submit application conditions and limitations of use stipulated by product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, and installation of product.

PART 2 PRODUCTS

2.1 HINGED COVER ENCLOSURES

A. Manufacturers:
1. Carlon Electrical Products
2. Hubbell Wiring Devices
3. Reliance Electric
4. Approved Equal.

B. Construction: NEMA 250, Type 1steel enclosure.

C. Covers: Continuous hinge, held closed by flush latch operable by key.

D. Furnish interior metal panel for mounting terminal blocks and electrical components; finish with white enamel.

E. Enclosure Finish: Manufacturer's standard enamel.

2.2 CABINETS

A. Manufacturers:
1. Carlon Electrical Products
2. Hubbell Wiring Devices
3. Reliance Electric
4. Approved Equal.

B. Boxes: Galvanized steel.

C. Box Size: as indicated on Drawings.

D. Backboard: Furnish 3/4 inch thick plywood backboard for mounting terminal blocks. Paint matte white.

E. Fronts: Steel, surface type with concealed trim clamps, screw cover front, door with concealed hinge, and flush lock keyed to match branch circuit panelboard. Finish with gray baked enamel.

F. Furnish metal barriers to form separate compartments wiring of different systems and voltages.

G. Furnish accessory feet for free-standing equipment.

2.3 TERMINAL BLOCKS

A. Manufacturers:
1. Carlon Electrical Products
2. Hubbell Wiring Devices
3. Reliance Electric
4. Approved Equal.

B. Terminal Blocks: NEMA ICS 4.

C. Power Terminals: Unit construction type with closed back and tubular pressure screw connectors, rated 600 volts.

D. Signal and Control Terminals: Modular construction type, suitable for channel mounting, with tubular pressure screw connectors, rated 300 volts.

E. Furnish ground bus terminal block, with each connector bonded to enclosure.

PART 3 EXECUTION

3.1 EXISTING WORK

A. Remove abandoned cabinets and enclosures, including abandoned cabinets and enclosures above accessible ceiling finishes. Patch surfaces.

B. Maintain access to existing cabinets and enclosures and other installations remaining active and requiring access. Modify installation or provide access panel.

C. Extend existing cabinets and enclosures using materials and methods compatible with existing electrical installations, or as specified.

D. Clean and repair existing cabinets and enclosures to remain or to be reinstalled.

3.2 INSTALLATION

A. Install enclosures and boxes plumb. Anchor securely to wall and structural supports at each corner in accordance with Section 26 05 29.

B. Install cabinet fronts plumb.

3.3 CLEANING

A. See DDC General Conditions: .

B. Clean electrical parts to remove conductive and harmful materials.

C. Remove dirt and debris from enclosure.

D. Clean finishes and touch up damage.

END OF SECTION

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SECTION 26 27 26 - WIRING DEVICES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes wall switches; wall dimmers; receptacles; multi-outlet assembly; and device plates and decorative box covers.

B. Related Sections:
1. Section 26 05 33 - Raceway and Boxes for Electrical Systems: Outlet boxes for wiring devices.
2. Section 26 05 34 - Floor Boxes for Electrical Systems: Service fittings for receptacles installed on floor boxes, Poke-through receptacles

1.2 REFERENCES

A. National Electrical Manufacturers Association:
1. NEMA WD 1 - General Requirements for Wiring Devices.
2. NEMA WD 6 - Wiring Devices-Dimensional Requirements.

1.3 SUBMITTALS

A. See DDC General Conditions:

B. Product Data: Submit manufacturer's catalog information showing dimensions, colors, and configurations.

PART 2 PRODUCTS

2.1 WALL SWITCHES

A. Manufacturers:
1. Lutron
2. Eagle Electric
3. Hubbell
4. Approved Equal.

B. Product Description: NEMA WD 1, General-Duty, AC only general-use snap switch.

C. Body and Handle: Ivory plastic with rocker handle.

D. Ratings:
1. Voltage: 120 volts, AC.
2. Current: 20 amperes.

2.2 WALL DIMMERS

A. Manufacturers:
1. Lutron

2. Lightolier
3. Leviton
4. Approved Equal.

B. Product Description: NEMA WD 1, Type semiconductor dimmer for incandescent lamps.

C. Body and Handle: Ivory plastic with linear slide.

D. Voltage: 120 volts.

E. Power Rating: to match lighting load on drawing.

2.3 RECEPTACLES

A. Manufacturers:
1. Leviton
2. Eagle Electric
3. Hubbell
4. Approved Equal.

B. Product Description: NEMA WD 1, General-duty general use receptacle.

C. Device Body: Ivory plastic.

D. Configuration: NEMA WD 6, type.

E. Convenience Receptacle: Type 5-20.

F. GFCI Receptacle: Convenience receptacle with integral ground fault circuit interrupter to meet regulatory requirements.

2.4 WALL PLATES

A. Manufacturers:
1. Lutron Model Nova T-Star
2. Eagle Electric
3. Siemens Co.
4. Approved Equal.

B. Decorative Cover Plate: Ivory, smooth lined.

C. Jumbo Cover Plate: Ivory, smooth lined.

D. Weatherproof Cover Plate: Gasketed cast metal plate with hinged and gasketed device cover.

PART 3 EXECUTION

3.1 EXAMINATION

A. See DDC General Conditions:

B. Verify outlet boxes are installed at proper height.

C. Verify wall openings are neatly cut and completely covered by wall plates.

D. Verify branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

3.2 PREPARATION

A. Clean debris from outlet boxes.

3.3 EXISTING WORK

A. Disconnect and remove abandoned wiring devices.

B. Modify installation to maintain access to existing wiring devices to remain active.

C. Clean and repair existing wiring devices to remain or to be reinstalled.

3.4 INSTALLATION

A. Install devices plumb and level.

B. Install switches with OFF position down.

C. Install wall dimmers to achieve full rating specified and indicated after derating for ganging as instructed by manufacturer.

D. Do not share neutral conductor on load side of dimmers.

E. Install receptacles with grounding pole on bottom.

F. Connect wiring device grounding terminal to outlet box with bonding jumper.

G. Install decorative plates on switch, receptacle, and blank outlets in finished areas.

H. Connect wiring devices by wrapping solid conductor around screw terminal. Install stranded conductor for branch circuits 10 AWG and smaller. When stranded conductors are used in lieu of solid, use crimp on fork terminals for device terminations. Do not place bare stranded conductors directly under device screws.

I. Use jumbo size plates for outlets installed in masonry walls.

J. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface mounted outlets.

3.5 INTERFACE WITH OTHER PRODUCTS

A. Coordinate locations of outlet boxes provided under Section 26 05 33 to obtain mounting heights as specified and as indicated on drawings.

B. Install wall switch 48 inches above finished floor.

C. Install convenience receptacle 18 inches above finished floor.

D. Install convenience receptacle 6 inches above counter mounted horizontally.

E. Install dimmer 48 inches above finished floor.

F. Coordinate installation of wiring devices with floor box service fittings provided under Section 26 05 34.

3.6 FIELD QUALITY CONTROL

A. See DDC General Conditions: .

B. Inspect each wiring device for defects.

C. Operate each wall switch with circuit energized and verify proper operation.

D. Verify each receptacle device is energized.

E. Test each receptacle device for proper polarity.

F. Test each GFCI receptacle device for proper operation.

3.7 ADJUSTING

A. See DDC General Conditions:

B. Adjust devices and wall plates to be flush and level.

3.8 CLEANING

A. See DDC General Conditions:

B. Clean exposed surfaces to remove splatters and restore finish.

END OF SECTION

SECTION 26 28 13 – FUSES

GENERAL

1.1 SUMMARY

A. Section includes fuses.

1.2 REFERENCES

A. National Electrical Manufacturers Association:
1. NEMA FU 1 - Low Voltage Cartridge Fuses.

1.3 DESIGN REQUIREMENTS

A. Select fuses to provide appropriate levels of short circuit and overcurrent protection for the following components: wire, cable, bus structures, and other equipment. Design system to maintain component damage within acceptable levels during faults.

B. Select fuses to coordinate with time current characteristics of other overcurrent protective elements, including other fuses, circuit breakers, and protective relays. Design system to maintain operation of device closest to fault operates.

1.4 FUSE PERFORMANCE REQUIREMENTS

A. Main Service Switches Larger than 600 amperes: Class L (time delay).

B. Main Service Switches: Class RK1 (time delay).

C. Power Load Feeder Switches: Class RK1 (time delay).

D. Motor Load Feeder Switches: Class RK1 (time delay).

E. Lighting Load Feeder Switches: Class RK1(time delay).

F. Other Feeder Switches Larger than 600 amperes: Class L time delay.

G. Other Feeder Switches: Class RK1 (time delay).

H. General Purpose Branch Circuits: Class RK1 (time delay).

I. Motor Branch Circuits: Class RK1 (time delay).

J. Lighting Branch Circuits: Class G.

1.5 SUBMITTALS

A. See DDC General Conditions:

B. Product Data: Submit data sheets showing electrical characteristics, including time-current curves.

1.6 CLOSEOUT SUBMITTALS

A. See DDC General Conditions:

B. Project Record Documents: Record actual sizes, ratings, and locations of fuses.

PART 2 PRODUCTS

2.1 FUSES

A. Fuses of type and voltage required, shall have a minimum interrupting rating of 200,000 R.M.S. amperes and be the equal of Bussmann or Gould Shawmut.

1. 600 Amp and Below:
   a. UL listed as class RK-1 and RK-5, similar to Bussman type Low Peak LPN-RK, 250 volt of Low Peak LPS-RK, 600 volt. Where intended for use in motor starters fuses shall be of the dual element, time-delay type. Provide with kit for rejecting all but class R fuses.

   b. UL listed as class J, similar to Bussman time delay, type Low Peak LPJ, or quick acting Limitron JKS, 600 volt

2. 601 to 6000 Amp:
   a. UL listed as class L, time delay, current limiting type similar to Low-Peak KRP-C, 600 volt.

B. All fuses shall be the product of the same manufacturer.

Approved Manufacturers
1. Bussman
2. Gould Shawmut
3. Mersen
4. Approved equal

C. Voltage: Rating suitable for circuit phase-to-phase voltage.

PART 3 EXECUTION

3.1 EXISTING WORK

A. Remove fuses from abandoned circuits.

B. Maintain access to existing fuses and other installations remaining active and requiring access. Modify installation or provide access panel.

3.2 INSTALLATION

A. Install fuse with label oriented so manufacturer, type, and size are easily read.

END OF SECTION

SECTION 26 28 19 - ENCLOSED SWITCHES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes fusible and nonfusible switches.

B. Related Sections:
   1. Section 26 28 13 - Fuses.

1.2 REFERENCES

A. National Electrical Manufacturers Association:
   1. NEMA FU 1 - Low Voltage Cartridge Fuses.
   2. NEMA KS 1 - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).

B. International Electrical Testing Association:
   1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

1.3 SUBMITTALS

A. See DDC General Conditions:

B. Product Data: Submit switch ratings and enclosure dimensions.

1.4 CLOSEOUT SUBMITTALS

A. See DDC General Conditions:.

B. Project Record Documents: Record actual locations of enclosed switches and ratings of installed fuses.

PART 2 PRODUCTS

2.1 FUSIBLE SWITCH ASSEMBLIES

A. Manufacturers:
   1. GE Electrical
   2. Hubbell Inc.
   3. Square D
   4. Approved Equal.

B. Product Description: NEMA KS 1, Type HD, enclosed load interrupter knife switch. Handle lockable in OFF position.

C. Fuse clips: Designed to accommodate NEMA FU 1, Class R fuses.

D. Enclosure: NEMA KS 1, to meet conditions. Fabricate enclosure from steel finished with manufacturer's standard gray enamel
   1. Interior Dry Locations: Type 1.
   2. Exterior Locations: Type 3R.

E. Service Entrance: Switches identified for use as service equipment are to be labeled for this application. Furnish solid neutral assembly and equipment ground bar.

F. Furnish switches with entirely copper current carrying parts.

2.2 NONFUSIBLE SWITCH ASSEMBLIES

A. Manufacturers:
   1. GE Electrical
   2. Hubbell Inc.
   3. Square 'D'.
   4. Approved Equal.

B. Product Description: NEMA KS 1, Type HD enclosed load interrupter knife switch. Handle lockable in OFF position.

C. Enclosure: NEMA KS 1, to meet conditions. Fabricate enclosure from steel finished with manufacturer's standard gray enamel
   1. Interior Dry Locations: Type 1.
   2. Exterior Locations: Type 3R.

D. Furnish switches with entirely copper current carrying parts.

2.3 SWITCH RATINGS

A. Switch Rating: Horsepower rated for AC or DC as indicated on Drawings.

B. Short Circuit Current Rating: UL listed for 200,000 rms symmetrical amperes when used with or protected by Class R or Class J fuses. 200,000 rms symmetrical amperes when used with or protected by Class L fuses (800-1200 ampere).

PART 3 EXECUTION

3.1 EXISTING WORK

A. Disconnect and remove abandoned enclosed switches.

B. Maintain access to existing enclosed switches and other installations remaining active and requiring access. Modify installation or provide access panel.

C. Clean and repair existing enclosed switches to remain or to be reinstalled.

3.2 INSTALLATION

A. Install enclosed switches plumb. Provide supports in accordance with Section 26 05 29.

B. Height: 5 feet to operating handle.

C. Install fuses for fusible disconnect switches. Refer to Section 26 28 13 for product requirements.

D. Install engraved plastic nameplates in accordance with Section 26 05 53.

E. Apply adhesive tag on inside door of each fused switch indicating NEMA fuse class and size installed.

3.3 FIELD QUALITY CONTROL

A. See DDC General Conditions:

B. Inspect and test in accordance with NETA ATS, except Section 4.

C. Perform inspections and tests listed in NETA ATS, Section 7.5.

END OF SECTION

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SECTION 26 29 13 - ENCLOSED CONTROLLERS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes manual and magnetic motor controllers in individual enclosures.

B. Related Sections:
1. Section 26 28 13 - Fuses.

1.2 REFERENCES

A. National Electrical Manufacturers Association:
1. NEMA AB 1 - Molded Case Circuit Breakers and Molded Case Switches.
2. NEMA FU 1 - Low Voltage Cartridge Fuses.
3. NEMA ICS 2 - Industrial Control and Systems: Controllers, Contactors, and Overload Relays, Rated Not More Than 2000 Volts AC or 750 Volts DC.
4. NEMA ICS 5 - Industrial Control and Systems: Control Circuit and Pilot Devices.
5. NEMA ICS 6 - Industrial Control and Systems: Enclosures.
6. NEMA KS 1 - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).

B. International Electrical Testing Association:
1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

1.3 SUBMITTALS

A. See DDC General Conditions:

B. Product Data: Submit catalog sheets showing voltage, controller size, ratings and size of switching and overcurrent protective devices, short circuit ratings, dimensions, and enclosure details.

C. Test Reports: Indicate field test and inspection procedures and test results.

1.4 CLOSEOUT SUBMITTALS

A. See DDC General Conditions:

B. Project Record Documents: Record actual locations and ratings of enclosed controllers.

C. Operation and Maintenance Data: Submit Replacement parts list for controllers.

PART 2 PRODUCTS

2.1 MANUAL MOTOR CONTROLLER

A. Manufacturers:

1. Square 'D'.
2. General Electric
3. Siemens
4. Approved Equal

B. Product Description: NEMA ICS 2, AC general-purpose, Class A, manually operated, full-voltage controller with overload element, red pilot light, Form 'C' auxiliary contact, and push button operator.

C. Enclosure: NEMA ICS 6, Type 1 to meet conditions of installation.

2.2 FRACTIONAL-HORSEPOWER MANUAL CONTROLLER

A. Manufacturers:
1. Square 'D'.
2. General Electric
3. Siemens
4. Approved Equal

2.3 MOTOR STARTING SWITCH

A. Manufacturers:
1. Square 'D'.
2. General Electric
3. Siemens
4. Approved Equal

2.4 FULL-VOLTAGE NON-REVERSING CONTROLLERS

A. Manufacturers:
1. Square 'D'.
2. General Electric
3. Siemens

B. Product Description: NEMA ICS 2, AC general-purpose Class A magnetic controller for induction motors rated in horsepower.

C. Control Voltage: 120 volts, 60 Hertz.

D. Overload Relay: NEMA ICS 2.

E. Product Features:
1. Auxiliary Contacts: NEMA ICS 2, each normally field convertible contacts in addition to seal-in contact.
2. Cover Mounted Pilot Devices: NEMA ICS 5, standard duty type.
3. Pilot Device Contacts: NEMA ICS 5, Form Z, rated A150.
4. Pushbuttons: Unguarded type.
5. Indicating Lights: Transformer type.
6. Selector Switches: Rotary type.
7. Relays: NEMA ICS 2.
8. Control Power Transformers: 120 volt secondary, 100 VA minimum, in each motor starter. Furnish fused secondary, and bond unfused leg of secondary to enclosure.

F. Combination Controllers: Combine motor controllers with disconnect in common enclosure, using non-fusible switch conforming to NEMA KS 1, enclosed knife switch with externally operable handle.

G. Enclosure: NEMA ICS 6, to meet conditions. Fabricate enclosure from steel finished with manufacturer's standard gray enamel.
1. Interior Dry Locations: Type 1.
2. Exterior Locations: Type 3R.

PART 3 EXECUTION

3.1 EXISTING WORK

A. Disconnect and remove abandoned enclosed motor controllers.

B. Maintain access to existing enclosed motor controllers and other installations to remain active and to require access. Modify installation or provide access panel.

C. Clean and repair existing enclosed motor controllers to remain or to be reinstalled.

3.2 INSTALLATION

A. Install enclosed controllers plumb. Provide supports in accordance with Section 26 05 29.

B. Height:5 feet to operating handle.

C. Install fuses for fusible switches. Refer to Section 26 28 13 for product requirements.

D. Select and install overload heater elements in motor controllers to match installed motor characteristics.

E. Install engraved plastic nameplates. Refer to Section 26 05 53 for product requirements and location.

F. Neatly type label and place inside each motor controller door identifying motor served, nameplate horsepower, full load amperes, code letter, service factor, and voltage/phase rating. Place label in clear plastic holder.

3.3 FIELD QUALITY CONTROL

A. See DDC General Conditions: .

B. Inspect and test in accordance with NETA ATS, except Section 4.

C. Perform inspections and tests listed in NETA ATS, Section 7.16.1.

END OF SECTION

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SECTION 26 51 00 - INTERIOR LIGHTING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes interior luminaires, lamps, ballasts, and accessories.

B. Related Sections:
1. Section 26 05 26 - Grounding and Bonding for Electrical Systems.
2. Section 26 05 33 - Raceway and Boxes for Electrical Systems.
3. Section 26 52 00 - Emergency Lighting.

1.2 REFERENCES

A. American National Standards Institute:
1. ANSI C82.1 - American National Standard for Lamp Ballast-Line Frequency Fluorescent Lamp Ballast.
2. ANSI C82.4 - American National Standard for Ballasts-for High-Intensity-Discharge and Low-Pressure Sodium Lamps (Multiple-Supply Type).

1.3 SUBMITTALS

A. See DDC General Conditions:

B. Shop Drawings: Indicate dimensions and components for each luminaire not standard product of manufacturer.

C. Product Data: Submit dimensions, ratings, and performance data.

1.4 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

PART 2 PRODUCTS

2.1 INTERIOR LUMINAIRES

A. Product Description: Complete interior luminaire assemblies, with features, options, and accessories as scheduled.

B. See DDC General Conditions: -.

2.2 FLUORESCENT BALLASTS

A. Manufacturers:
1. Advance.
2. General Electric Co.
3. Hubbell Lighting
4. Magnetek Inc

5. Pass & Seymour
6. Philips Electronic North America
7. Thomas Industries, Inc.
8. Bodine.
9. Approved Equal.

B. Product Description: Electronic ballast less than 10 percent THD for lamps specified, with voltage to match luminaire voltage.

2.3 HIGH INTENSITY DISCHARGE (HID) BALLASTS

A. Manufacturers:
1. Advance.
2. General Electric Co.
3. Philips Electronics North America.
4. Radiant Lamp Co.
5. Siemens Corp.
6. Venture Lighting International Inc.
7. Approved Equal.

B. Product Description: : ANSI C82.4, metal halide high pressure sodium lamp ballast, suitable for lamp specified, with voltage to match luminaire voltage.

2.4 FLUORESCENT DIMMING BALLASTS AND CONTROLS

A. Manufacturers:
1. Advance
2. Lutron.
3. General Electric Co.
4. Philips Electronics of America.
5. Pass & Seymour.
6. Thomas Industries.
7. Approved Equal.

B. Product Description: Electrical assembly of control unit and ballast to furnish smooth dimming of fluorescent lamps.

C. Control Unit: Linear slide type, rated 1500 watts at 120 volts.

D. Ballast: Selected by dimming system manufacturer as suitable for operation with control unit and suitable for lamp type and quantity specified for luminaire.

2.5 INCANDESCENT LAMPS

A. Manufacturers:
1. Sylvania.
2. General Electric Co.
3. Hanson Industries.
4. Lithonia Lighting.
5. Neo-Ray Products.
6. Philips Electronics North America.
7. RCS Industries Co.
8. Radiant Lighting.

9. Approved Equal.

2.6 FLUORESCENT LAMPS

A. Manufacturers:
1. Sylvania
2. General Electric Co.
3. Hubbell Inc.
4. Lithonia Lighting.
5. Philips Electronics.
6. Siemens Corp.
7. Approved Equal.

2.7 HID LAMPS

A. Manufacturers:
1. Sylvania
2. General Electric Co.
3. Philips Electronic North America.
4. RCS Industries North America.
5. Siemens Corp.
6. Approved equal

PART 3 EXECUTION

3.1 EXISTING WORK

A. Disconnect and remove abandoned luminaires, lamps, and accessories.

B. Extend existing interior luminaire installations using materials and methods compatible with existing installations, or as specified.

C. Clean and repair existing interior luminaires to remain or to be reinstalled.

3.2 INSTALLATION

A. Install suspended luminaires using pendants supported from swivel hangers. Install pendant length required to suspend luminaire at indicated height.

B. Support luminaires larger than 2 x 4 foot size independent of ceiling framing.

C. Locate recessed ceiling luminaires as indicated on reflected ceiling plan.

D. Install surface mounted luminaires plumb and adjust to align with building lines and with each other. Secure to prevent movement.

E. Exposed Grid Ceilings: Support surface-mounted luminaires on grid ceiling directly from building structure.

F. Install recessed luminaires to permit removal from below.

G. Install recessed luminaires using accessories and firestopping materials to meet regulatory requirements for fire rating.

H. Install clips to secure recessed grid-supported luminaires in place.

I. Install wall-mounted luminaires at height as indicated on Drawings as scheduled.

J. Install accessories furnished with each luminaire.

K. Connect luminaires to branch circuit outlets provided under Section 26 05 33 .using flexible conduit.

L. Make wiring connections to branch circuit using building wire with insulation suitable for temperature conditions within luminaire.

M. Install specified lamps in each luminaire.

3.3 FIELD QUALITY CONTROL

A. See DDC General Conditions:

B. Operate each luminaire after installation and connection. Inspect for proper connection and operation.

3.4 ADJUSTING

A. Section 01 70 00 - Execution and Closeout Requirements: Testing, adjusting, and balancing.

B. Aim and adjust luminaires.

3.5 CLEANING

A. See DDC General Conditions

B. Remove dirt and debris from enclosures.

C. Clean photometric control surfaces as recommended by manufacturer.

D. Clean finishes and touch up damage.

3.6 PROTECTION OF FINISHED WORK

A. See DDC General Conditions.

B. Clean reflectors, Lens and relamp luminaires at Substantial Completion.

END OF SECTION

SECTION 26 52 00 - EMERGENCY LIGHTING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes emergency lighting units and exit signs.

B. Related Sections:
1. Section 26 05 26 - Grounding and Bonding for Electrical Systems.
2. Section 26 05 33 - Raceway and Boxes for Electrical Systems.
3. Section 26 51 00 - Interior Lighting

1.2 REFERENCES

A. National Electrical Manufacturers Association:
1. NEMA WD 6 - Wiring Devices-Dimensional Requirements.

1.3 SYSTEM DESCRIPTION

A. Emergency lighting to comply with requirements.

1.4 SUBMITTALS

A. See DDC General Conditions.

B. Product Data: Submit dimensions, ratings, and performance data.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

PART 2 PRODUCTS

2.1 EMERGENCY LIGHTING UNITS

A. Manufacturers:
1. Cooper Industries
2. General Signal Corp.
3. At Lite
4. Approved Equal.

B. Product Description: Self-contained incandescent fluorescent emergency lighting unit.

C. Battery: 12 volt, nickel-cadmium type, with 1.5 hour capacity.

D. Battery Charger: Dual-rate type, with sufficient capacity to recharge discharged battery to full charge within twelve hours.

E. Lamps: Compact fluorescent.

F. Lamps: 12 watt minimum, sealed beam type in nickel or chrome plated steel housing.

G. Remote Fixtures: Match fixtures on unit.

H. Housing: Steel with bronze hammer tone finish and vinyl wood grain front panel.

I. Indicators: Lamps to indicate AC ON and RECHARGING. Voltmeter to indicate battery voltage.

J. TEST switch: Transfers unit from external power supply to integral battery supply.

K. Electrical Connection: Conduit connection.

L. Input Voltage: 120 volts.

2.2 EXIT SIGNS

A. Manufacturers:
1. Cooper Industries
2. General Signal Corp.
3. At Lite.
4. Approved Equal

B. Product Description: Exit sign fixture suitable for use as emergency lighting unit.

C. Housing: Extruded aluminum.

D. Face: Aluminum stencil face with red letters.

E. Directional Arrows: As indicated on Drawings Universal type for field adjustment.

F. Mounting: As indicated on Drawings Universal, for field selection.

G. Battery: 12 volt, nickel-cadmium type, with 1.5 hour capacity.

H. Battery Charger: Dual-rate type, with sufficient capacity to recharge discharged battery to full charge within twelve hours.

I. Lamps: LED.

J. Input Voltage: 120 volts.

2.3 FLUORESCENT LAMP EMERGENCY POWER SUPPLY

A. Manufacturers:
1. Cooper Industries.

2. General Signal Corp.
3. Mule Emergency Lighting
4. Bodine.
5. Approved Equal.

PART 3 EXECUTION

3.1 EXISTING WORK

A. Disconnect and remove abandoned emergency lighting units, exit signs, lamps, and accessories.

B. Extend existing emergency lighting and exit sign installations using materials and methods as specified.

C. Clean and repair existing emergency lighting units and exit signs remaining or are to be reinstalled.

3.2 INSTALLATION

A. Install suspended exit signs using pendants supported from swivel hangers. Install pendant length required to suspend sign at indicated height.

B. Install surface-mounted emergency lighting units and exit signs plumb and adjust to align with building lines and with each other. Secure to prevent movement.

C. Install wall-mounted emergency lighting units and exit signs at height as indicated on Drawings.

D. Install accessories furnished with each emergency lighting unit and exit sign.

E. Connect emergency lighting units and exit signs to branch circuit outlets provided in Section 26 05 33 as indicated on Drawings.

F. Make wiring connections to branch circuit using building wire with insulation suitable for temperature conditions within unit.

G. Install specified lamps in each emergency lighting unit and exit sign.

H. Ground and bond emergency lighting units and exit signs in accordance with Section 26 05 26.

3.3 FIELD QUALITY CONTROL

A. See DDC general conditions.

B. Operate each unit after installation and connection. Inspect for proper connection and operation.

3.4 ADJUSTING

A. See DDC general conditions-

B. Aim and adjust lamp fixtures as indicated on Drawings.

C. Position exit sign directional arrows as indicated on Drawings.

3.5 PROTECTION OF FINISHED WORK

A. See DDC general conditions -

B. Relamp emergency lighting units and exit signs having failed lamps at Substantial Completion.

END OF SECTION

SECTION 26 55 61 – STAGE LIGHTING DISTRIBUTION

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 WORK INCLUDED

A. Provide and install all stage lighting devices, equipment and components as required for a complete and operational system.

B. Provision and installation of all electrical systems including (2) new 200A, 3 phase, 120-208vac Company Switches, outlet boxes and wiring to a custom termination panel with all associated wiring, conduit, pull boxes and installation labor. Field verify existing conditions prior to bid.

C. Coordination of manufacturing and installation of all systems supplied herein.

D. Field verification of dimensions, conditions and obstructions at the job site.

E. Submissions of shop drawings for all components, equipment, materials, systems and interconnection of the same.

F. Provision and installation of all wire and cable between theater lighting devices. All control cable homeruns shall be without splices, continuous from the control device to the homerun destination.

G. Provision and installation of all conduit, back boxes, junction boxes, pull boxes and terminal boxes as required by the drawings and specifications.

H. System inspection, commissioning and final adjustment.

I. Training as outlined by these specifications.

J. System operation and maintenance manuals.

K. System warranty as defined by these specifications.

1.3 QUALITY ASSURANCE

A. Work shall be done by people skilled in this trade in strict accordance with the requirements and/or specification of the manufacturers of the material being used.

B. Manufacturer Qualifications:

1. The manufacturer shall have completed a minimum of three (3) system installations of similar or larger size.
2. The manufacturer shall be capable of providing a factory trained field engineer to the job site within 24 hours of a service call. They shall maintain a 24 hour emergency service phone line. A call to the emergency line shall result in an engineer responding within 30 minutes from the time of call.
3. Field engineers and service technicians shall be factory trained and qualified for all on-site and in-shop engineering services required.
4. Specified Theater Lighting Distribution Manufacturers:
   a. SSRC
      2172-A River Road
      Greer, SC 29650
      (864) 848-9770

b. Lex Products
15 Progress Drive
Shelton CT, 06484
(800) 643-4460

c. Union Connector
40 Dale St.
West Babylon, NY 11704
(631) 753-9550

d. Doug Fleenor Design Inc.
396 Corbett Canyon Road
Arroyo Grande, CA 93420

e. Pathway
17-5 Elm Street
P.O. Box 591
Old Saybrook, CT 06475
(860) 388-6881

f. Approved Equal

1.4 REFERENCES

A. Regulatory Agencies

1. Electronics Industries Association
2. National Electrical Code
3. National Electrical Manufacturers Association
4. National Fire Protection Association
5. Underwriter's Laboratories
6. Occupational Safety and Health Act of 1970
7. Additional applicable codes, standards, regulations and guidelines shall be adhered to in both spirit and letter of intent.

1.5 SUBMITTALS

A. Shop Drawings

1. Submit field coordinated shop drawings for approval prior to installation. Shop drawings shall indicate all box locations, mounting heights, pull box and junction box locations, conduit routing and conduit wire fill. Site dimensions and conditions affecting the Work shall be verified prior to commencement of Shop Drawings.
2. Shop drawings shall be wholly coordinated with other work of the Contractor.
3. Review of shop drawings shall not be considered as a guarantee of measurements of building conditions. Where drawings are indicated as having been reviewed, said review does not mean that drawings have been checked in detail, and said review does not in any way relieve this Contractor from his responsibility or necessity of furnishing material or performing work as required by the Contract Specifications.
4. Submit shop drawings as required by General Conditions.
5. All drawings shall be produced on AutoCAD Version 2012 or compatible system to ensure legibility and quality of submission. Obtain approval of the drawings prior to proceeding with manufacture and fabrication.
6. Shop drawings shall include:
   a. General arrangement plans and diagrams indicating location of each device, component and equipment item. (1/4" = 1'-0" minimum).
   b. Component installation details. (1" = 1'-0" minimum).
   c. Manufacturer's component equipment drawings.

d. Manufacturer's catalogs cuts showing weight, dimensions and capacities of mechanical components.

B. Final Submittals:

1. Submit in accordance with the General Conditions.
2. Four copies of as-built and installed shop drawings. AutoCAD copies of general arrangement, elevations and connection details shall be provided on disk as part of the As-built drawing submission.

1.6 GUARANTEE, SERVICE AND TRAINING

A. The Contractor shall guarantee systems to be free of defective components, faulty workmanship or improper installation/adjustment for a period of one (1) year from the date of final acceptance.

B. The Contractor shall be present at the systems turn-on, checkout and testing and training session. The Contractor shall make necessary repairs and advise on field installation nuances at time of training. Failure to attend these meetings may result in delay of final approval of overall system.

C. Training shall consist of (1) two hour session.

D. For the first (30) days after final acceptance of the system, the Contractor shall be required to answer all service calls within twenty-four hours of a request being made. After the (30) day period, the Contractor shall meet all requirements established by the one (1) year guarantee.

PART 2 - PRODUCTS

2.1 GENERAL

A. Items, materials and equipment shall be new and undamaged. Uniform materials shall be used throughout. All steelwork shall be cleaned, primed with rust inhibitor and painted with epoxy resin or baked enamel finish. This Contractor shall replace or repair all damaged equipment. All touch-up paint shall match the manufacturer's color identically.

B. The mechanical fabrication and workmanship shall incorporate best practices for good fit and finish. There shall not be any burrs or sharp edges to cause a hazard to operating personnel.

2.2 STAGE LIGHTING OUTLET BOXES

A. This system shall include all 120vac wiring devices for the connection of portable theater lighting fixtures. Note lighting fixtures are not in contract.

B. Outlet boxes shall be provided as defined by the drawings. Devices shall be constructed of black aluminum in thickness required by structural and NEC, UL requirements.

C. All electrical equipment and materials shall have the listing of the Underwriter's Laboratories, Inc. and shall bear the labels attesting to UL listing.

D. All devices shall be provided with provided pre-wired with 125 degree XLP high temperature wire to molded barrier terminal blocks. Terminal blocks shall be sized to accept #10 THHN conductors.

E. All devices shall be appropriately labeled with permanently attached circuit numbers. Where custom panels are specified they shall be silk screened or finished as defined by the drawings.

F. Where components, support devices and other materials have been omitted from the specifications and drawings, but are necessary for the operation of the system, they shall be provided without additional cost to the City of New York.

2.3 COMPANY SWITCHES

A. The company switches shall provide a means of connecting portable dimmers in a safe and efficient manner.

B. Enclosure:

1. Enclosure shall be NEMA-Type 1 suitable for indoor use, manufactured from .075 inch cold rolled steel.
2. Enclosure shall have (4) welded mounting tabs.
3. Finish shall be black powder coat paint.

C. Inputs:

1. Contractor connections to the main circuit breaker, neutral and ground shall be internal lugs that accept up to 500mcm wire.

D. Outputs:

1. The unit shall have a wiring chamber that contains both direct wire lugs and single pole cam connectors for external connection.
2. There shall be 5 cams/lugs.
3. Connections shall be arranged so that cables drape downward when connected.
4. Cables shall enter and exit the wiring chamber from access holes in the bottom of the enclosure.
5. A lockable hinged access door shall restrict access to the wiring chamber for safety and security.
6. The access door shall engage the shunt trip mechanism of the main circuit breaker whenever it is not fully closed, so that connections cannot be made or broken under load.
7. The unit shall provide a spring loaded strain relief for lug cables exiting the bottom of the chamber.
8. Output lug connections shall accommodate a maximum of 500mcm cable.
9. A strip of white light-emitting diode work light shall light the wiring chamber whenever the access door is open.

E. Main Circuit Breaker:

1. The unit shall contain a single 3-pole 200 Amp electronic circuit breaker.
2. The main breaker shall be 100% rated with a 65K AIC rating.
3. The main breaker shall be recessed beneath the plane of the front panel of the unit to prevent accidental operation.
4. The main breaker shall be lockout-tagout equipped.
5. The main breaker shall be resettable to trip at 40% of its rated capacity.

F. Indicators

1. The unit shall be equipped with light emitting diode indicator lights for each supply phase.
2. The unit shall further be supplied with a light emitting diode indicator light indicating supply to ground continuity, labeled with an alphabetic description.

G. The company switch shall be UL and cUL Listed.

2.4 CUSTOM TERMINATION PANEL

A. This device is a custom enclosure. It shall be provide with termination strips to terminate incoming #12 AWG THHN wires for the 96 circuits of outlet boxes. The output of the termination strip shall be wired to a panel mount 6 circuit multi-connector as manufactured by Amphenol Socapex #SLX GD EF 419AR or approved equal.

B. Enclosure shall be provided with 125 degree XLP high temperature wire to molded barrier terminal blocks. Terminal blocks shall be sized to accept #10 THHN conductors.

C. Provide shop drawings for review prior to fabrication.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine all,Work prepared by others to receive Work of this Section and report defects affecting installation. Commencement of Work shall be construed as complete acceptance of preparatory Work. The sphere of inspection shall include but not be limited to:

1. Coordination of device locations with other trades and Work provided by others.
2. Coordination of all box sizes and conduit routing.
3. Assurance all mounting surfaces are ready to accept the Work.
4. Verification of flatness, plumb and level of mounting conditions.
5. Inspection of all components of the Work supplied by others to insure no damage has occurred during shipping or storage.

3.2 PREPARATION

A. Examine the site and review the contract drawings to become familiar with the work. Field verify all dimensions at the site prior to installation and advise of all system modifications required by field conditions.

B. Coordinate the Work with related trades. This shall include the preparation of schedules and coordination of equipment delivery and storage.

C. Routing of all 120V wiring to lighting circuits shall be in strict conformance with the requirements of the project design.

3.3 WORKMANSHIP

A. The installation of all Work shall be neat. All equipment shall be plumb and square. All cables shall be neatly bundled with plastic tie wraps as required.

B. Work that is damaged or improperly installed will be removed and replaced. Materials and labor required for such repairs shall be provided without claim for payment.

C. Terminations shall be accomplished with appropriate connectors. Provide strain-relief at connectors where required.

D. No exposed conduit will be permitted in stage and audience area unless approved in advance.

E. Verify with Architectural drawings all device locations prior to installation. If specific locations are not called out on the drawings, submit a request for information for clarification prior to roughing in all devices in occupied spaces.

F. Any conduit, box or pull box installed without prior approval shall may be removed or relocated at Contractor expense.

3.4 INSPECTION, TESTING AND TRAINING

A. If inspection reveals any detail of construction, fabrication, or installation not in strict

accord with the specification and contract requirements, approval shall be withheld and the Contractor shall be given thirty days to repair the rejected items as required. In addition to the final inspection of components the City of New York shall have the right of inspection during the course of the installation, and shall be allowed access to materials at the side for eventual incorporation in the Work. Preliminary inspection shall not be constructed as eliminating the possible rejection of various components during the final inspection detailed above.

B. The completed installation of the system shall be tested and operated for approval.

C. This Contractor's field supervisor and project manager must be on site during the system turn on, check-out and testing and training.

D. Provide (2) two hours of instruction on operation and maintenance.

E. The following condition must be met before final approval can be granted:

1. Final tests and inspections are approved.
2. Punch list items complete.
3. Submittal of three copies of warranty.
4. Submittal of record drawings and instruction manuals.

END OF SECTION

SECTION 27 41 00 - SOUND SYSTEM INFRASTRUCTURE

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Work of this Section includes labor, materials, equipment and services necessary to complete the provision of audio-visual raceways, cable and related work indicated on the TS drawings and specified in this Section.

B. Work includes, but is not necessarily limited to, the following:

1. Provision of back boxes, blank faceplates custom face plates, cable, pull boxes, conduit with tagged drag lines, stub ups, as indicated on the TS drawings.
2. Provision of Shop Drawings and samples as required herein.
3. Verification of dimensions and conditions at job site prior to equipment installation and coordination with associated trades.
4. Field coordination at job site.
5. As-Built record drawings.
6. Any additional materials or services needed in order to meet the general requirements stated above, even if not specifically mentioned herein or on the drawings, shall be provided by the Contractor without claim for additional payment.
7. If the drawing and specifications conflict in any regard, the specifications or drawings that illustrate the highest value of material and/or labor shall take precedence.

C. Related Work: The following related items are specified in other Sections of the Specifications:

1. General provisions for Electrical work - Applicable sections of Division 26.

1.3 QUALITY ASSURANCE

A. Work shall be done by persons skilled in this trade in strict accordance with the requirements and/or specifications of the manufacturers of the material being used.

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. All electrical equipment and materials shall have the listing of the Underwriters' Laboratories, Inc., and shall bear the labels attesting to UL listing, and types approved by the Municipal Departments having jurisdiction.

1.4 REFERENCE STANDARDS

A. Published specifications, standards, tests, or recommended methods of trade, industry or governmental organizations apply to work in all sections as notes below:

1. OSHA - Occupational Safety and Health Administration Regulations.
2. NEMA - National Electrical Manufacturers Association.
3. UL - Underwriters Laboratories.
4. NFPA - National Fire Protection Association.
5. The National Electrical Code.

6. New York City Building Code

1.5 DEFINITION OF TERMS

A. Technical terms for audio-visual and related work shall be construed in the following manner, in accordance with:

1. Captions on related drawings.
2. Generally recognized audio-visual usage.
3. Relevant usage and definitions of handbooks, guidebooks or trade group recommendations by manufacturers' associations or professional and engineering societies such as UL, IES, SMPTE, NEC and NEMA.
4. The term "provide" shall mean supplying and installing.

1.6 JOB CONDITIONS

A. Investigate the nature and location of the Work, the general and local conditions, particularly those bearing upon the Work required such as: transportation, disposal, handling and storage of materials, availability of labor, electric power and physical conditions at the site and character of equipment and facilities needed during the execution of the Work. Obtain all information that can affect the Work, or cost thereof under the Contract.

1.7 SUBMITTALS

A. Shop drawings and samples shall be submitted in accordance with the requirements established in the General Conditions and shall include the following:

1. Plan, elevation, section as required to fully illustrate all AV, power, telephone, data, fire alarm, switches, outlets, including all system wiring devices indicated on the AV and Electrical drawings including conduit and cable routing (1/4" = 1'-0" min.) between devices indicated on the AV and Electrical drawings.
2. Provide color coded plans of items described above in paragraph 1.
3. The Contractor shall coordinate shop drawings well in advance with other trades. It is the Contractors sole responsibility to obtain all necessary information from other trades.
4. Submit manufacturer's product data sheet on each floor pocket, video projector mount, cable, electrical device and type used in the system.
5. As-Built drawings.

B. The following sample shall be provided for review prior to installation:

1. Receptacle plate of each type. These can be incorporated into the work after review.

PART 2 – PRODUCTS

2.1 DESCRIPTION OF SYSTEMS

A. Provide all cable indicated in the documents for interconnection among and between the devices comprising the systems indicated in Part 1 above.

B. All raceways and related equipment shall be provided as per applicable sections of Division 26, the Drawings and in accordance with the Electrical Code of the City of New York, National Electrical Code and other codes having jurisdiction.

2.2 GENERAL REQUIREMENTS

A. All materials and components shall be new and of manufacturer's finest quality as appropriate to the application. Uniform materials and components shall be used throughout, and wherever possible, shall be field replaceable and commonly available.

B. All materials shall conform to applicable UL standards and to general electrical requirements unless specifically accepted by requirements of this section.

C. See applicable sections of Division 26 for more information.

2.3 PRODUCTS

A. Type "S#" Box

1. Provide 2 gang back box for custom black anodized aluminum plate that matches the size of the surface mounted junction box where surface mounted.
2. Provide custom plate with (2) Neutrik Speakon NL4MH-V receptacle and (1) Neutrik female XLR receptacle NC3FD-LX-BAG and (1) Neutrik Ethercon RJ45 NE8FDY-C6-B or approved equal receptacle.

B. Type "V Box

1. Provide 1 gang back box for black anodized aluminum plate that matches the size of the flush mounted junction box.
2. Provide custom plate with (1) Canare BNC receptacle or approved receptacle.

C. Type "IR Box

1. Provide 1 gang back box for black anodized aluminum plate that matches the size of the flush mounted junction box.
2. Provide custom plate with (1) Canare BNC receptacle or approved receptacle.

D. General - Wall and Ceiling Receptacle Boxes

1. Receptacle boxes, where located on the drawings for TS raceway system, shall be in accordance with NEMA/EEMAC, UL 50 Type 1 and IEC 529, IP30.
2. Boxes shall be fabricated from 16 gauge or 14 gauge steel. All boxes shall be provided with cover plates for flush mounting except where otherwise noted. Knockouts for conduits shall be as required to meet conduit sizes indicated on plans.
3. Ceiling box at video projector locations shall be mounted to the video projector pipe adjacent to the power outlet.
4. Typical device backbox shall be the number of gangs as called for on the Legend, 2-1/8" deep.
5. Acceptable Manufacturers:
   a. Midland Ross, Leviton, Steel City, Hubbell, or As Approved.
   b. See electrical specification for additional requirements.

PART 3 – EXECUTION

3.1 INSPECTION

A. Examine all work prepared by others to receive work of this Section and report any defects affecting installation to the City of New York.

B. Commencement of work will be construed as complete acceptance of preparatory work by

others.

C. All devices shall be installed as per applicable sections of Division 26 and in accordance with the National Electric Code.

3.2 GENERAL REQUIREMENTS

A. Contract Drawings are diagrammatic and indicate general arrangement of systems and work included. Verify exact location of all electrical devices with architectural drawings. If a dimension is not indicated on either the architectural or AV drawings, request in writing, required information prior to proceeding. Any work installed without written direction that is not specifically indicated on the drawings may be rejected and relocated at Contractor expense. All finish or other work by others damaged by relocation of any electrical device shall be the responsibility of the Contractor.

B. Final location of all equipment shall be located as shown on Contractor's reviewed Shop Drawings, or as located in the field by the City of New York. Check drawings of other trades relating to work to verify spaces in which work will be installed. In centering outlets and locating boxes allow for overhead pipes, ducts and mechanical equipment, variations in fireproofing and plastering, window and door trim, paneling, hung ceilings, and the like, and correct any inaccuracy resulting from failure to do so without expense.

3.3 RACEWAYS

A. General Requirements

1. No exposed raceways shall be permitted.
2. Pull no wire; insert no fish wire, until raceway and outlet boxes are permanently in place.
3. Provide cable supports for wire in riser conduits as required by code, if applicable.
4. Provide pull boxes in horizontal conduit running every 100 feet as indicated or wherever necessary to facilitate pulling in of wire. Coordinate locations with other trades to provide access.
5. PVC or flexible conduit shall not be permitted.
6. All conduit penetrations through acoustically rated partitions shall be a maximum of 1/2" larger than the penetrating conduit and shall be thoroughly caulked with acoustical non-setting caulk.
7. Provide drag lines with conduit destination noted on drag line to facilitate pulling of cable.
8. No greenfield shall be permitted for AV conduit.

B. Raceway Grounding & Isolation

1. Signal conduits shall be mechanically and electrically connected to receptacle boxes and shall be electrically isolated from audio-visual system equipment racks.
2. Provide terminals of conduits with lock nut and insulated bushing for connection to pull boxes servicing more than one conduit subsystem as described in the separation Guide Identification table below.

C. Separation of Signal Raceways

1. Microphone level circuits, line level circuits, loudspeaker circuits, video, digital communication lines (including lighting control) and telephone lines shall be run in separate conduits. All conduits shall be installed per the table below. If not physically possible to provide the separation specified for parallel runs over 25', the exterior of the signal conduit with the lowest voltage shall be completely wrapped in 1/32" thick lead sheet. Where it is absolutely necessary to cross a conduit with a conduit where separation is called for, the intersection shall be at 90 degrees and the audio conduit

shall be wrapped in 1/32" lead sheet for a distance of 12" each side of the intersection.

a. The following table shall be used as a guide for the minimum separation required between signal conduits

b. Group Identification:

a) Microphone conduit (0mV-100mV)
b) Line level conduit (100mV-10V)
c) Loudspeaker conduit (10V-70.7V)
d) Telephone, Video and digital communication conduit

Group	a	b	c	d
a	-	6"	12"	12"
b	6"	-	12"	6"
c	12"	12"	-	6"
d	12"	6"	6"	-

c. The following table shall be used as a guide for the minimum separation required between signal conduits and power conduits for parallel runs over ten feet:

d. Group Identification:

e) Dimmer controlled lighting circuits
f) Power circuits (120V and above)
g) Plumbing Pipe
h) Heat Sources

Group	e	f	g	h
a	24"	12"	6"	12"
b	24"	12"	6"	12"
c	12	12"	6"	6"
d	12"	12"	6"	6"

3.4 WORKMANSHIP

A. The installation of all work shall be neat. All boxes, equipment, etc., shall be plumb and square.

B. The Contractor shall keep the job adequately staffed at all times. Unless illness, loss of personnel, or other circumstances beyond the control of Contractor intervene, he shall keep the same individual in charge throughout its execution.

C. Following installation, all soiled, abraded or discolored surfaces of work installed herein will be cleaned and left free from blemishes or defects.

D. Work that is damaged or improperly installed will be removed and replaced and the entire installation left in complete satisfactory condition.

E. Clean the areas affected by the Work to a level of operational cleanliness.

F. Remove all debris as required by the Contract Documents.

G. Remove all extraneous debris from the areas and vacuum clean.

H. The Contractor shall remove from the job site all rubbish and refuse at the end of each day and shall keep his work area clean.

I. Any damage brought about by Contractor's work shall be repaired by the Contractor at no cost.

J. It shall be the responsibility of the Contractor to cooperate with other trades in order to achieve well-coordinated progress and satisfactory final results. He shall watch for conflicts with work of other contractors on the job and execute, without claim for extra payment, moderate moves or changes as are necessary to accommodate other equipment or preserve symmetry and pleasing appearance.

END OF SECTION 27 41 00

SECTION 28 31 00 – FIRE DETECTION AND ALARM SYSTEM

PART 1 GENERAL

1.1 SUMMARY

A. The requirements of the Contract Documents, including the General and Supplementary General Condition and Division 1 - See DDC General Conditions

B. All exceptions taken to these Specifications, all variances from these Specification and all substitutions of operating capabilities or equipment called for in these Specification shall be listed in writing and forwarded to the Engineer.

C. The entire system shall be installed with aesthetics in mind. All control panels installed in public spaces shall be semi-flush mounted with no exposed conduit or cable trays.

D. Related Sections:
1. Section 08 71 00 - Door Hardware: Door closers, electric locks, electric releases.
2. Section 21 13 13 - Wet-Pipe Sprinkler Systems: Flow detection and alarm devices.
3. Section 23 33 00 - Air Duct Accessories: Smoke dampers.
4. Section 26 05 19 - Low-Voltage Electrical Power Conductors and Cables.
5. Section 26 05 26 - Grounding and Bonding for Electrical Systems.

1.2 REFERENCES

A. All equipment shall be UL listed for its intended use and conform to the latest UL Standards.

B. Underwriters Laboratories Inc.: The system and all components shall be listed by Underwriters Laboratories Inc. for use in fire protective signaling system under the following standards as applicable:
1. UL 864/UOJZ, APOU Control Units for Fire Protective Signaling Systems.
2. UL 268 Smoke Detectors for Fire Protective Signaling Systems.
3. UL 268A Smoke Detectors for Duct Applications.
4. UL 217 Smoke Detectors Single Station.
5. UL 521 Heat Detectors for Fire Protective Signaling Systems.
6. UL 228 Door Holders for Fire Protective Signaling Systems.
7. UL 464 Audible Signaling Appliances.
8. UL 1638 Visual Signaling Appliances.
9. UL 38 Manually Activated Signaling Boxes.
10. UL 346 Waterflow Indicators for Fire Protective Signaling Systems.
11. UL 1971 Standard for Signaling Devices for the Hearing Impaired
12. UL 1481 Power Supplies for Fire Protective Signaling Systems.
13. UL 1711 Amplifiers for Fire Protective Signaling Systems.
14. UUKL The Fire Alarm system shall be UUKL for Smoke Control.

C. This installation shall comply with:

1. Americans with Disabilities Act (ADA)
2. National Electric Code, Article 760 with NYC Amendments.
3. National Fire Protection Association Standards: NFPA72
4. Local and State Building Codes and the Local Authorities Having Jurisdiction.
5. International Standards Organization (ISO): ISO-9001
6. The latest provisions of and amendments to Local Law No. 5, Local Law No. 16 and Local Law No. 58 of the City of New York.
7. All power and wire requirements shall follow the NYC Electrical Code Chapter 4000 (RS17-3 and RS17-3A).
8. Local Law 33 of 2007 (Chapter 9, Chapter 30, Mechanical Code, Appendix K & Q) and other sections as they apply.
9. Utilize MEA / BSA Approved Fire Alarm Equipment
10. The requirements of the City of New York Building Department and the City of New York Fire Department.

1.3 WORK INCLUDED

A. The work covered by this Section of the Specification shall include all labor, equipment, materials and services to furnish and install a complete fire alarm system of the addressable, non-coded type. It shall be complete with all necessary hardware, software and memory specifically tailored for this installation. It shall be possible to permanently modify the software on site by using a plug-in programmer. The system shall consist of, but not be limited to, the following:

1. Fire Alarm Control Panel.
2. Addressable manual fire alarm stations.
3. Addressable analog area smoke detectors.
4. Addressable analog duct smoke detectors.
5. Addressable analog heat detectors.
6. Magnetic door\card access release override control.
7. Audible notification appliances - horns.
8. Visual notification appliances - strobes.
9. Central station alarm connection control.
10. Air handling systems shutdown control.
11. Magnetic door holder release.
12. Sprinkler supervisory switches and tamper switch supervision.
13. Battery standby.
14. ALL NYC Fire Alarm peripherals (listed as such but as required by FDNY to meet Local Law 33 Requirements), such as code cards, placards, riser diagram, necessary switches, LED's, clock, fire sign, manual central office trip, Fuse Disconnects, and FDNY approved locks shall be included in the system price. A common ground shall be included in the power riser.

1.4 SUBMITTALS

A. Provide list of all types of equipment and components provided. This shall be incorporated as part of a Table of Contents, which will also indicate the manufacturer's part number, the description of the part, and the part number of the manufacturer's product datasheet on which the information can be found.

B. Provide description of operation of the system (Sequence of Operation), similar to that provided in Part 2 of this Section of the Specifications, to include any and all exceptions, variances or substitutions listed. Any such exceptions, variances or substitutions that were not listed at the time of bid and are identified in the submittal, shall be grounds for immediate disapproval without comment. The sequence of operation shall be project specific, and shall provide individual sequences for every type of alarm, supervisory, or trouble condition that may occur as part of normal or off-normal system use.

C. Provide manufacturer's printed product data, catalog cuts and description of any special installation procedures. Poorly photocopied and/or illegible product data sheets shall not be acceptable and shall be rejected. All product datasheets shall be highlighted or stamped with arrows to indicate the specific components being submitted for approval.

D. Provide manufacturer's installation instruction manual for specified system.

E. Provide samples of various items when requested.

F. Provide copy of NYS License to perform such work.

G. Provide copies of NICET Level II Fire Alarm certifications for the two (2) technicians assigned to this project.

H. Provide shop drawings as follows:
1. Coversheet with project name, address and drawing index.
2. General notes drawing with peripheral device backbox size information, part numbers, device mounting height information, and the names, addresses, point of contact, and telephone numbers of all contract project team members.
3. Device riser diagram that individually depicts all control panels, annunciators, addressable devices, and notification appliances. Shall include a specific, proposed point descriptor above each addressable device. Shall include a specific, discrete point address that shall correspond to addresses depicted on the device layout floor plans. Drawing shall provide wire specifications, and wire tags shown on all conductors depicted on the riser diagram. All circuits shall have designations that shall correspond with those require on the control panel and floor plan drawings. End-of-line resistors (and values) shall be depicted.
4. Control panel termination drawing(s). Shall depict internal component placement and all internal and field termination points. Drawing shall provide a detail indicating where conduit penetrations shall be made, so as to avoid conflicts with internally mounted batteries. For each additional data gathering panel, a separate control panel drawing shall be provided, which clearly indicated the designation, service and location of the control enclosure. End-of-line resistors (and values) shall be depicted.
5. See section 3.04 Demonstration and Training for other documents relating to this section.

6. Device typical wiring diagram drawing(s) shall be provided which depict all system components, and their respective field wiring termination points. Wire type, gauge, and jacket shall also be indicated. When an addressable module is used in multiple configurations for monitoring or controlling various types of equipment, different device typical diagrams shall be provided. End-of-line resistors (and values) shall be depicted.
7. Device layout floor plans shall be created for every area served by the fire alarm system. CAD Files (AutoCAD – latest edition) shall be provided by the consulting engineer for the fire alarm system equipment vendor in the preparation of the floor plans. Floor plans shall indicate accurate locations for all control and peripheral devices. Drawings shall be NO LESS THAN 1/8 INCH SCALE. All addressable devices shall be depicted with a discrete address that corresponds with that indicated on the Riser Diagram. All notification appliances shall also be provided with a circuit address that corresponds to that depicted on the Riser Diagram. If individual floors need to be segmented to accommodate the 1/8" scale requirements, KEY PLANS and BREAK-LINES shall be provided on the plans in an orderly and professional manner. End-of-line resistors (and values) shall be depicted.
8. Contained in the title block of each drawing shall be symbol legends with device counts, wire tag legends, circuit schedules for all addressable and notification appliance circuits, the project name/address, and a drawing description which corresponds to that indicated in the drawing index on the coversheet drawing. A section of each drawing title block shall be reserved for revision numbers and notes. The initial submission shall be Revision 0, with Revision A, B, or C as project modifications require.
9. Battery calculations shall be provided on a per power supply/charger basis. These calculations shall clearly indicate the quantity of devices, the device part numbers, the supervisory current draw, the alarm current draw, totals for all categories, and the calculated battery requirements. Battery calculations shall also reflect all control panel component, and auxiliary relay current draws.
10. Table of contents, product data sheets, sequences of operation, battery calculations, installation instructions, licenses, NICET certifications and B-Size (blackline) reduced shop drawings shall be provided by the fire alarm vendor as part of a single, spiral bound submittal book. The submittal book shall have laminated covers indicating the project address, SED number, system type, and contractor. The book shall consist of labeled dividers, and shall not exceed 9 ½" in width, and 11 ½" in height. No less than three (3) sets of submittal booklets shall be provided to the consulting engineer for review and comment. Additional copies may be required at no additional cost to the City of New York.

1.5 RELATED DOCUMENTS

A. Secure permits and approvals prior to installation.

B. Prior to commencement and after completion of work notify Authorities Having Jurisdiction.

C. Submit letter of approval for installation before requesting acceptance of system.

1.6 RELATED WORK

A. The Contractor shall coordinate work in this Section with all related trades. Work and/or equipment provided in other Sections and related to the fire alarm system shall include, but not be limited to:

1. Sprinkler waterflow and supervisory switches shall be furnished and installed by the fire protection contractor, but wired and connected by the electrical contractor. Modification of existing sprinkler devices to accommodate monitoring by the new fire alarm system shall be the responsibility of the fire alarm system installing contractor.
2. Duct smoke detectors shall be furnished, wired and connected by the electrical contractor. The HVAC contractor shall furnish necessary duct opening to install the duct smoke detectors.
3. New air handling fan control circuits and status contacts to be furnished by the HVAC control equipment.
4. Conduit: Section 26 05 33.
5. Wire and Cables: Section 26 05 19.
6. Installing dedicated outgoing RJ-31X telephone lines (2) shall be the responsibility of the Installing Electrical Contractor. Establishment of central station monitoring account shall be the responsibility of the fire alarm equipment vendor.
7. Elevator Recall control circuits to be provided by the electrical contractor to coordinate with the existing elevator.

1.7 CONTRACTOR'S GUARANTEE.

A. All work performed and all material and equipment furnished under this contract shall be free from defects and shall remain so for a period of at least one (1) year from the date of acceptance or approval.. The full cost of maintenance, labor and materials required to correct any defect during this one year period shall be included in the submittal.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Basis of Design: The catalog numbers used are those of the fire alarm manufacturer Edwards Systems Technology EST "or equal", and constitute the type and quality of equipment to be furnished.

B. If equipment of another manufacturer is to be submitted for approval as equal, the contractor shall, at the time of bid, list all exceptions taken to these Specifications, all variances from these Specifications and all substitutions of operating capabilities or equipment called for in these Specifications and forward said list to the Commissioner. Any such exceptions, variances or substitutions that were not listed at the time of bid and are identified in the submittal, shall be grounds for immediate disapproval without comment. Final determination of compliance with these Specifications shall rest with the Commissioner, who, at his discretion, may require proof of performance

C. All products used shall be of a single manufacturer. Submission of notification appliances, auxiliary relays, or documentation from other than a single manufacturer shall not be acceptable and will be grounds for immediate disapproval without comment.

D. The Fire Alarm / Life Safety System supplied under this specification shall be a microprocessor-based. All Control Panel Assemblies and connected Field Appliances shall be both designed and manufactured by the same company, and shall be tested and cross-listed as compatible to ensure that a fully functioning Life Safety System is designed and installed.

2.2 CIRCUITING GUIDELINES

A. Each Signaling Line Circuit (SLC) shall be circuited so device loading is not to exceed 80% of loop capacity in order to leave for space for future devices. The loop shall have Class B operation. T-Tapping a selected loop to cover an alternate floor shall not be accepted.

B. NAC Circuits shall have Class B operation. Each of the following types of alarm notification appliances shall be circuited as shown on the drawings but shall be typically as follows:

1. Audible Signals: Provide sufficient spare capacity to assure that the addition of five (5) audible devices can be supported without the need for addition control components (power supplies, signal circuit modules, amplifiers, batteries, etc.)

2. Visual Signals Provide sufficient spare capacity to assure that the addition of three (3) visual devices can be supported without the need for addition control components (power supplies, signal circuit modules, batteries, etc.

C. Each of the following types of devices or equipment shall be provided with supervised circuits as shown on the drawings but shall be typically as follows:

1. Sprinkler Valve Supervisory Switches: Provide one (1) supervisory module circuit for each sprinkler valve supervisory switch.

2. When waterflow and tamper switches exist at the same location, provide one (1) dual input addressable module. When odd numbers of devices exist at a single location, provide additional single input addressable modules.

D. Provide a dedicated 24VDC circuit to feed all auxiliary relays required for inductive loads. Circuits shall be supervised via an end-of-line relay and addressable input module. Auxiliary relays shall not derive their power from the starter or load being controlled.

E. Each control panel shall have a dedicated 20Amp-120VAC feed. An appropriate fuse disconnect shall be included, wired as indicated in the Building Code for the City of NY.

2.3 FIRE ALARM SYSTEM SEQUENCE OF OPERATION

A. The system shall identify any off normal condition and log each condition into the system database as an event.

1. The system shall automatically display on the control panel Liquid Crystal Display the first event of the highest priority by type. The priorities and types shall be alarm, supervisory, trouble, and monitor.

2. The system shall have a Queue operation, and shall not require event acknowledgment by the system operator. The system shall have a labeled color coded indicator for each type of event; alarm - red, supervisory - yellow, trouble - yellow, monitor - yellow. When an unseen event exists for a given type, the indicator shall be lit.

3. For each event, the display shall include the current time, the total number of events, the type of event, the time the event occurred and up to a 42 character custom user description.

B. Operation of any manual fire alarm station (EST SIGA-270) or alarm activation of any area smoke detect/sensor (SIGA-PS), duct smoke detect/sensor (SIGA-DH), shall automatically

1. Update the control/display as described above (A.1.)

2. Sound a pulsing audible signal and flash the general alarm LED indicator at the FACP. Pressing the alarm acknowledge key on the FACP shall silence the audible signal and continuously light the LED, during the alarm condition. Subsequent alarm conditions shall resound the audible signal and again flash the LED. Each alarm condition must be individually acknowledged.

3. Display a general alarm indication and system status summary (numbers of alarm, supervisory and/or trouble conditions) on the FACP alphanumeric, liquid crystal display (LCD). The LCD Display shall automatically display the device/circuit type and the custom 42-character message without any operator intervention.

4. Enter the custom label for the device or circuit reporting the alarm condition with the time and date of alarm activation into the FACP historical alarm log for future recall/review.

5. Visually annunciate the alarm-initiating device via an individual or "group" alarm indicator.

6. Display a general alarm indication and system status summary (numbers of alarm, supervisory and /or trouble conditions) on the remote annunciator panels(s) alphanumeric, liquid crystal display (LED). The LCD shall automatically display the device type and custom 42-character display without operator intervention.

7. Sound the appropriate Temporal 3 alarm code on all horns throughout the space. Activation of a smoke or heat detector shall also continuously sound the smoke/heat alarm bell at the FACP. The smoke/heat alarm bells may be silenced by operation of the FACP signal silence switch.

8. Flash all alarm strobe lights throughout the space. The alarm strobe lights may be turned off during the alarm condition by operation of the FACP alarm silence switch. Subsequent alarm conditions shall again turn on the alarm strobe lights.

The alarm strobe lights shall be inhibited from being turned off for a period of one/three/five (1/3/5) minutes after commencing operation.

9. Each alarm strobe light circuit shall be provided with a synchronized flash module, at the FACP, so that all alarm strobe lights connected to any single alarm strobe light circuit shall flash at the same time at a rate of one (1) flash per second.

10. Flash all alarm strobe lights. Subsequent alarm condition shall again turn on the alarm strobe lights. The alarm strobe lights shall be inhibited from being turned off for a period of five (5) minutes after commencing operation.

11. Operate control relay contacts to shutdown all air handling systems that serve the space and close any smoke dampers related to those systems. Air handling systems shall not be permitted to restart to normal operation from the simple operation of the system reset switch. A separate air handling systems restart switch shall be provided on the FACP to permit air handling systems to be restarted after the fire alarm system has been reset to normal.

12. Operate control relay contact to initiate the transmission of an alarm indication by type of alarm condition (manual alarm, or smoke/heat alarm) to a central station agency via telephone lines. Selection of a central station agency, its equipment, its fees and fees for telephone line usage are the responsibility of the Owner or his representative.

C. Activation of a sprinkler supervisory initiating device shall:

1. Update the control/display as described above (A.1.)
2. Transmit a supervisory condition, via the integral central station communicator, to central station/Local Fire.

D. The entire fire alarm system wiring shall be electrically supervised to automatically detect and report trouble conditions to the fire alarm control panel. Any opens, grounds or disarrangement of system wiring and shorts across alarm signaling wiring shall automatically:

1. Update the control/display as described above (A.1.)
2. Transmit a trouble condition, via the integral central station communicator, to central station/Local Fire Department.

2.4 GUARANTEE

A. THE END-USER SHALL RETAIN COMPLETE RIGHTS AND OWNERSHIP TO ALL SOFTWARE RUNNING IN THE SYSTEM. The fire alarm equipment vendor shall provide useable hard and soft copies of the software database to the End-User at the end of the warranty period. The database provided shall be useable by any authorized and certified distributor of the product line, and shall include all applicable passwords necessary for total and unrestricted use and modification of the database. The Consulting Engineer shall define the extent of hardcopy database documentation to be provided.

2.5 UL LISTED AND APPROVED EQUIPMENT

A. Fire Alarm Control Panel Requirements:

1. Basis of Design: The fire alarm control panel and all system devices (horn-strobes, strobes, pull stations, smoke and heat detectors, etc. shall be Edwards Systems Technology (EST) by type EST3 or IO series (or approved equal). All under one label "UL listed and approved" for the use of fire alarm systems in this area of the United States of America. The operating controls shall be located behind locked door with viewing window. All control modules shall be labeled, and all zone locations shall be identified.

B. System Controllers

1. The main controller CPU shall be supervised, site programmable, and of modular design supporting up to 125 detectors and 125 remote modules per addressable Signaling line Circuit (SLC).

C. The Main Controller Module shall control and monitor all local or remote peripherals. It shall support a large 80 character LCD, power supply, remote LCD and zone display annunciators, printers, and support communication interface standard protocol (CSI) devices such as color computer annunciators and color graphic displays.

D. The system shall support distributed processor intelligent detectors with the following operational attributes; integral multiple differential sensors, automatic device mapping, electronic addressing, environmental compensation, pre-alarm, dirty detector identification, automatic day/night sensitivity adjustment, normal/alarm LEDs, relay bases, sounder bases and isolator bases.

F. The system shall support 100% of all remote devices in alarm and provide support for a 100% compliment of detector isolator base.

G. The battery shall be sized to support the system for 24 hours of supervisory and trouble signal current plus general alarm for 15 minutes.

2.6 COMPONENTS HORN/STROBES:

A. Temporal Horn Strobes Basis of Design: G1RF-HDVM Series: Provide EST Series G1RF-HDVM or approved equal low profile wall mount horn/strobes at the locations shown on the drawings. The horn/strobe shall provide an audible output of 84.4 dBA at 10 ft at the high setting and for smaller room size locations (as indicated on the plans) a low dB setting (field selectable) of 79.4 dB at 10 ft. when measured in reverberation room per UL-464. Strobes shall provide synchronized flash outputs. The strobe output shall be as indicated on the drawings in one of the following field selectable intensity levels*; 15/75, 15cd, 30cd, 75cd & 110cd devices. The horn shall have a selectable steady or synchronized temporal output. Low profile horn/strobes shall mount in a North American 1-gang box or surface mounted on a matching back box provided by the manufacturer, as directed in the field.

1. The fire alarm vendor may select below 75 candela where allowed by the appropriate release of ADA. 15/75 strobes may be used in corridors and in locations where 15 candela is required per NFPA wall and ceiling tables (see NFPA 72).

B. Temporal Horn Basis of Design: G1RF-HD: Provide EST Series G1RF-HD low profile wall mount horn or approved equal at the locations shown on the drawings. The horn shall provide an audible output of 84.4 dBA at 10 ft at the high setting and for smaller room size locations (as indicated on the plans) a low dB setting (field selectable) of 79.4 dB at 10 ft. when measured in reverberation room per UL-464. The horn shall have a selectable steady or synchronized temporal output. Low profile horn shall mount in a North American 1-gang box or surface mounted on a matching back box provided by the manufacturer, as directed in the field.

C. Fuse Disconnect Switch: The Contractor shall provide an individual cartridge fused Disconnect Switch with two (2) poles and a removable, solid copper, neutral bar in fuse gap for the FCS, booster power supplies and other fire alarm equipment. Fused disconnects shall be provided with silver sand fuses, current limiting type with an interrupting capacity rating of 200,000 amps (r.m.s. symmetrical). The size of the fuses shall be sized appropriately but shall be thirty (20) amperes minimum. The fused disconnect shall bear an engraved white-core phenolic or bakelite identification nameplate stating in minimum one-quarter inch (1/4") high white letters on a red background "FIRE ALARM FUSED DISCONNECT SWITCH". A three (3) wire feeder shall bring single phase 120/208 volt service to the fused Disconnect. The feeder shall be tapped off the main building service ahead of the main service switch but after the Current Transformers (Metering Transformers).

PART 3- EXECUTION

3.1 INSTALLATION

A. The entire system shall be installed in a workmanlike manner, in accordance with approved manufacturer's wiring diagram. The contractor shall furnish all conduit, wiring, outlet boxes, junction boxes, cabinets and similar devices necessary for the complete installation. All wiring shall be of the type recommended by the manufacturer, approved by the local Fire Department, and specified within. All conduit and wire shall meet the requirements of the latest NYC Building Code.

B. All penetration of floor slabs and firewalls shall be sleeved (1" conduit minimum) fire stopped in accordance with all local fire codes.

C. End of Line Resistors shall be furnished as required for mounting as directed by the manufacturer. Devices containing end-of-line resistors shall be appropriately labeled. Devices should be labeled so removal of the device is not required to identify the EOL device.

D. All manual pull stations shall be mounted 48 inches above the finished floor, as measured to the handle.

E. All audio/visual devices shall be mounted 80 inches above the finished floor, as measured to the lens. Devices shall be mounted no less than 6 inches from the ceiling. Audio visual devices shall be mounted per NFPA 72.

F. No area smoke detectors shall be mounted within 36 inches of any HVAC supply, return air register or lighting fixture.

G. No area smoke or heat detector shall be mounted within 12 inches of any wall. All detectors shall be installed in strict accordance with NFPA 72 as amended in Appendix Q guidelines for such devices.

H. All mechanical rooms, boiler rooms, wiring closets, custodian rooms, attic spaces, etc. or areas with no hung ceilings shall be piped with 3/4" conduit and installed as necessary per NYC Building Code. All areas in public view shall be in metal conduit. All boxes must be painted red and labeled "INTERIOR FIRE ALARM".

I. All addressable modules shall be mounted within 36 inches of the monitored or controlled point of termination. This shall include, but is not necessarily limited to, fan shutdown, elevator recall, shunt trip, sprinkler status points, or door release. Label all addressable modules as to their function.

J. New door holders shall derive their 24VAC/VDC power from a separate power supply housed in a dedicated, metal enclosure. The power supply shall have a 120VAC feed, and is to be centrally located to serve door holders on a per floor or area basis. All existing door holders shall be connected to new FACP. E.C. shall extend all existing wiring in order to make this work. Locations and quantities of door holder power supplies shall be referenced and submitted in the submission package for approval by the Consulting Engineer.

K. All low voltage wiring terminated to the fire alarm system shall be PLENUM RATED with no exceptions and no less than No. 12 AWG in size for NAC circuits and 16 AWG for Initiating Circuits, and solid copper per RS17-3. Exposed wire above 8ft AFF shall be 150 degrees C and as specified in the NYC Building Code.

L. All line voltage (120VAC) wiring shall be no less than No. 12 AWG in size, and solid copper. This shall include all system grounding. FACP must have a DEDICATED fuse disconnect switch arranged per NYC code.

M. All wiring shall be color-coded throughout, to National Electrical Code standards.

N. Power-limited/Non-power-limited NEC wiring standards SHALL BE OBSERVED.

O. All junction box covers shall be painted red and labeled INTERIOR FIRE ALARM SYSTEM.

P. Fire alarm system wiring shall not co-mingle with any other system wiring in the facility. Conduits shall not be shared under any circumstance. Only when fire alarm wiring enters the enclosure of a monitored or controlled system will co-habitation be permitted (i.e. at fan starters or elevator controllers).

Q. Fire alarm control panel enclosures shall have engraved labels indicating, "INTERIOR FIRE ALARM SYSTEM", and the areas of the building served by that panel.

R. Auxiliary relays shall be appropriately labeled to indicate "FIRE ALARM SYSTEM" and their specific function (i.e. FAN S-1 SHUTDOWN).

S. All fire alarm wiring shall be continuous and unspliced. Terminations shall only occur at fire alarm devices or control panel enclosures under terminal screws. All other splicing methods are specifically disallowed (i.e. plastic wirenuts).

T. All fire alarm wiring shall be installed using a dedicated system of supports (i.e. bridle rings). Fire alarm wiring shall not be bundled or strapped to existing conduit, pipe or wire in the facility.

U. All fire alarm wiring shall be sleeved when passing through any wall, using conduit sleeves (1" min.) with bushings, and fire stopped in accordance with Code.

V. The system shall be arranged to receive power from one three wire 120 Vac, 20 A supply. All low voltage operation shall be provided from the fire alarm control panel.

W. All fire alarm devices shall be accessible for periodic maintenance. Should a device location indicated on the Contract Drawings not meet this requirement, it shall be the responsibility of the installing contractor to bring it, in writing, to the attention of the Commissioner. Failure to bring such issues to the attention of the Commissioner shall be the exclusive liability of the installing Electrical Contractor.

X. The installing Electrical Contractor shall be responsible for the removal of ENTIRE existing fire alarm system components and controls on the demolition drawing shown or not, upon approval of the AHJ and the Consulting Engineer. The End-User reserves the right to retain any existing fire alarm system components, upon their request. All existing fire alarm system components requiring special handling for disposal (due to radioactivity) shall be the responsibility of the installing contractor. Written proof of proper disposal by the installing contractor shall be required prior to release of outstanding retainage.

Y. The installing contractor shall be responsible for the cleaning of all smoke detectors prior to final acceptance.

3.2 FIELD QUALITY CONTROL

A. See DDC General conditions.

B. The system shall be installed and fully tested under the supervision of a trained manufacturer's representative. The system shall be demonstrated to perform all of the function as specified.

C. The installing contractor or fire alarm equipment vendor shall have no less than two (2) NICET Level II fire alarm technicians dedicated to this project.

D. The Installing Contract and the Fire Alarm System Vendor shall, upon the request of the Consulting Engineer or End-User, attend any and all project meetings for the purpose of accurately determining progress.

E. It shall be the responsibility of the installing contractor to assure that construction debris does not adversely affect any sensing devices installed as part of this project. Should it be deemed necessary by the Consulting Engineer, End-User or AHJ, the installing contractor shall be responsible for the cleaning of all smoke detectors prior to final acceptance.

3.3 TESTS

A. The fire alarm system vendor shall test the system in accordance with the manufacturer's requirements and NFPA 72 as amended by the NYC Building Code. The vendor shall provide completed reports to the Consulting Engineer for review and approval prior to final acceptance.

B. Each individual system operation on a circuit by circuit basis shall be tested for its complete operation. The procedure for testing the entire fire alarm system shall be set forth with the consent of the code enforcement official, the Engineer and the manufacturer.

3.4 DEMONSTRATION AND TRAINING

A. The contractor shall compile and provide to the Commissioner three (3) complete manual on the completed system to include SITE SPECIFIC operating and maintenance instruction, catalog cuts of all equipment and components, as-built wiring diagrams and a manufacturer's suggested spare parts list.

B. In addition to the above manuals, the Electrical Contractor shall provide the services of the manufacturer's trained representative for two (2) separate calendar days for a period of four (4) hours per day to instruct the Commissioner on the operation and maintenance of the entire system.

C. As-built drawings shall consist of the following:

1. Complete revision of all previously submitted drawings
2. Point-to-point depiction of all device wiring on the device layout floor plans.
3. One (1) set of B-size, laminated as-built drawings.
4. Two (2) sets of 30"x42"inch 1\16"=1' scale drawings showing all points of fire alarm. One set shall be submitted with the close-out documents. Second set shall be mounted in frame with a lexan cover. These drawings must be submitted to project Engineer or approval.

D. Turnover of all software database hard/soft copies shall be required. This shall include all possible programming software logs, diskettes or CDs containing exported project files, hard copies of all device maps, the revision number of the version of programming utility used, and all required passwords. The turnover of all database information shall occur prior to the end of the One (1) warranty period (or period as amended earlier in this specification).

END OF SECTION

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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**
CONTRACT NO. 2	**PLUMBING WORK**
CONTRACT NO. 3	**HVAC + FIRE PROTECTION WORK**
CONTRACT NO. 4	**ELECTRICAL WORK**

Renovation of the Irish Repertory Theater

LOCATION: **132 West 22nd Street**
BOROUGH: **New York, NY 10011**
CITY OF NEW YORK

Contractor

Dated _____ , 20____

Entered in the Comptroller's Office

First Assistant Bookkeeper

Dated _____ , 20____